I'm not robot	reCAPTCHA

Continue

152319113199 4309602.1343284 33431577762 38132718693 257845132 52535539796 64314674706 21382011.242424 167286757.09091 176593205310 30983821.301887 32816799450 15118805.328947 125168861960 12027261177 152364313900

```
. We will create a disk mirror between sdb and sdc. This is called discontinuous transmission (DTX), and simple issues like this are easily avoided with user training. You also have to consider the requirements for specific drivers and applications. 384 Glossary . TCP You'll come across plenty of literature that states that
TCP is a "connection-oriented reliable protocol." Great. Identify and prioritize critical IT systems and data. Periodic fire drills are a must! Smoke detectors used in data centers are much more sensitive than those you would use in the home. SANs are not specifically related to cloud
computing. In the enterprise, troubleshooting can involve poor performance. double data rate (DDR) Refers to memory chips; data is transmitted on the rise and fall of a timing signal. Verify that Charlie has authenticated to the server first. Select the iSCSI virtual disk, and then look under iSCSI Targets and take note of the target IQN, shown in the
following illustration; you'll need this in a few steps. What type of malware encrypts data files and demands payment before providing a decryption key? iSCSI initiators consume disk space over the network from iSCSI targets. Capacity is the size of the drive. (Source: CompTIA Employer Perceptions of IT Training and Certification.) Universal Skills
CompTIA certifications are vendor neutral—which means that certified professionals can proficiently work with an extensive variety of hardware and software found in most organizations. Which term correctly identifies your firewall? A network broadcast attack is taking place. Some enterprise networks don't encrypt internal network traffic, but
many threats can cause havoc within a network. Then what? Top-level domains include suffixes such as .com, .edu, .net, and others. What makes this solution attractive is its price tag, and it gets the job done. You might use one rack to accommodate servers and another to accommodate storage arrays. If the problem exists on hundreds or thousands
of switches, many technicians might be required to solve the problem quickly, or, where possible, an automation script might be used. MAC A. Edison plugs are more rounded than NEMA plugs, but like NEMA, Edisons have three prongs. Remote Authentication Dial-In User Service (RADIUS) A protocol that provides authentication, authorization,
and accounting management to users who use a network service. To this day, it continues to evolve and is common in server environments. SATA is common on the server side. 246 Chapter Review . Server Roles Servers are deployed to offer services that provide some kind of business value
to an organization. Caution Uninterruptible power supplies (UPS) are heavy! As with other heavy items, use proper lifting techniques to avoid injury: lift with legs, not your back. Figure 8-7 Taking a snapshot of a VMware virtual machine CompTIA Server+ Certification All-in-One Exam Guide 320 Other than virtual machines, snapshots can also
apply to disk volumes, entire storage arrays, logical unit numbers (LUNs), hypervisors, and databases; they are often used in SAN environments, where they're called storage snapshots. Null modem cables are used to link modem devices directly together. On the left, click CD/DVD, and on the right, click Use ISO Image File. DDR Double data rate
(DDR) memory increases data transfer rates to and from memory, compared to single data rate (SDR); it's all based on timing. When you test the theory and it proves to be effective in removal of the issue, you need to develop a plan of action. B and C are incorrect. Click Install Now. Which Windows command shows DHCP lease information? Modern
projectors support Wi-Fi, so they can be discovered on the network—but, again, there's not a huge threat here. The wording on signage can be important for legal reasons: you don't want parties claiming they didn't know they were being watched and that their privacy rights have been violated. UPS systems enables servers to shut down properly
instead of abruptly, which can corrupt open files. Layer 7 C. Layer 3 switches add routing capabilities. The Teredo server must reside on the IPv4 Internet. If you're lucky, you'll be able to rebuild affected systems quickly from images and backup—but it's not always that easy. Then click Next. Some servers will accept only double data rate 3 (DDR3)
memory, others use DDR4, and so on. Most bare metal Figure 8-8 Windows Server 2012 bare metal backup option Chapter 8: Preparing for the Worst 321 tools use recovery points, which are essentially snapshots of changes at various points in time. power supply unit (PSU) A computer component that transforms AC power supplied by the
power company to lower voltage DC power for internal components. Configure servers and their IT workloads. Samba enables Linux clients to contact Windows SMB shared resources. False positives D. Imagine a network problem created by switch VLANs that have been incorrectly implemented in a large data center. In an attempt to save disk
space, Sean wants to store multiple Windows Server 2012 images in a single .WIM file. USB A. Server hardware normally supports RAID integrated on the motherboard; otherwise software RAID within the operating system can be used. • Full • Differential • Incremental • Snapshot • Bare metal • Are backups being performed over slow network
links? Network Optimization In addition to getting faster network equipment (switches, routers, NICs) or Internet connections, you can improve network to list server components that contain the word "backup." Notice that the Windows Server Backup component is not
installed (no X in the box). Disk mirroring is not used to replicate data between sites. Monitor servers and their IT workloads. Government laws and regulations in some parts of the world require that specific disk scrubbing solutions be used to ensure there are no data remnants. Click Software Selection and choose Server With A GUI. Type 2 C. If you
were to store those five images in a single .WIM, the total consumed disk space might be only 25GB. Your organization's ISP provides the company with a single network address of 200.200.1.0/24. 12 Troubleshooting . Stacey needs access to budget files stored on a file server in a folder called Budgets. Some network software will allow you to
specify the port number that it listens on while others will not. If prompted when you start Wireshark, click the network activity). From the taskbar, start PowerShell; this is the second icon to the right of the Start button. PXE booting makes it possible to boot from a
NIC to retrieve a small operating system from a boot server that runs locally in server RAM. malware Malicious software such as a virus, worm, and spyware. Unimode C. Figure 6-17 Windows BitLocker settings CompTIA Server+ Certification All-in-One Exam Guide 240 The certificate contains a unique public and private key pair for the user that
is employed for EFS encryption and decryption. This saves technicians from having to configure IP settings manually on each and every device. Careful arrangement of equipment can allow for optimal airflow, and ensuring adequate temperature and humidity control goes a long way toward ensuring that hardware runs at peak efficiency and has the
longest life possible. Identify federation strives to provide a single centralized identity store. • Disable unused accounts. You are configuring firewall ACLs. You need to ensure that NTP traffic is allowed through. Virtual is not a server form factor. 268 Software Problems and Solutions . • Identify and prioritize assets. 1.75-inch B. Depending on the
media, you might get from 200 to 1000 writes before the media needs to be replaced. Click Next on the Welcome to the New Zone Wizard. have to acquire rail kits. The Virtual Machine File System (VMFS) is specific to VMware. Our focus will be on operating system virtualization. Other Linux distributions might first require a package to be installed
before file encryption is possible. 187 UDP . Figure A-3 Windows Server 2012 R2 download web page CompTIA Server+ Certification All-in-One Exam Guide 346 Figure A-4 Red Hat Enterprise Linux 7.1 download web page Lab Exercise Miscellany When installing both the Windows and Linux operating systems in VMware Workstation during
the lab exercises, you'll be prompted to specify a password. When routing cables around corners, make sure you don't exceed the cable bend radius, which determines the degree to which you can bend a cable without damaging the wires inside it. Certified technicians follow proper procedures when replacing failed components such as Fibre Channel
HBAs or motherboards. For example, either you can change the date and time on a server, or you cannot. The server is mounted into rails on a server rack. Click the green plus sign at the top of the screen to add monitored items. • Conduct periodic BCP drills. Depending on your environment, you may not need or use a print server; instead, client
devices can be configured to print directly to network-based printers, but this lack of centralized management control can prove challenging on a larger network. What should the technician do next? This requires an additional IP configuration because the server OS does not have to be running. Cable Labeling Most people like spaghetti, but not in
server rooms. Exercise 4-2: Use the Red Hat Enterprise Linux 7 iSCSI Initiator to Connect to an iSCSI Target 1. Either way, rights and permissions can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users, groups, or roles, or they can be assigned to users.
enables IPv6 networks to communicate over the IPv4 Internet; routers in both locations must support IPv6 on their internal interfaces. You'll find more about UPSs in Chapter 8. Study4Exam helps you to remove these doubts with 3 formats of its CompTIA SK0-004 exam preparation. Enter 145GB as the size and click Next. The maximum amount of
tolerable downtime D. The internal network for a company might use a different DNS domain name such as mheducation.local. Cloud Backup Security The first security consideration is how to connect to the cloud provider's data center. Most UPSs express their power ratings in either kilowatts (kW) or volt-amperes (VA). Server replication solutions
include commonly used tools such as Windows DFSR and rsync, which can run on Windows and Linux platforms. eFAT B. • Read questions and all answers thoroughly. Troubleshooting steps: 1. MAC 19. He enjoys spending time with his spouse, Stacey; children, Roman, Trinity, Raylee, Anastasia, and
Zoey; and the family dogs, Dori and Bailey. Add a check mark to Active Directory Certificate Services. You may want to keep the following hardware and software tools handy when troubleshooting server and network hardware issues: • Multimeter to test power supplies • Hardware diagnostic tools for memory (seen in Figure 7-5), RAID controllers,
disks, motherboards, expansion cards • Can of compressed air for removing dust • Antistatic wrist straps and ESD mats • Tool for testing bad RAM chips Software issues. Multimeters can be used to verify that the correct voltage is delivered
from power supplies to components. xvii Acknowledgments . You should see the "Source" as being one of the pool.ntp.org servers. 284 Too Much Running . Notice all of the captured network packets. Figure 3-2 shows the Add Roles and Features Wizard that is used to add roles to a Windows server. VLAN spanning tree is not a type of VLAN
attack. Permissions inheritance can be altered by clicking the Disable Inheritance button—you get to this screen by right-clicking a file or folder and choosing Properties, click the Advanced button. Adobe Reader, or Adobe Digital Editions is required to view the file on your computer. Multiple DNS servers
can be used for high availability and better performance. Inches C. What term is used to refer to a host with at least two network interfaces? Or a client desktop might require a unique PKI certificate before being given access to a restricted web site. Linux server administrators can use the chmod command to work with file system permissions. AAAA
8. ipconfig /all D. public key authentication Authentication Authentication Authentication Authentication Authentication Active that determines the quality of metallic cables by observing reflected waveforms. Chapter 7: Troubleshooting and Performance Optimization 267
From a consulting perspective, the problem isn't solved until the customer is satisfied. Hardware for the hypervisor must be planned relative to the virtual machines and their workloads that it will host. Most servers these days use network storage, so the power consumption in this case would apply to the storage enclosure itself and not the server
Notice the Network Adapter on the left. These days, all of this can be automated and is readily accessible for small, medium, and large enterprises. 144 Hands-on Exercises . • Determine whether alternate sites will be used. From the Start menu, type perfmon.exe and press enter to start Performance Monitor. Once OS and application software is
installed, patched, and configured, data is required. POP uses TCP port 110, SNMP is UDP 161, and IMAP is TCP 143. UDP 161 is for SNMP, TCP 161 and 123 are not normally used. Bear in mind that SSDs draw less power than traditional spinning hard disks. Prior to WINS servers becoming common, each Microsoft system used a local text file
called lmhosts to resolve NetBIOS computer names to IP addresses. Monitoring Monitoring the performance of servers is an ongoing task. If a server fails, users get redirected to the network service on a running server. • Log forwarding is possible using Windows Event Log Forwarding and Linux syslog forwarding. In the packet header section,
expand the Ethernet II header. To run, the screen resolution must be set to 1024 × 768 or higher. Type ipconfig /all to verify the DNS server being used by the interfaces is 127.0.0.1, as shown in the following illustration. 31 Memory . The mathematically related private key is stored on the administrator's workstation. • Satisfy the end user. Disk
space capacity A, C. So a device with a MAC address of 90-48-9A-11-BD-6F could be configured to be in VLAN1. Choose Create A New Virtual Disk, and click Next. Microsoft AD DS, or simply AD, is LDAP-compliant. This chapter focuses on how to troubleshoot a wide variety of issues to get people productive as quickly as possible. 165 Cable Types
fe80 is a valid IPv6 link-local address prefix. CompTIA Server+ Certification All-in-One Exam Guide 248 22. Which statement regarding software iSCSI initiators is true? Windows Server 2012 R2 NIC teaming reference. 351 Virtualization . Cable management arms contain server cables and fold out when the server is slid out on rails. plug-and-
play (PnP) A device that can be automatically discovered and used when installed while the computer is still powered on. Check the obvious! With regard to the scope issue, once you begin to formulate a theory of probable cause, you might find that this symptom occurs on other servers or devices, too. Rack-mounted C. This is done with the TCP
three-way handshake. He later realizes the interswitch connection is not working. 335 Appendix A About the Hands-on Exercises and Lab Set-up . The same type of activity takes place on the other end of the connection, but instead it moves up the layers of the OSI model. The server role and number of clients it will serve dictate how much
horsepower is needed. Asynchronous replication includes a slight delay before data is written to alternate sites, and as a result this is less expensive than synchronous solutions. Create a DR plan for each IT service. From the list of operating systems to install, choose the second option, Windows Server 2012 R2 Standard Evaluation (Server with a
GUI), and then click Next. For instance, flawed firmware code could cause server operating system instability. Chapter 8: Preparing for the Worst 337 7. routetrace D. This file is viewable on your computer and many portable devices. Enter-PsSession -computername Server1 Get-Service You can interactively start a remote PowerShell session on a
remote host. The hit rate indicates that when the CPU needed instructions or data, it was retrieved from another slower location (such as finding data in L1 cache instead of from another slower location (such as finding data in L1 cache instead of L2). As users, we normally have a name, but we need the corresponding IP address (your computer needs an IP address, not a name), and this is
called a forward lookup. Host-based firewall Every device (including smartphones), where possible, should be running a host-based firewall to control inbound and outbound traffic for that device. Ensure that you are logged into Srv2012-1 with the Administrator account. exabyte One quintillion, or 1018, bytes. Hot sites stay up-to-date with
continuous data protection (CDP) replication between sites, so that data is accessible from the hot site should the primary site become inaccessible. For example, to display routes, you would type route print, as shown in Figure 7-14. As you configure three new server disk volumes, you are unsure as to how large each volume should be.
page for Red Hat Enterprise Linux. Imagine a data center with 1000 hypervisor operating systems, which, of course, will need updates on a continuous basis. Guest 20. PXE CompTIA Server management C. As an IT service consumer, you may have to adhere to certain rules, such as how servers are
used or what updates and software are allowed on servers. Well, for disk space our statement of wisdom will be, "If you make it available, it will be consumed." As storage capacity increases and becomes affordable, we seem to have a need to gobble it all up for storing movies, music collections, company data, operating system images, and so on. D D.
This means IPv6 has many more unique IP addresses compared to IPv4. tower server in an upright case that can stand alone. PowerShell will then return info about the DNS server, including the zones. The most common use is to allow internal hosts to gain Internet access where the source IP address for
outgoing transmissions is translated to the NAT router's public interface IP address. Administrators must assign the appropriate share and NTFS file system permissions to access; more on this in Chapter 6. A new web server is installed with an Intranet web site. Exercise 7-3: Use Windows PowerShell to
Retrieve Event Log Information 1. Packets destined for port 25 are not broadcast packets, nor are they DNS queries, which use UDP port 53, or web server requests, which would use TCP port 80 or 443. The Linux traceroute command shows information for each router crossed when communicating with remote hosts. On the right, right-click the
Contracts folder and choose Restore Previous Versions. hard disk drive (HDD) A magnetic data storage devices information on rigid, rotating platters. The idea is that edge devices (RADIUS clients) forward authentication requests from connecting devices and users (supplicants) before allowing network access. PXE B. AD is a replicated
network database that is synchronized between domain controllers (DCs). One benefit of VMFS is that it enables the live migration (moving) of virtual machines between VMware ESXi hosts with zero downtime. Web-based and desktop CompTIA SK0-004 practice exams are available to help you do self-assessment. If you like UNIX-style shells and
scripts, you'll feel right at home in OS X at a terminal prompt. Don't waste your time and concentrate on such learning content which is expected in the actual exam. Requirements for Hands-on Exercises You'll need VMware Workstation 10.x as well as the installation media for Windows Server 2012 R2 and Red Hat Enterprise Linux Server 7 to
follow along with the hands-on exercises in this book. You need to be familiar with server types and components, virtualization, IPv4 and IPv6 networking, cloud computing, operating systems, network storage, security, and troubleshooting. UNIX, Linux, and Windows can be used for most standard uses such as file servers, mail servers, and Directory
servers, but in some cases a line of business application will require a specific platform. Internal Windows server 192.168.1.200 Router public IP 200.1.1.1 PAT router 192.168.1.210:5678 - 200.1.1.1:3546 Internal Linux server 192.168.1.210 Figure 5-8 PAT router port table CompTIA Server+ Certification All-in
One Exam Guide 178 IP The Internet Protocol (IP) is a big deal. We talked about encrypting data as it gets transmitted over the network; here the focus is on protecting data when it's stored on media. The type of NIC and distance are not distinguishing differences between different copper cable categories. 191 Exercise 5-1: Manually Configure IPv6
on Windows Server 2012 R2 . CompTIA Server+ Certification All-in-One Exam Guide 234 VPNs A VPN provides an encrypted, secured connection to a target private network over an untrusted network such as the Internet. Other than acquiring additional network addresses, your only option is to subnet. From the VMware VM menu, choose
Settings. You will notice the inet6 listed address of 1:2:3:4::bcde. KVM D. thin provisioning Enables storage to be configured without knowing the size required. Change the size to 10 GB and click Next. Which items would be available at a warm site? The hypervisor itself has direct access to physical hardware, and it controls hardware resource
access between VMs. You'll hear this sometimes referred to as a bare-metal hypervisor. 383 Installing and Running Total Tester Premium Practice Exam Software . This isn't the case with other server form factors such as blade servers, however, although blades can use rack-mounted storage devices; the storage just isn't physically installed inside
the blade. HHDD is a fictitious acronym. Why? 146 Exercise 4-3: Configure Software RAID Using Windows Server 2012 R2 . chapter Security controls • Determine how to secure resource access • Identify best practices for hardening networks and servers • Learn how encryption protects
server data This chapter provides a great reference for technicians responsible for setting up security controls that protect not only servers, but the network addresses cannot be acquired. • Exam objectives for key study points. You may have
to enter a PIN to use a card, but it's still very easy to use. fe80::883b:ced4:63f3:f297 B. Peripheral Component Interconnect (PCI) A standard parallel-based bus that is used to attach hardware devices to a computer. NAT 13. Insufficient disk space B. Start Windows Explorer and verify that C:\Contracts has been restored. Near-field communication
(NFC) is a short-distance wireless standard used often by payment cards and terminals. chmod (change mode) is used to set Linux file system permissions. CompTIA Server+ Certification All-in-One Exam Guide 336 3. Which factor enables up-to-date hot site data? But how many bits of the 8 must you use to address three additional subnets? Figure 8-
5 shows the backup feature available with the Windows Server 2012 R2 operating system. If someone can execute the script, it will run with the permissions of whoever the file owner is (find this out by typing ls -l). straight-through cable The type of cable used when RJ-45 connectors at each end have the same pinout; normally used to connect
computing devices to network switches. Most of today's organizations have additional data backup options including cloud backup solutions, although some types of data might be restricted from this type of backup. Directory Services A directory service is a network database containing network-related objects such as users, computers, and groups
Printing these values on small stickers or cable labels makes your life much easier when you're tracing cables and troubleshooting. NTFS and VMFS are file systems that are not required for network storage. This backup type takes the least amount of time but takes the most time to restore. Servers offer some kind of a service to clients over the
network, such as a web server offering a web site to a client's web browser. DAS refers to direct-attached, or local server, storage. LC C. To decrypt files, the user's private key (from their PKI certificate) reveals the FEK, which in turn decrypts the blocks of data. Choose Use The Following IP Address and enter 200.1.1.1. Ensure the Subnet Mask is
set to 255.255.255.0 and the Preferred DNS Server is set to 127.0.0.1. Click OK and then Close. . High RTO C. When subnetting, all affected devices use the same new subnet mask. Full and copy backups are the quickest to restore since only a single backup set is needed. Windows begins copying files. This aligns with SLA guarantees in this context.
Blade house B. As with applying permissions to any resource, groups are normally used. The following example synchronizes the /budgets/2016 folder from a server named server to a local folder called /incoming/rsync. Host-based firewall runs as software on a specific host. On the Software Updates screen, deselect Check For
Product Updates On Startup, and then click Next. Our bodies and clothing can build up a static charge, especially in a low-humidity environment. Instead of a subnet mask, IPv6 terminology favors "network prefix," and it is expressed in Classless Inter-Domain Routing (CIDR) format, such as /64, shown in Figure 5-10. MDM tasks include of a subnet mask, IPv6 terminology favors "network prefix," and it is expressed in Classless Inter-Domain Routing (CIDR) format, such as /64, shown in Figure 5-10. MDM tasks include of a subnet mask, IPv6 terminology favors "network prefix," and it is expressed in Classless Inter-Domain Routing (CIDR) format, such as /64, shown in Figure 5-10. MDM tasks include of the figure 5-10 in the figure 5-1
deployment • Update deployment • Device configuration policies • Device partitioning Administrators can remotely wipe lost or stolen smartphones to protect sensitive data and apps, as shown in Figure 6-20. Right-click the Contract_A file and choose Copy. customer replaceable units (CRUs) Components provided under warranty by a vendor that
get installed by the customer. RAID 1 • Uses disk mirroring • Requires at least two disks • Data written to a disk partition on one disk is also written to a disk partition on a different disk • Can use only 50 percent of your disk space • Tolerates a disk failure • Does not replace backups CompTIA Server + Certification All-in-One Exam Guide 140 RAID 1
- Disk Mirroring Data in its entirety is written to two separate disks. mail exchanger (MX) record A resource record in DNS that specifies a mail server responsible for a specific domain. Restores using incremental backups means restoring the last full backup and each incremental backup to the point of failure. Add one hot spare to the RAID 5
Single-mode fiber is often used over longer distances and is more expensive than multi-mode. Click Next twice. You can use an exam voucher if you have one; otherwise, the cost is USD $285. Bare metal B. 359 1.2 Given a scenario, install, configure and maintain server components . Password, PIN CompTIA Server+ Certification All-in-One Exam
Guide 252 5. IDS/IPS Use intrusion detection and prevention solutions on networks and hosts where appropriate. What role does a default gateway perform in an IPv4/IPv6 environment? Add a second network adapter for the server 15. 83 Installing a Type 1 Hypervisor . Notice the IP address information listed for the Internal and External NAT
devices appear to be coming from the same Internet IP address. This is the most common type of main system memory. Copy C. managed-pki-service Cloud-based managed PKI service. Assess risk A. 363 2.5 Explain the importance of asset management and documentation . To prevent similar problems in the future, remember that the key
question is, "Why?" The following list offers a sense of how to deal with root cause analysis: • Why did machines get infected with malware? This enables remote server access even over the Internet, and it can enable hardware. Open the Alert Action tab and check the
logging option. Enter get-eventlog system. This type of address has an FE80 network prefix, and it's used by IPv6 to discover network devices and router network devices and router network prefixes using multicast transmissions. Some equipment (notably telecommunications) reduces voltage (-48 volts) for the proper functioning of integrated circuits (ICs). 248 Logical Accesses
          . PTR C. Hot Site A hot site is an alternate location that can actively continue business operations at a moment's notice when the primary site becomes unavailable. PCI full-height cards take more space than the related lower profile cards, and depending on the server case and motherboard form factors, a full-height card might not fit
properly. DNS server root hints allow for Internet name resolution. Then put preventative measures in place to ensure that the same issue doesn't occur again. Multihomed C. IPSec can encrypt and sign network transmissions and can also be used with IPv4. You can then select Practice Mode, Exam Mode, or Custom Mode. Use a separate VLAN for
iSCSI. A disk write to one disk is duplicated on another disk. Filters are created to determine which type of messages are forwarded to other hosts. Once your theory is determined to be a viable resolution to the problem, formulate the appropriate steps to be taken in the production environment. multifactor authentication (MFA) A method of
computer access authentication that relies on at least two of the following: something you know, something you know, something you know, something you have, or something you know, someth
with a regular (nonroot) user account, you'll have to precede the command instructions in this lab with sudo followed by a space. Disaster recovery (DR) and business continuity relate to matters such as • Determining the impact of interruptions • Duplication (removing single points of failure) • Data backup • Alternate locations to
resume business operations. You can't prevent all adverse situations, but you can minimize the unfavorable impacts against server and business operations. RJ-11 connectors are used with telephone cables. An incorrect subnet mask, default gateway, or DNS server won't matter if the station is using a 169.254 address prefix. 246 Exercise 6-7: Enable
Encrypted Communication on a Windows IIS Web Server . Warm D. The Snort command line or configuration file specifies output log file locations for alert messages. Table C-1 Server Installation Best Practices Virtualization Virtual servers can run on-premises or in the public cloud. Being a server expert is much different today from what it was
in the 1990s, and that's going back only 20 or so years! If you've been working in IT for a while, you might agree that there was a time when • We could know everything about a server operating system. L1 cache is high-speed memory that is used by the CPU to fetch instructions and/or data quickly that has already been accessed. For example, when
provisioning virtual machines in the cloud, we can opt for better performance by choosing a higher disk IOPS value. Chapter 6: Security 213 Figure 6-2 Mapping an LDAP attribute to an outgoing claim Exam Tip Watch out for questions that reference multifactor authentication, and make sure the methods are from different authentication
categories. For cloud-computing consumers, additional storage can be provisioned in seconds with the click of a mouse. Backup frequency Your company may have a very low tolerance for downtime and data loss. Follow these steps to install the product: 1. 6to4 An IPv6 transition technology that allows IPv6 traffic over the IPv4 Internet. 347 B
CompTIA Server+ Certification All-in-One Exam Guide 348 🗫 IPv6 transition technologies. Exercise 3-6: Install the Red Hat Enterprise Linux 7 Operating System 1. 265 Establish a Plan of Action . 360 1.3 Compare and contrast power and cooling components . It generally handles buses or interfaces that do not need direct access to the CPU or
that do not need much bandwidth, such as PCI. On the Specify Destination Type screen, choose Back Up To A Volume. Windows servers allow two DHCP hosts to replicate DHCP configuration and lease data between each other. The operating system has not been updated. Deep Packet Inspection In addition to basic firewall packet filtering (IP
addresses, port numbers, protocol types), deep packet inspection (DPI) is a given with networkbased firewalls. Digital Linear Tape (DLT) The industry standard for tape backup media, DLT is often used for long-term archiving. There are a few theories: • We have 10 digits on our two hands. Initiators and targets do not have to reside on the same
subnet. The machine must be configured with a private IPv4 address. This exercise does not actually install the Linux operating system; it just gets the virtual hardware configured for use in later exercise. Select C:\ and then click the Settings button. Chapter 5 dives into the DHCP packet exchange between DHCP clients and servers. 443 CompTIA
Server+ Certification All-in-One Exam Guide 202 Questions and Answers 1. Uncheck the option for changing the password at next logon and then Finish. NIC teaming B. The private key is sensitive and must not be shared with other parties. 10 Hardening . Also called 10GBase-T. Repeat steps 4-6 in this exercise, except enter
fdisk with /dev/sdc instead of /dev/sdb. Then click Create and Close. Collectively, some technicians will refer to all of the buses as simply "the bus." The bus speed (usually expressed in megahertz, or MHz) is different from the internal CPU speed, and it does determine how quickly data gets to and from certain areas of the system. Configure BIOS disk
striping. The commands ipconfig in Windows and ifconfig in Linux do not show routing table information, and ip route show is a Linux command. Hardware Requirements To facilitate the installation and configuration of the Windows and Linux command. Hardware Requirements To facilitate the installation and configuration of the Windows and Linux command.
CompTIA Server+ Certification All-in-One Exam Guide 208 19. But what if the server hangs and doesn't respond? Given an IP address, a DNS server can also perform Root Cause Analysis . 83 Server Administration Methods . RAID controllers CompTIA Server+ Certification All-in-One Exam Guide
62 B. 244 Exercise 6-4: Use EFS to Encrypt Files in Windows . This can become tricky when you rely on other parties to provide accurate information about the problem. Tape media normally contains sensitive information about the problem.
centers have doors on the front and back that can be locked; this controls physical access to the fronts and backs of rack-mounted equipment. Linux is already installed (it had to have worked somehow at some point for the installation to complete); the quick and simple solutions is to disable UEFI Secure Boot. • Solution: Block personal USB device
use. Note Not only do motherboards have BIOS settings, but expansion cards, such as disk RAID controllers, have BIOS settings, too. Command line tools provide a way for you to automate repetitive tasks by creating scripts containing the relevant commands. CAT7 Category 7 copper-wire network cabling that is designed to support up to 10
Gbps; uses individual wire pair shielding, which makes it useful in environments with high electromagnetic interference (EMI). • Ensure that you have access to two or more disks either locally or over a storage network. KVM or over
IP. CompTIA Server+ Certification All-in-One Exam Guide 356 Details to Consider Why It Is Relevant Mobile device is lost or stolen. The PAT router uses a unique source port number from the internal sending machine to track external
connections and their responses. Whether you are applying an image or installation. Your VPN requires multifactor authentication. There are also tools available to measure where your current disk space is being used to aid in planning future storage
capacity. They are the successors to WEP. Storage Problems and Solutions Physical storage device and cable issues can sometimes be the source of problems. Firewalls regulate traffic into and out of networks and individual hosts. UEFI A. SANs are local server storage and NAS is not. Routers are Layer 3 (the network layer) devices. Right
click the Internal adapter and choose Properties. The more stuff you have installed and running, the greater the likelihood of something going wrong. Again, it sounds like it could be a network issue, but if other users can access that same resource, we know that's not the case. Wi-Fi is not short-range and is not used by payment systems; neither is
4G, a cellular data network standard. ABS is not a valid term in this context. Flash drives are SSDs with no mechanical parts—everything is electronic. ISATAP C. Imagine a mission-critical database server running in a virtual machine that no longer boots. Save the file as c:\budgets\ budgets\ budget
automated using an XML answer file created with the Windows System Image Manager (SIM) tool. This also holds true for firmware updates for motherboard BIOS/UEFI, printer firmware, and so on. Another MBR option is to create three primary partitions and one extended partition in which you can then create multiple logical
drives, but this is rare these days. encryption Scrambling of data. Web Server Web servers use the HyperText Transfer Protocol (HTTP) or its secured variant (HTTPS) to present content to a web browser. Are the storage disks located inside the server itself, or are they accessible over an enterprise network? Enter cd /backup. TCP A. This level of
access is not needed and violates the principle of least privilege. You can see the actuator arm extended over the hard disk platter in Figure 4-1. Review the BCP with the BCP team. This will bring up the network interface. To uninstall the Total Tester
program. There are two general types of fiber-optic cabling: single-mode and multi-mode. 226 Security Zones . In reality, the stronger flow of electrons is of concern for personal safety and to CompTIA Server+ Certification All-in-One Exam Guide 42 prevent damage to equipment, but the good news is there are preventative measures we can take
ESD can be controlled in a number of ways: • ESD strap (bracelet) Connect the alligator clip to the computer chassis. Malware B. Although the role of a server (the centralized serving of content and services to concurrent users over a network) hasn't changed much over the decades, the scale of clients demanding quick and reliable access, the
amount of data processed, as well as how servers are implemented, have changed. xix Chapter 1 Introduction.local and hr.mheducation.local and hr.m
wonder its popularity has soared! Note Throughout this book you will learn about not only Windows Server operating systems, but also Red Hat Enterprise Linux, in both physical and virtual environments. GPT is a newer, 64-bit standard for initializing disk space that supports many very large partitions (the values vary depending on the operating
system and file system used). VLANs can be configured within network switches to group machine is not communicate often with one another into smaller networks. The machine is not configured within network switches to group machines that communicate often with one another into smaller networks. The machine is not configured within network switches to group machines that communicate often with one another into smaller networks. The machine is not configured within network switches to group machines that communicate often with one another into smaller networks.
Roles The type of workload handled by a server must be planned before server installation, and in some cases, these roles can be co-located on the same server. Client ports and channels are used for network services to transmit data back to clients, and the values are always above 1024. The testing center will also take a picture of you for your exam
digital security certificates issued to users, devices, or services for the purposes of security. DVD D. 44 Air Flow . Select the Contracts folder. ReFS is a newer file system corruption. Enables servers to perform graceful shutdowns B. A virtual
machine deployed on-premises or in the cloud can use virtual machine images (or templates), which allow easy server deployment in mere minutes. cipher Questions and Answers 1. Also called OSI Layer 7 inspection. Higher salaries in mere minutes cipher Questions and Answers 1.
open to new multi-industry opportunities. The Linux UID bit runs a script as the owner, not the invoker. Your network uses four Ethernet switches linked together to interconnect 80 computers. Server room racks might not be fully populated with devices, and remember that vented rack blanking panels can be used to control airflow. D. For questions are the control airflow.
about book content, e-mail [email protected] For customers outside the United States, e-mail [email protected] glossary 1-phase power Designed for moderate power requirements, this is normally used in households. A full rack can weigh hundreds of pounds; floors must be able to support these loads properly. PCI is rated between 133 and 800
MBps, depending on 32- or 64-bit and the frequency used. Chapter 8: Preparing for the Worst 323 Cloud Backup Over the last few years, individuals as well as organizations have begun trusting public cloud providers with their data. Set the sampling interval to every 15 minutes. You can find this information by searching the Internet, by visiting the
vendor's web site, or by capturing network traffic related to a specific device type during DHCP transmissions. 250 Questions . A time-domain reflectometer (TDR) is used to measure the continuity of electronic signals through circuit board (PCB) with
server blades that connect on one side (the front) and other components accessible on the other side (the back). Breaking large networks into smaller ones makes network transmissions much more efficient and essentially speeds up the network. GPT provides up to 128 disk partitions compared to MBR's maximum of 4. VMware Workstation 10
running on your physical Windows Server 2012 R2 Windows Server 2012 R2 Windows Server 2012 R2 Windows Server 2012 R2 Windows The
Windows Server operating system is widely used around the world in numerous industries. UDP 3389 is not normally used. Notice you can also schedule reports. But isn't that the same as a USB drive? Logical Access Control Users can be placed into groups or roles, which are granted permissions to resources. Click the Scope tab. 19. 65
Infrastructure Roles . RAID is used to squeeze more disk I/O performance (multiple disks reading and writing instead of just one) and to provide fault tolerance (disks that will fail). Out-of-band administration provides hardware-level remote access to a host without relying on the OS software running. This is solved by adding a new trusted
certificate signer to the web browser device. You can also flag certain questions for review; an item review some or all of your answers before ending the exam. Believe it or not, June 6, 2012, was World IPv6 Launch day. NAS can come in the form of a hardware appliance, such as the
Dell device shown in Figure 4-5—essentially a disk enclosure with wired and wireless network connectivity Figure 4-4 Accessing cloud storage from an Android smartphone CompTIA Server+ Certification All-in-One Exam Guide 130 Figure 4-5

PowerVault NX3200 NAS device, Courtesy of Dell Inc. Enter get-eventlog system -entrytype warning
more. "Single" doesn't mean it can't be replicated to multiple servers. You switch to different servers to manage them locally. Choose Use The Following IP Address and control methods to administer a server . Note
There is no IPv5; IPv6 is newer than the 1970s-era IPv4, although IPv6 has yet to be widely adopted within the enterprise. SSH is used to manage any device securely and remotely with an SSH listener. 329 Disaster Recovery Plan . Ventilation C. IDS and IPS solutions can run on a specific host or on the network to view all network traffic, if placed
properly. 197 Questions . Click Next and then Finish. Tower servers take up the most space. This means the hypervisor does not have direct access to hardware; the u nderlying operating system does. "Scrubbing" in this context means making it as difficult as possible to retrieve data previously stored on the media. About the Technical Editor S.
Chapter 4: Storage 159 9. CompTIA Server+ Certification All-in-One Exam Guide 48 Exercise 2-3: Create a Red Hat Enterprise Linux 7 Virtual Machine Configuration Make sure the lab setup instructions in Appendix A have been completed before attempting this exercise. Some BIOS firmware will briefly display a message telling you what to press
Windows computers use the Windows firewall (configured through the GUI or the command line), while UNIX and Linux systems can use command line tools such as iptables. firmware updates for network
infrastructure and network devices is crucial. Older office phone systems used private branch exchange (PBX) devices (or virtual machine appliances). • Faster CPU cores are, of course, preferred. • Reliability Is the offsite tape storage provider trustworthy? Type of expansion card B. How is data transmitted throughout a computer system? Power
Management and choose Generate Reports Now. Many organizations pay a small monthly stipend to employees to offset the cost of the devices. Type nslookup followed by www.fakezone.com, pressing enter after each command you type. Open the Projects folder. Payment cards normally encrypt wireless transmissions to the receiving terminal, and
these days that's done often using near-field communication (NFC). • Copies of log entries should be forwarded to a different host. Clients request the pages over TCP port 80 or 443 (HTTPS). com. You will see Primordial listed. This magnetic tape storage is used with tape backup and archiving systems and has been revised since its inception. 128
CompTIA Server+ Certification All-in-One Exam Guide x Direct-Attached Storage . How can this person know what servers are in place? All other trademarks of their respective owners. In the Windows Setup dialog box, accept the defaults and click Next. Routers look at IP addresses to determine the best way to get traffic to a
remote network efficiently. 245 Exercise 6-6: Use iptables to Set Firewall Rules in Linux . Server room and data center designs call for special construction and fire-suppression mechanisms not only to extinguish fires, but also to minimize damage to electrical equipment. Watts are used to measure units of power. DDR3 chips cannot be physically
plugged into DDR4 sockets. diskstat The Linux iostat command displays disk device read and write statistics. Which troubleshooting step involves questioning stakeholders? For example, the Microsoft Azure cloud uses Network Security Groups (NSGs) to control inbound and outbound traffic at the subnet, virtual machine, and virtual NIC (VNIC)
levels, as shown in Figure 6-12. 90 Asset Life Cycle . Chapter 7 is chock-full of tips and tools at our disposal. Notice that the default group permissions for the root group are set to r-x. 250 Hardening . Fdisk C. Of course, many vendors have their own proprietary management and monitoring tools. Hot and Cold Air Separation Separating hot and
cold air is achieved using hot and cold aisles. CompTIA Server+ Certification All-in-One Exam Guide 162 18. 802.1x B. Through which methods can on-premises servers? What purpose does a UPS serve? 8 Maintenance . You are planning the cabling for your company's data center. 19 inches C.
The IPv6 address prefix B. When you add the host name (FQDN) such as www.mheducation.com. CompTIA Server+ Certification All-in-One Exam Guide 256 4. UTP does not have a shielding layer so it is more susceptible to EMI produced from objects such as machinery in a
manufacturing plant. Layer 7 Chapter 6: Security 255 Questions and Answers 1. Some firewalls look only at IP addresses, port numbers, and protocol types, while others (OSI Layer 7 firewalls) perform deep packet inspection. Set the w32time service startup type to automatic by typing set-service w32time entoring plant.
to fit as many servers as possible within a finite amount of space, so increasing server density is possible using smaller server form factors. Disaster Recovery Plan A disaster recovery (DR) plan is used to bring failed systems online as quickly and efficiently as possible. www.wireshark.org Network protocol analyzer. If, over time, you didn't need all
of the storage, well, you paid for it all either way. Which features do NTFS file systems offer beyond FAT32 file systems? From the command prompt on a Windows computer, you use the ipconfig command to work with DHCP. Firewalls can be hardware- or software-based. 1. Enter-PSSession D. 321 On-premises Backup
includes applying firmware updates when they are available. Switch administrators can enforce strong port security, allowing connections from specific or a limited number of MAC addresses—and, of course, the latest firmware updates should always be applied to network equipment. The great thing about provisioning virtual server roles in the
public cloud (on provider equipment) is how quickly you can get servers up and running without an investment in hardware. Your on-premises storage enclosures) can be configured to replicate or back up to the cloud as well, so hybrid solutions are also possible. Write permission is not needed to run a script, and sudo is not required
to run a script. If you install Red Hat Enterprise Linux 7.1 as per the instruction in the lab exercise, the labs should run smoothly. Claire Yee, Jody McKenzie, and Poonam Bisht were the guiding lights as to what I should be doing, and when I should be doing it. Table C-3 will give you things to think about before jumping into a commitment with a
                                  operating system updates. Some disk I/O buses, such as some SCSI variants, required both ends of the bus to be terminated. Enter ProjectManagers for the name and click OK, disk mirroring Also called RAID 1, data written to one disk is also written to a second disk in case the first disk fails. Click Browse and selec
the Windows Server 2012 R2 trial ISO file downloaded, as per the instructions in Appendix A. Chapter 4: Storage 141 RAID 6 • Uses double parity RAID • Requires at least four disks • Data to be written to disk is broken into blocks (stripes) that are evenly written across the disk array • Stores two parity (error recovery) stripes on each disk • Never
stores parity and its related data on the same disk • Tolerates two disk failures • Can reconstruct in memory and on demand any data from failed disks RAID 10 • Uses RAID level 1, and then 0 • Uses RAID level 1, and then 0 • Uses RAID level 1, and then 0 • Uses disk mirroring followed by striping • Provides fault tolerance and performance • Requires at least four disks • Stripes data across mirrored pairs •
Tolerates multiple disk failures as long as they are not in the same mirrored pair • Is useful for busy (many reads/writes) databases Exam Tip You will be tested in some way on your RAID knowledge. 274 Windows Tools . A NIC team can be used for
communications redundancy in case one NIC fails. ESD D. Encryption and decryption are possible using the GUI as well as the cipher.exe command line tool. Routers have at least two interfaces to interconnect networks. And it is a very big deal when it comes to data centers, because hundreds or thousands of customers' data is stored in a data
center and is ideally replicated to other data centers for fault tolerance. Unlike DRAM, the information in memory does not need to be constantly refreshed. Given the Process Identifier (PID), the Linux kill command can terminate the process. The biggest problem with SSDs, at least at the time of this writing, is that larger capacity SSDs are more
expensive than the equivalent capacity magnetic hard disks. No, because it presents an electrocution risk and isn't needed. 12 Optimizing Performance . The application layer (7) is involved at this point. Certificates are issued from a trusted authority to users, devices, or services, and they can exist as files on a disk or settings located in a secured
storage location (such as the Windows Certificate Store), or they might be written to a smartcard. Command line tools include the following: • Diskpart.exe • Defrag.exe • PowerShell cmdlets Chapter 7: Troubleshooting and Performance Optimization 275 Storage Problem Possible Cause Possible Solution Slow file access • Failed RAID 5 array is
rebuilding data-ondemand in memory; can tolerate one disk failure in the array • Failure of RAID controller disk write cache or battery • Disk array contains mismatched drive speeds • Ensure that hot spare disks are always available • Consider using RAID 6, which can tolerate two simultaneous drive failures • Without write caching, RAID arrays
cannot gueue disk requests that cannot be services right away; replace faulty components • Disk arrays with both slow and fast disks will use the slower speed Data unavailable • Failed HBA • Ensure redundant SAN paths in case of HBA
or switch failure Failed backup • Failed backup • Ensure that extra backup media appropriately • Perform period restore drills to ensure that restores will not fail • Have at least two backups of
critical data in case a restore from one fails Unavailable drives • OS failure • RAID controller failure • RAID controller
Storage Issues and Solutions • View LED indicators and drive error lights to catch problems before they grow • Ensure redundant network paths to critical applications and data • Failed RAID controllers or disk devices can sometimes be resolved by replacing failed components and attempting to rebuild the array • Replace failed hardware
components • For Windows, run a disk scan to ensure the file system is not corrupt • For Linux and Windows, ensure that user permissions are configured correctly to enable users to mount local and network storage • Some OSs cannot properly read disk partitions created with other OS versions; use the correct partition type that is understandable
by the server OS CompTIA Server + Certification All-in-One Exam Guide 276 Newer Windows OSs (such as Windows Server 2012 R2) no longer include the old fdisk command line utility; it has been replaced with diskpart.exe. 193 Exercise 5-4: Use Wireshark to Capture and Analyze HTTP Traffic . Other hardware issues to watch
out for include the following: • Apply firmware patches. Exercise 4-3: Configure Software RAID Using Windows Server 2012 R2 This exercise demonstrates how two disk volumes can be thinly provisioned to use all available space in the storage pool. On the Shortcuts screen, click Next. Why can't user stations reach the Internet? File Transfer
Protocol (FTP) A network protocol used to transfer files between servers and clients on a network. CompTIA Server+ Certification All-in-One Exam Guide 214 Figure 6-3 Configuring the RSA SecurID software token When you use your debit chip card to pay for something, you're using a smartcard. 3 Buses and Slots . 94 Patch Management
Double-click the Contract A file and enter the following text in the file: Sample Contract Line One. 307 Data Replication . transfer rate The speed at which data can be transmitted from one device to another. You can use packet sniffing
(capturing) tools such as Wireshark to analyze packets on the network as well as bad packet checksums. Expand Transmission Control Protocol. Figure 5-8 illustrates how many internal IP addresses can get to the Internet using a single public IP addresses by tracking port numbers. NICs have a unique hardware, or MAC, address. geofencing A virtual
barrier of geographic boundaries created by a feature in a program using GPS. Microsoft data center video tour. Hot and warm replication do not exist. Chapter 7: Troubleshooting and Performance Optimization 305 19. The chmod command also has a -R command line switch that recursively applies permissions to a directory and everything in and
under it. Note To view real-time log file updates in Linux, use tail -f—for example, tail -f /var/log/messages. A and D are incorrect. Which Linux command reports each router strate to the communicating with a remote host? The Internet consists of thousands of interconnected routers (many more than this if you count personal wireless routers that
many homes tend to use). What type of configuration redirects users from a failed server to another running instance of a network service? Choose Yes to delete the file permanently. 232 VPNs . Racks and rack-mounted equipment are measured in Us, where 1U is 1 3/4 inches in height. 81 Server Installation . Server Form Factors The most
common form factors are tower, rack-mounted, and blade servers. Prioritizing the impact of failed systems or data inaccessibility is part of a BIA. 38 USB . Also ensure that the Srv2012-1 virtual machine is running. If you are not prompted, choose Capture | Interfaces, and then choose the interface that has packet activity. CompTIA Server+
Certification All-in-One Exam Guide 314 Cloud providers use site-to-site replication between their data center failure. management information base (MIB) A database of configuration settings and statistics present on most network devices; queries from
an SNMP management console. Disk volumes grow over time as needed. • Try to specify at least two DNS servers in case one becomes unavailable. EXT3 The Extended File System, a UNIX and Linux file system, a UNIX and Linux file system. www.ipv6forum.com IPv6 information. Bare metal D. 28. Continue through the wizard. RAID 0 is disk striping. Instead, SATA (Figure 4-
3) and Fibre Channel are the norm in server environments. Using a USB would mean technicians would have local boot media. Subnet IP Ranges Your first subnet address value is 32 and the next is 64. Blade servers slide into the blade enclosure. Reports can be run to ensure that updates have been successfully applied. CompTIA Server+
Certification All-in-One Exam Guide 50 Buses move data around in a computer system. Port Address Translation (PAT) An extension of NAT that enables the mapping of multiple internal IP addresses to a single public IP address. When it shows up in the search results, press enter. Single-mode fiber is often used for longer distances, while
multimode fiber is used for shorter distances. Install the certificates on each client. The server BIOS will have to be updated. Windows Server 2016 has a Nano Server installation option that doesn't even have a local command line interface, so remote management is a big deal! KVM With KVM—keyboard, video, mouse—instead of having a separate
display, keyboard, and mouse for each individual physical server, KMV switches connect the servers to a single display, keyboard, and mouse. 802.1x is an IEEE standard that defines port-level security mechanisms for devices connecting to a network. The ipconfig /all command shows network details, including whether DHCP is being used, and, if so,
the IP address of the DHCP server along with lease information. 383 System Requirements . Now if this happens, you need to remove the failed disk itself and replace it with a functional one—this is called hot-swapping. The first time a Windows user encrypts a file using EFS, a PKI security certificate is automatically generated if the user doesn't
already have one on the machine. Which port should you open on the firewall appliance? Data encryption can be applied to data in use, data in transit, and data at rest. Most rack systems are 19 inches wide, although they are available in wider formats such as 23 inches. 278 Name Resolution Issues . SSD 3.2 Given a scenario, configure RAID using
best practices • RAID levels and performance considerations • 0 • 1 • 5 • 6 • 10 • Software vs. DFSR D. Notice each disk volume in the list shows "Disabled" under the Next Run Time column. You will see the four virtual hard disks you created in an earlier lab. Watts C. Let's cover these steps in more detail. Chapter Review This chapter focused on
the proactive planning of how to deal with negative incidents when they occur. Figure 6-10 Configuring a VPN appliance as a trusted RADIUS client Chapter 6: Security 225 TACACS Terminal Access Controller Access-Control System (TACACS) and its newer variant TACACS+ are designed to handle frequent authorization requests within a session;
RADIUS is designed primarily for authentication at the beginning of a session. The IPv4 address is embedded within the IPv6 address. 802.11 13. 281 Too Few Permissions . Computers, however, don't do base 10—they do base 2, or binary, where everything is collections of 0's and 1's. If Group Policy is used heavily in your environment, it can be
helpful to get a complete report of all Group Policy Objects (GPOs) and their settings. CompTIA Server+ Certification All-in-One Exam Guide 258 10. Notice the Virtual Disk Status column now shows Connected. Enter iscsiadm --mode node --targetname the IQN_noted in Step_1 --portal 192.168.1.200 --login 5. 21. This writes a list of physical disks
and related information into a text file called diskinfo.txt. Chapter 2: Server Hardware 43 Caution Never, ever open up a PSU unless you are a qualified technician. half-duplex A system in which information can be both sent and received, but not at the same time. Notice (from step 5) the connected iSCSI disk and the name of it (for this example,
we will assume the name is sdd). This small server form factor (Figure 2-4) will most likely replace rack-mounted servers at some point. Clearly one way is to inventory servers 23 2 CompTIA Server+ Certification All-in-One Exam Guide 24 physically in server rooms or data centers, but larger enterprises will have automated solutions that inventory
physical and virtual servers and store the results in a database that be queried and reported on. SAS disks are designed to work 24/7 at high speeds and thus are well suited for servers. Interestingly, 64-bit PCI cards could be plugged into 32-bit PCI expansion slots and would still function, although at a slower rate. Multi-mode D. As long as the server
does not have to communicate with storage over some kind of network, it is DAS. Forward DNS lookups are the most common type of query, in which the client has a FQDN but needs the corresponding IP address. One great thing about this in the public cloud is elastically scaling the number of back-end servers as needed behind the NLB, such as in
response to increased demand. 287 Hardware Optimization . ZFS A file system and logical volume manager developed by Sun Microsystems and used by Solaris, OpenSolaris, and FreeBSD, among others. DDR4 Double data rate 4 memory; a type of dynamic RAM supported by some motherboards where speeds are faster than DDR3. For the
parent domain, enter domain1.local and click Next three times, and then click Finish. • Hardware • Hypervisors up and running • Dynamic Host Configuration Protocol (DHCP) and Domain Name Service (DNS) • Data replication between the two sites must be configured. From the Applications menu choose Utilities, Terminal. Server motherboards
normally require memory chips to be installed in pairs for efficient use by CPU sockets. Color-coded cables can also help. If it displays the web page, you may need to clear your IE browser history by pressing alt-t, and then choosing Delete Browsing History. DAS and SAN are separate terms that refer to exactly the same thing. If the components are
not functional, you'll get various beep codes or error numbers and messages, provided video is working. Most UNIX and Linux variants store log files in the /var directory. Your firewall can filter traffic based on MAC addresses. Accept the defaults on the Specify Recovery Options page and click Next. Enter Pa$$W0rd when prompted. Enforce periodic
password changes. Root cause analysis deals not with symptoms of problems, but with what caused the symptoms. Notice now that essentially only read and listing permissions are available. Telnet A protocol used to access a computer system remotely. There have been cases of bad sorting, which have, for example, resulted in sensitive Canadian
military personnel information being exposed—not a great salute for people who put their lives on the line for their country. Asynchronous replication to CompTIA Server+ Essentials 9 the web server—in other words, business
logic, such as a payment processing service for e-commerce transactions. Chapter 5: Network Concepts 195 1. Enter rm -rf /asia contracts to delete the folder and its contents. The number of questions, and the time allowed are intended to be an accurate representation of the exam environment. Tape Encryption Even with the
popularity of cloud backup solutions, tape is still widely used for data backup purposes. Think about it: Code that is in place before the OS boots and then has direct access to hardware. CompTIA Server+ Certification All-in-One Exam Guide 338 11. 179 When to Use Subnetting . • Check power issues. MBR C. To be fair, the open source LibreOffice
has had its share of vulnerabilities, often in the form of buffer overflows. Cloud Printing and Analyze HTTP Traffic This exercise can be completed from any Windows
computer that has access to the Internet, where the computer allows downloading and installing software from the Internet. CompTIA Server+ Certification All-in-One Exam Guide 94 Other Documentation protocols
such as Simple Mail Transfer Protocol (SMTP) and Domain Name Service (DNS) use different port numbers—TCP 25 and UDP 53, respectively. You notice that the server operating system can use only 2TB. Site-to-site VPNs require a VPN appliance at two different network sites. It is not needed because we are already at Srv2012-1 issuing the
command. Reduced Instruction Set Computing (RISC) refers to processors that are very efficient, in that they are designed to work with simpler and smaller instruction sets; today, this type of processor is often found in mobile devices. Each device that must communicate with devices on other networks must be configured with at least one default
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gateway IP address. Thin provisioning This enables disk volumes to grow as needed; disk space requirements cannot always be accurately predicted upon volume creation. Packet checksums are used to ensure that what is received is what was sent—and, if not, a retransmission might occur (which depends on the protocol being used). iSCSI makes

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storage accessible to hosts over a standard TCP/IP network on a small scale within a company. Out-of-band Remote Administration Physical and virtual servers must be accessible over the network for management purposes. When is the last time you burned a CD or DVD, or even a Blu-ray Disc? Avoid vendor lock-in. The less stuff running, the quicker
it is to patch, and the more secure your system is. Following is a sample list of DR priorities that will vary from one organization to the next: • Personnel safety • Critical database servers • Front-end applications (that use the back-end database
servers) The RTO is a big factor in determining what type of failures can be tolerated and for how long. Press ctrl-c to stop the pinging. • Stop buffer overflow attacks. Different backup types will set the archive bit accordingly, which is explained in the following sections. When this happens, requested data is rebuilt on demand from distributed parity
information on other disks in the array. Reinstall Linux. 211 Under Lock and Key . Why are server racks arranged in rows? 91 Service Level Agreements . The snapshots contain only changed disk blocks so they don't consume much space. Would you say, "It is a term to express 1000 bytes," or would you say, "It expresses 1024 bytes"? Scanning is
performed to gather information about a network. Business Impact An inventory of assets is needed before related threats can be identified. Open a terminal window. DDR4 modules transfer data more quickly than DDR2. Advanced Encryption Standard (AES)
in the cloud. CompTIA Server+ Certification All-in-One Exam Guide 44 Environmental Controls Too much heat is bad for electrical equipment and shortens its life, and not enough humidity increases the likelihood of ESD. Bare metal solutions need some kind of a boot device, whether it's USB or PXE network boot. A visiting guest who is expected to
enter a secured facility should be placed on an access list ahead of time so guards can refer to the list when the guest arrives and provides identification. On the left, click Change Adapter Settings. TCP 3389 A. www.iana.org/assignments/service-names-port-numbers.xhtml Service Name and Transport Protocol Port
Number Registry. The file will not be available in the Recycle Bin. Storage arrays are connected to FC switches. They are not drawbacks of heuristic host and imaging options. Troubleshooting We can apply the CompTIA troubleshooting we that it does not provide boot and imaging options. Troubleshooting we that it does not provide boot and imaging options.
well as to scenario-based CompTIA Server+ exam questions. Memory Random access memory (RAM) is the electronic volatile memory used by running programs; it needs electricity to retain data, unlike disk storage devices. Like DNS, client devices needing WINS must point to the IP address of one or more CompTIA Server+ Certification All-in-One
Exam Guide 72 WINS servers. 325 Exercise 8-1: Configure the Volume Shadow Service on Windows Server 2012 R2 . Enter Is /backup to ensure that the compressed tar file was created. L2 cache . The next fastest cache available to the CPU after L1 cache. In some rare cases, it might even be a configuration option within a network service or
application. 124 Hybrid Drives . • Ensure peak performance • Provide centralized monitoring and logging 5. A small sampling of the server-related body of knowledge includes the following: • Servers • Virtualization • Cloud computing • Storage • Networks • Security This book not only addresses the official CompTIA Server+ SK0-004 exam
objectives, but it also adds some tips and extra information that is relevant whether you work in a tiny server room or a large data center. How often should backups be performed? Ask when the problem began appearing, or if there were any recent changes—not only to the server itself, but to anything in its environment. 3.5-inch D. This is used to
measure racks and the devices that fit into them. Then click I Accept The License Agreement and click Bone. Clients discover domain controllers via DNS service location records. 11. On the far right in the Actions panel, click Backup Once. This exchange can damage sensitive electronic circuits and can be reduced with ESD wrist straps or mats.
Troubleshooting a server that isn't performing well takes much longer when you know nothing about how the server is configured. These commands will not be useful troubleshooting tools if host or network firewalls block ICMP traffic. So here is your valid IP address range for subnets 32, 64, and 96: • Subnet 32: 200.1.1.33-200.1.1.62 • Subnet 64:
153 3. 325 Exercise 8-2: Restore Previous Versions of Files in Windows . 289 Exercise 7-2: Explore Linux Performance Monitoring Tools . Port-scanning tools (such as the one shown in Figure 7-17) should be used periodically as a proactive measure to determine what ports are open on hosts. The CompTIA SK0-004 exam makes sure that
candidates really know what they're talking about, and that includes much more than just servers themselves. Not always. Groups The standard procedure for resource access in most of today's networks is as follows: 1. The ability to reproduce a problem and determine its scope are just a few considerations in quickly resolving issues. IPv4 and IPv6
addresses must fall on the correct subnet to function properly. The archive bit for files is cleared when a full backup is performed. How on Earth are you expected to know that? Data Backup Data replication technologies provide additional copies of data that are readily available, yet backups must still be performed as well. Click Next, then Create,
and then Close. Physical Destruction Organizational security policy, driven by laws or regulations, could require the physical destruction of storage media. Enter 10GB for the size and click Next. The RTO is not related to the maximum tolerable amount of failed services. On the router? The tracert command is a Windows command, and routetrace and
routetr are not valid commands. • Some VM workloads such as database servers with millions of records will need more RAM than a file-sharing host serving a small number of users. Type Fresh Installation - Server2 for the name and then click Take Snapshot. For example, you might change the boot order on your server to first boot from USB
(requiring a password of course!), and then local hard disk. PXE B, D. Asset Inventory Until the 1990s, there weren't many automated asset inventory options available for IT environments. One-phase power is designed for moderate power requirements, and it's what you'll find being used in most households. ipconfig B. SSL and the newer TLS
provide authentication and encryption for network services such as web sites. TCP 123 C. Chapter 3: Server Operating Systems 105 27. • Higher level software applies to Layer 6, the presentation layer • The establishment, maintenance, and termination of sessions apply to Layer 5,
the session layer • Port numbers apply to Layer 4, the transport layer • IP addresses apply to Layer 3, the network layer • Cables, connectors, and electrical specifications apply to Layer 1, the physical layer Cables and Connectors Groups of cables should be bundled together and routed in cable
channels in racks throughout server rooms and data centers. In technical jargon, the original IP packet is said to be "encapsulated" in a new IPSec packet. VLANs provide security by isolation network communications. When studying for this exam, always keep the following in mind: • What is the most efficient way of completing an IT configuration
task? This means more computing power while using less space than an SMP system. df B. GPT C. Although routers do not forward broadcasts, that is not the role of the IP default gateway from an IP perspective. 195 The OSI Model . Make sure that you don't have another virtualization product installed because it could interfere with the
installation or running of VMware Workstation. For example, laser printers draw a lot of power and really don't need power to shut down gracefully if the power goes out. Exercise 8-3: Configure and Use Windows Server Backup 1. In addition, other rsync variants work on the Windows platform. LUN masking/zoning You should limit which network
storage is visible to certain servers to avoid data corruption and data leakage. The end result is that the network service responds quickly. Operating System Hardening There's no reason why a HIDS or HIPS shouldn't be implemented on each and every server. Notice the default size is 60 GB. Fencing B. The mask can be expressed in decimal, such as
255.255.0.0, or in CIDR format, such as /16. CNAs combine FCoE and NIC functionality; each host needing access to network storage requires a CNA. 355 Appendix D CompTIA Server+ Certification Exam Objectives (SK0-004). DHCP provides centralized IP settings that DHCP clients can use. On a Windows server, ipconfig shows both IPv4 and IPv6
information. Hardware management solutions require a valid IP configuration so that the server can be accessed remotely. HOSTS file A file on network devices used to map hostnames to IP addresses. The IT industry will often refer to "Layer 3 switches," "Layer 7 firewalls," "Layer 2 addresses," and so on. The number of borrowed host bits is how
many bits you might need to use so that you can address your subnets—so it's a guessing game initially. There are plenty of network options for physical and virtual servers, and Table C-5 discusses them. Glossary 391 disaster recovery (DR) plan A plan that is specific to an IT system with a steppy-step procedure to recover an IT system as quickly
and efficiently as possible. High RTO 17. Close the GNOME help screen you may install the Total Tester Premium Practice Exams button. So the CAT5 network cable standard has more twists per inch than a CAT3 cable, which means CAT5
can transmit data at a much higher rate than CAT3. Dism /Append-Image /ImageFile:Z:\win10 images.wim /CaptureDir:C:\ /Name:win10 sales D. Installing a Server Operating System Whether you want to end up with a physical or virtual server OS, there isn't much difference in the actual OS installation itself. Take care when choosing a backup type
which can influence the amount of time taken to back up and restore data. This protocol maps to Layer 3 (the network layer) of the OSI model. Policy bus termination. Changing one item at a time is part of implementing the solution. Other items include the following: Disk I/O bus termination This protocol maps to Layer 3 (the network layer) of the OSI model.
network path to network storage • Insufficient disk space • Insufficient disk space • Insufficient user permissions to access storage • File system corruption • Slow file access • Incorrect use of RAID level Network Problems and Solutions Physical network components such as NIC, switches, routers, and wireless access points can fail. Always take precautions to minimize
ESD. 385 CompTIA Server+ Certification All-in-One Exam Guide 386 Advanced RISC Machine (ARM) A 32-bit and 64-bit multicore processor type used in small computing devices such as smartphones. CompTIA Server+ Certification All-in-One Exam Guide 340 17. Shut down your Srv2012-1 virtual machine: from the VM menu, choose Power, and
then choose Shut Down Guest. It's a flat structure; there's no hierarchy as we have in DNS. Collectively, this topology is referred to as a fabric. Updates can be applied manually or on a scheduled basis to a group of computers. v=ws.11). Chapter 1: Introduction to CompTIA Server+ Essentials 15 Questions 1. Not all components will fit into any
server. Proactive Maintenance At this point, you know that hardware and software inventory, patching, and various types of documentation can help ease server management over time, but there are other factors to consider as well. In some cases, cloud storage makes a lot of sense. In the Actions panel on the right, click Recover. AAAA DNS record
type that resolves FQDNs to IPv6 addresses. Enter fdisk /dev/sdd and press enter. Bridging is a Layer 2 mechanism for network segmentation that is based on MAC addresses. Queries for the IP address given a FQDN (such as www.fakesite.com) are received by the DNS server, and the IP address is returned to the query originator. OTDRs are
expensive devices that require expertise to use and to interpret results. Hot-swappable components can be replaced while a system is running. Keeping costs to a minimum, what type of network cabling should be used? DNS reverse lookup  Queries for the FQDN given the IP address are received by the DNS server and the FQDN is returned to these same received by the DNS reverse lookup.
query originator. CompTIA Server+ Certification All-in-One Exam Guide 108 Guests are virtual machines running on a hypervisor host, and each is configured with its own set of virtual hardware to accommodate its IT workloads properly. Exam Tip You might see at least one diagram-based question testing your knowledge of valid IP addresses,
subnet masks, and which router interface your default gateway configuration should point to. IMAP D. SVR Service record Used to locate a network service such as Microsoft Active Directory. Right-click User Defined and choose New, Data Collector Set. (You can multiply meters by 3 to get an approximation of the distance in feet.) Repeaters can be
placed at every 100 meters to extend the distance of the network. • Apply application software updates. Then click the Select A User link, enter user one, and click OK. The ideal way to minimize ESD would be to ensure that everything is at the voltage as earth ground, but not if it means we might get electrocuted! What's more important is that you,
the chassis, and the components are at the same electrical potential in terms of voltage. Multifactor authentication "categories"; in this case, something you know (username and password) and something you have (PKI certificate). Doing can sometimes sear concepts or configuration steps into our brains. • RDP
sessions are encrypted with an SSL certificate. You need to ensure that your cloud backup solution has guaranteed uptime. When the tool is displayed, click it. The 0 means that neither read, write, nor execute has been assigned to everybody else. Server Installation Hardware and software compatibility lists must be consulted before installing servers
to ensure the smooth installation and running of IT services. Higher end switches will have IP routing capabilities and are Layer 3 switches. You might remember the BetCRIS DDoS attacks in the 2003. Site-to-Site Keeping data synced between sites might be required by service providers and emergency-providing organizations, for example, and this
is a prime example of a primary and hot site. • Providers are usually obligated to notify clients of scheduled maintenance and downtime. For example, a change in a switch's VLAN configuration could affect user access to a server. This includes hands-on exercises and troubleshooting tips. You should see sda, sdb, and sdc. This can be done without
groups, but somebody must have filled in the user and device attributes in AD. 235 Hardware Hardening. Document the server configuration settings. GPT partitions are not limited to 2TB. Interfaces 1 and 2 each connect to a separate internal network switch where other network devices such as printers, desktops, and servers would be plugged
in. 330 Questions . 359 1.1 Explain the purpose and function of server form factors . hp.com/ca/en/produc t s/disk- storage/produc t s/disk- s/
133 Where Did All the Disk Space Go? . Enter some random text in the Notepad windows. Appendix A: About the Hands-on Exercises and Lab Set-up 345 Acquiring Windows and Linux Installation Media Since URLs change, you may need to use your favorite search engine to find these downloads; however, URL links are provided in the following
sections for convenience. On the LAN, MAC addresses (hardware addresses) are used. CompTIA Server+® Certification All-in-One Exam Guide (Exam SK0-004) Copyright © 2017 by McGraw-Hill Education. Examples include • VMware Workstation (Figure 3-9)
same time on one set of hardware requires careful planning. Static Charges An often overlooked aspect of environmental control includes electrostatic discharge (ESD) and fire suppression. From the Applications menu in the upper left, start a new terminal session. Within Server Manager, in the navigator on the left, click iSCSI. Disk-to-Disk RAID
level 1 (disk mirroring) writes a second copy of data to a disk that differs from the primary written copy of data. DR plans include step-by-step procedures to recover failed systems such as a missioncritical database. mantrap A room with two sets of interlocking doors; the first set of doors must be closed and locked before the second set will open to
allow a person through. Rollover cables are used for administrators to connect locally to network service in busy environments. The recovery point objective (RPO) indicates the maximum tolerable data loss and is related to
backup frequency. This role allows the creation of a PKI hierarchy. A physical multiprocessor system enables each virtual machine to be configured with multiple vCPUs, but more vCPUs doesn't necessarily mean better performance. He has also gained industry certifications in CompTIA Network+, CompTIA Security+, CompTIA Security+, CompTIA Network+, CompTI
Server+, MTA Windows Server Administration Fundamentals, Network Fundamentals, Network Fundamentals, Windows OS Fundamentals, Microsoft Office Specialist 2013 Master, Adobe Certified Expert Dreamweaver CS6, and Adobe Education Trainer. SSH B. Hardware and software remote control
solutions do nothing if we can't remotely communicate with the server in the first place. DNS D. In other cases, some hardware components may simply be incompatible with others; refer to documentation for more information. An administrator's public key is stored on the SSH host. RAID 0 B. RAID 1 can tolerate a single disk failure. UPS UPS
batteries are constantly charged from standard power wall outlets, so that in the event of a power outage, servers plugged into the UPS can at least shut down gracefully. Instead of WINS, client devices can point to a DNS server, where a zone literally called GlobalNames exists. www.speedtest.net Tests your Internet connection speed. Then click
View Effective Access. The reason is single-instance storage; multiple copies of files are stored only once, thus saving space. If you are not logged on as root, you may need to prefix the commands in the exercise with sudo to gain elevated privileges. • For multihomed (multiple network card) DHCP servers, configure DHCP bindings for the correct
network interface. Enter Pa$$w0rd for the DSRM password and click Next. Identify the Windows supported file systems. What permissions will Trinity have to a file in the Expenses folder? There is no /File, /Add-Image, or /CreateFrom switch for the dism command. Most modern network switches don't require crossover cables; they can automatically
detect whether a straight-through cable is being used and properly match the other end of the link. Enter iscsiadm --mode discovery --type sendtargets --portal 192.168.1.200 4. If you don't already have an account, you'll need to create one before you can download the software. CAT5e has more cable pair twists per inch and supports up to 1000
Mbps. So if your server motherboard supports DDR2 through DDR4 RAM chips, you should choose DDR4 for the best performance. Configure RAID 0 and create a file system. AAAA Forward lookup record FQDN is included in the query and an IPv6 address is returned. Select fakezone.com on the left, and notice the new A record for
www.fakezone.com. zombie net See botnet. Fiber-optic Cables Fiber-optic Cables Fiber-optic Cables transmit light instead of electrical signals, so they are not susceptible at all to EMI. Server placement • Dataflow diagrams Server involvement in the consider: • Network diagrams Server placement • Dataflow diagrams Server involvement in the consider: • Network diagrams Server placement • Dataflow diagrams Server involvement in the consider: • Network diagrams Server placement • Dataflow diagrams Server involvement in the consider: • Network diagrams Server placement • Dataflow diagrams Server involvement in the consider: • Network diagrams Server placement • Dataflow diagrams Server involvement in the consider: • Network diagrams Server placement • Dataflow diagrams Server involvement in the considering in the considering involvement involvement in the considering involvement involvement in the considering involvement in the considering involvement involvement involvement involvement in the considering involvement invo
dataflow • Baseline documentation Normal operations by checking log files. Clients query DNS SVR records to locate
services. Distance CompTIA Server+ Certification All-in-One Exam Guide 198 3. Since 32 identifies the subnet itself, you can't use 32 (200.1.1.32) as a host address. NIC teaming Combining multiple network cards together for redundancy or performance. Repeat steps 7-14 in this exercise, except enter Vdisk2 for the name of the virtual disk. Click
Yes. In VMware workstation, click Edit Virtual Machine Settings on the left side of the screen. Type df -h and notice free disk space on disk devices under the Avail column as well as the Use% column. For instance, unused switch ports should be disabled; switch ports should not allow numerous MAC addresses, which could indicate a VLAN MAC
flooding attack; remote Telnet administration should be disabled in favor of SSH; and so on. Trojans are a form of malware that appear to be benign but are malicious. KVM-over-IP switches are hardware appliances with centralized management and auditing tools. Leave the wbadmin screen open. From a security perspective, separate VLANs present
a simple security barrier. 39 Power . Network traffic, log files, and local operating system process execution are tracked for anomalies. The labs are designed to be performed sequentially from Chapter 8; failure to do them in order will cause confusion. • When encryption occurs Does it occur during or after backup? 134 Using
Less Disk Space . 385 Index . You may have to wait a few minutes as the snapshot is created. Take, for instance, the old IDE disk interface standard that was common in the 1980s and 1990s, which is no longer commonly used. Synchronous, without being discussed in a specific context, is not a backup type. guest A virtualized OS running on a
hypervisor host. • ESD footwear Containing resistors. Residential 15. CompTIA Server+ Certification Exam SK0-004 Official Exam Objective All-in-One Coverage Chapter No. 1.1 Explain the purpose and function of server Form Factors Server Form Factors Tower Servers Blade Servers 2 2 2 2
1.2 Given a scenario, install, configure and maintain server Components Server Components CPUs Memory Buses NICs RAID Controllers 2 2 2 2 1.0 Server Architecture (continued) CompTIA Server + Certification All-in-One Exam Guide xxii Official Exam Objective All-in-One Coverage Chapter No. 1.3 Compare and contrast power and cooling
components Power Environmental Controls 2 2 2.1 Install and configure server operating systems Server Installation Local vs. Username, PIN D. You have to ask yourself, "Self, what has changed since this last worked correctly?" You're more than likely going to encounter software rather than hardware issues in your IT career. Figure 2-5 shows a
basic BIOS configuration screen. Hard disks consist of read and write heads on mechanical arms that move over the spinning platters. Virtualized operating systems are known as guests. CAT5 B. The VPN appliance decrypts received traffic and sends it to the internal network. 6 Cables and Connectors . RAID 2 D. X.509 A standard that specifies
formats for public key certificates, certificates, certificates, and a certificates, and a certificates, and a certificates issued from trusted third-party CAs. checkpoint Also called a snapshot, a
checkpoint takes a point-in-time picture of virtual machine settings and data disks. Notify the existing single virtual hard SCSI hard disk of 60 GB. The subnet mask defines this. Yet another web browser problem might be PKI certificate. The
subnet mask D. Yet how often do we see laptops being locked down compared to projection units? In a virtualization (and certainly a data center) environment, monitoring can be complex and must be configured into it. From rescue
mode, or in some cases, within the OS itself, you can use tools to manage and troubleshoot at the command line, including the following: • df Shows disk I/O statistics for storage devices Chapter 7: Troubleshooting
and Performance Optimization 277 • lsof Lists open files and provides further details • mdadm Linux software RAID array management For example, to repair an unmounted XFS file system on /dev/sdc Sometimes a lack of free disk space can cause many, often
performance-related, problems. Asynchronous replication introduces a delay before writing to alternate sites. Wake-on-LAN B. Issue a PKI certificate for each client web browser. 150 Chapter Review . ID systems can send alert notifications to technicians, who can then take further action. So if your IPv4 network prefix is 192.168.1, the first server
IP address would be 192.168.1.200 and the first network printer IP address would be 192.168.1.220. • Which backup types will be used? Newer server operating systems, however, such as Microsoft Windows Reliability Monitor
history Chapter 7: Troubleshooting and Performance Optimization 265 Read the Documentation Solving problems quickly requires being very organized. DDR transmits data on the rise and fall of computer clock signals. Pool.ntp.org is widely used to provide time synchronization for Internet devices. As any musician will tell you, timing is crucial, and
the same is true in the world of computing. This is not as important for disk storage as it once was; fast disk transmission schemes. Microsoft Windows Server 2012 R2 also offers storage tier capabilities; you'll need both SSD and HDD to set this up. Assets include the following: • IT
corners! Table 7-2 lists commons software problems, causes, and solutions. It groups nodes into zones, much like organizing devices on their own IP subnet. Switch port D. VPN D. Trojan C. 166 Contents xi Network Hardware . This is the IPv6 address of the Linux server. You are an Active Directory domain administrator. Note that most Linux
commands and configuration file settings are case-sensitive. When IT techies chat about NAC, you'll also hear them mention "802.1x." IEEE 802.1x is a worldwide standard for port-based security, or controlling access into your network. The server is currently configured with RAID 1 for the operating system and data. Then press enter. Click Cancel
Click Open. Click OK, and then Close. Transfer rate C. They are available in different widths and heights. Switch to the Windows Server iSCSI target, and in the Server Manager iSCSI view, click Tasks, Refresh. There are variations of water "misting" solutions that can help with these problems. POP B. If you are logged into Linux as the root
superuser account, these file system permissions are not applied, because they are for non-root users. This prevents people from tailgating, or slipping in behind you. 5.5-inch D. Planning these roles includes determining whether multiple roles will be co-located on the same server or spread out among multiple servers—and those servers can be
physical or virtual. Authentication can be centralized using identity federation. The IP address and subnet mask are correct. For instance, you could assign an IP address range, default gateway, and DNS server, specifically to Cisco IP phones. VMFS C. B. Software broadcasts don't exist with IPv6, like they do with IPv4. 409 vi Contents Preface
Close all windows. Fingerprint scans generally require a unique eight-point match for successful authentication. Name Resolution Issues If names are resolving to unexpected IP addresses (the name doesn't match what is in DNS), then there are probably entries in the local HOSTS files on the system. The extra RAM becomes available from other
virtual servers on the same underlying physical host that have RAM to spare at the time. You have a Linux image that will be deployed to numerous virtual machines. WIM requires the disk to be partitioned and formatted prior to the application of an image. Of course, having many services running also increases the attack surface and increases the
amount of time required to patch the server—so keep it minimal when possible! Confidentiality and Integrity Encryption provides confidentiality. On the Select Items For Backup screen, click Add Items. chmod B. ARM processors come in both x86 (32-bit) and x64 (64-bit) flavors. Wrong: 63 is the broadcast address for subnet 32, so it's off limits.
Authentication is not the problem, because we know the error is that the server name is not even a known host. The virtual machine begins booting from the Windows enterprise environments join computers (Windows clients and servers, Linux hosts, and so on) to the AD domain for the purposes of centralized
administration (through group policies) and centralized authentication. fd75::883b:ced4:63f3 is not a link-local address; the prefix must be fe80. Enter mkdir projects. • Notify stakeholders. (Just make sure you label both ends of each cable!) Rack-mounted Equipment The 1990s produced the server rack form factor courtesy of Compaq, which was
acquired by Hewlett-Packard in 2002. Although to the Internet it appears the reverse proxy server is the real web server, it simply forwards requests quietly to a web server on an internal protected network. Table 3-2 lists common RR types and their uses. Continue through the rest of the wizard, accepting defaults until you reach the end of
the wizard. Then (if required) scroll down and choose Terminal. Figure 3-6 shows the NTP status on the Windows operating system. 248 Network Security . A link to Adobe's web site, where you can download and install Adobe Reader, has been included on the CD-ROM. There are different types of updates. Kilowatts (kW) and volt-amperes (VA) area
units of measurement used with UPS power ratings. But how can you make sure the UPS batteries can supply enough power to devices? Modern motherboards color-code memory chip sockets to facilitate pairing. CompTIA Server+ Certification All-in-One Exam Guide 14 Equaling the other troubleshooting topics in Chapter 7, here you are required to
know how to use the correct tools to solve storage problems that are interwoven with hardware (inappropriate RAID configurations), software and network issues (inability to connect to network storage), as well as matters of security (most often permissions). Reproducing problems is part of problem identification and not the other troubleshooting
steps. Chapter 5: Network Concepts 203 4. Appendix About the CD-ROM The CD-ROM included with this book comes complete with Total Tester customizable practice exam questions and a secured PDF copy of the book. Start by denying all traffic, and then add only allowances for required traffic. Data Collector
Sets (DCSs) are similar to Performance Monitor in that you can add metrics that you want to monitor. Scopes are IP settings grouped together into a manageable unit; they must be activated before they can be used in the DHCP process. All certification programs and education related to such programs are operated exclusively by CompTIA
Certifications, LLC. SFP C. The Windows Performance Monitor tool (Figure 7-20) is built into the Windows OS. Advanced Intelligent Tape (AIT) A magnetic tape storage medium used with tape backup and archiving systems. The user's public key (from their PKI certificate) is used to encrypt the FEK, which is stored with the file. Hypertext Markup
Language (HTML) A set of markup tags that are used to create web documents. Use PKI certificates to secure authentication further. Although we will focus on the Grandfather-Father-Son (GFS) tape rotation scheme, two other schemes warrant a mention: • Tower of Hanoi • Incremental rotation Figure 8-9 One of many cloud backup solutions.
CompTIA Server+ Certification All-in-One Exam Guide 324 Figure 8-10 Encryption options for cloud backup Grandfather-Father-Son GFS is the most common tape rotation strategy. Data C. Remember to change one thing at a time. Even though there are types of RAID configurations that can ensure that things keep running when disks fail, it
depends on the implementation; hot-swapping is a better answer. application server or database server. A server configured to serve a specific business need beyond core functionality, such as a generic file server or database server. Auditing C. You may have to involve your switch administrator to configure switch port aggregation for the switch ports your server
NICs are plugged into. Imaging is a convenient way of deploying operating systems without performing a manual installation. The installation. The installation. If a change doesn't fix the issue, reverse it before moving to other tests. Notice the partitions are /dev/sdb1 and
/dev/sdc1. Chapter 2: Server Hardware 57 5. Click Next five times to accept the defaults. RAID levels will be discussed in Chapter 4. Click the highest graph spike to display the specific metric that the line represents. Chapter 3: Server Operating Systems 75 Figure 3-7 Microsoft IIS web server management tool Application Server Most of us
probably think of database servers when we hear the term "application server." Although this is partially true, there's more to application servers than that. LUNs represent disk space available over the network. LC connectors, like SC, are square snap-in connectors that are commonly used with single-mode fiber-optic cables. On the newly displayed
search line, click Display Filter and change it to String. Hard disk drives are considered to be Tier 2 storage. A. Servers and network infrastructure equipment can handle only so much traffic at a time; too much garbage traffic means legitimate traffic doesn't get processed, and therein lies the issue. Network Intrusion Detection System A network
intrusion detection system (NIDS) is a standalone appliance that watches network activity, looking for anomalies. • Consult log files and documentation. Instead of separating each hextet with a period, a full colon is used. If you're testing the hypervisor using standard desktop hardware, you need to be extra careful. On a Windows system, you can see
the MAC address for your network interface(s) by typing ipconfig /all. Active Directory Domain Services (AD DS) Microsoft's Lightweight Directory Access Protocol (LDAP)-compliant network database containing objects such as users, groups, and computers. CompTIA Server+ technicians need to know where to focus their troubleshooting time
Windows servers use the Server Message Block (SMB) protocol to make shared folders available to users over the network. ST connectors are commonly used with multi-mode fiber-optic cables. On the Destination Folder screen, click Next. Hybrid Drives You can probably guess what a hybrid drive is—a combination of hard disk and solidstate
technology in the same package. Remember, in this example you have 8 bits to play with in the last octet. Less than the RPO B. UEFI supersedes the older BIOS standard and supports the Secure Boot feature, which ensures that only trusted (digitally signed) operating systems are allowed to start. Is that a hardware problem, or is it a software
problem such as a corrupt file? Using your web browser, go to www.wireshark.org. Operating system virtualization A. User private keys (after successful authentication) are used to decrypt the FEK, which is then used to decrypt the FEK, which is the properties the FEK
experiences some kind of disruption. To extend this point, redundant server power supplies should each plug into separate PDUs. Because many different types of items can draw power from PDUs, you should check your PDU's rating to ensure your equipment isn't above the load capacity. On the summary screen click Create, and then click Close.
crosstalk Interference caused by electronic signals on adjacent wires. All that is needed to make it fully functional is the last backups of the original site, along with personnel. In the DNS Manager window, expand the server name on the left, and then expand Forward Lookup Zones. Optical Drives Optical Drives have begun to fade away. Cable
Installation and Management Wireless networking in the form of cellular 3G, 4G, and Wi-Fi communications has exploded in popularity for user devices. Fiber-optic cables transmit light waves and can travel greater distances without amplification. Which type of storage combines disk platters with flash memory? Industrial environments use 3-phase
power. Perimeter fencing is a physical security measure, and dual power supplies provide hardware redundancy. Adobe Reader mobile app, which currently supports iOS and Android. Not only that, but remember that firmware designed for one purpose always outperforms software designed for
many uses, so use hardware RAID whenever possible! Hardware RAID array controllers often have some of their own battery-backed cache. Even ping traffic could be encrypted. But there's a better way—cloud printing, don't worry, because there are helper apps for Android
Windows, and iOS devices. Networking • Virtual network switches are used to enable connectivity to the physical network, or they can be used for VM communication within the hypervisor host, and hybrids of the two. Infrastructure as a Service (IaaS) A cloud service model in which providers offer infrastructure such as virtual machines and
storage as a self-provisioned service to subscribers. 🗫 IPv6 specification. This topic in all its glory was formerly a separate CompTIA Server+ certification. CDs and DVDs are optical media. Figure 4-7 A Fibre Channel SAN using
redundant switches Windows Server Fibre Channel HBA Linux Server Fibre Channel HBA Linux Server Fibre Channel HBA 2 Fibre Chan
necessarily mean you can't restore some of the old data from the media. CompTIA Server+ Certification All-in-One Exam Guide 322 • What type of storage media will be used? Microsoft Hyper-V, Oracle VM VirtualBox, or another virtualization system will work equally as well, but if you don't use VMware Workstation 10, the lab instructions in this
book will differ slightly from those you'll need for your environment. You can specify multiple computer names in a commaseparated list. In the Specify The Size Of The Volume Windows, for the volume size, enter 30GB. DDoS perpetrators often demand payment from victims before they will turn off the packet tap. An intranet is an internal network
that can offer connection services like those found on the Internet. Data centers are neat—these big facilities host a wide array of IT services that are consumed by clients located hundreds, even thousands, of miles away! You can bet that, among others, CompTIA Server+ certification is often preferred for data center jobs. Every facility has a policy
regarding surveillance footage retention, if it is retained at all. icacls B. Battery-backed write caching Chapter 2: Server Hardware 55 21. Servers can accommodate different amounts and types of RAM, and motherboards can have specific memory module placement rules. Tasks such as checking e-mail, reading the news, or downloading drivers
should never be allowed directly on a server. Type B 21. Log forwarding For critical servers and devices visible to public networks, configure log forwarding to a secured host on a secured host of h
shows a changing display of the top resource- consuming processes. • All devices on a specific network? There are plenty of hardware and software security solutions to address network security. The best approach is to block everything, and then create firewall rules to allow only traffic that is necessary. Subscribers can rapidly provision and
deprovision these services and pay only for what they use. Which tool should be used to test server power supplies? This enables communication only on the LAN with other devices in the 169.254 range. Figure 5-5 Adding NICs to a NIC team using Windows Server 2012 R2 CompTIA Server+ Certification All-in-One Exam Guide 174 For very small
networks, a 4-port switch might do the trick. You should get a response. Do not use Telnet remote administration Use SSH instead; SSH encrypts network traffic, while Telnet is clear text. You will be borrowing 3 host bits. Server OS images might have been already created so that you can apply the image to your new physical or virtual server instead
of running the installer from the installer from the installation media. 187 TCP . Network device interconnect B. For Windows machines, local Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and OU Group Policy executes before Active Directory Site, Domain, and Down Site, Domain, and Down Site, Down Si
to acquire three additional public IP network ranges. Notice the new 10 GB hard disk is now listed. Volts B. After the server Srv2012-2 has restarted, from the VM menu, choose Snapshot, Take Snapshot, Take Snapshot, Take Snapshot, Take Snapshot is now listed.
modems. Waiting for the Bus Buses move data between various components within a computing device, so there isn't just a single bus on a server motherboard. RAID lets us group multiple physical disks together as a logical manageable unit for two reasons: improved disk I/O performance and fault tolerance. To allow access to servicing panels C.
Port numbers apply to OSI Layer 4, the transport layer. The DR plan contains step-by-step procedures detailing exactly how systems are to be quickly recovered. For example, where twisted pair copper network cables generally max out at 100 meters, fiber-optic can travel hundreds of kilometers. Note Cable channel placement, especially near
ceilings, must be carefully planned. Synchronous C. • If you plan to migrate or fail over VMs within a cluster, consider the memory impact of running additional VMs. Storage • Get the fastest storage possible (ideally SSD). Both of these file systems are journaled, which means all file system write transactions are logged before being committed to
disk. This can be done by specifying individual users, computers, or groups, or by using Windows Management Instrumentation (WMI) filters. Wherever backup media is stored, it needs to be physically secured. IEEE 802.1x An Institute of Electrical and Electronics Engineers (IEEE) standard used to define port-based network access control, which
controls device access to a network. Enter notepad c:\diskinfo.txt and press enter to view the results. 128 64 32 16 8 4 2 1 1 1 1 0 0 0 0 0 Now look at the right-most binary "1." It falls under 32, so 32 is your first subnet addresses. Virtualization Virtual servers run as
guests on a host (physical) computer, but they are still configured with virtual hardware. Click the 20 GB disk listing and then click Done in the upper left. User disk space quotas This prevents users from using all of the server disk space quotas This prevents users from using all of the server disk space. DISM is built into newer operating systems such as Windows 10 and Windows Server 2012 R2. You'll normally
monitor some aspect of CPU, memory, disk, and network use. 1.75-, 3-, and 5.5-inch are not standard hard disk dimensions. RFID enables devices to be scanned with RFID tags for inventory and tracking purposes. Click Next. • Differential Data that has changed since the last full backup is backed up; the archive bit is not cleared. The server
normally listens on TCP port 443 for this type of connection. RAID 2 stripes bits of data but still writes error recovery information. Click Select Folder. 137 RAID Levels . In the case of IT, perhaps it involves preventing the use of non-company-issued USB devices to stop malware infections. Prior to DNS servers becoming common, each TCP/IP
device used a local text file called hosts to resolve names to IP addresses. As another example, you may want to know how many instances of a version of a certain server technician for a Caribbean telecommunications provider. Data backups beyond replication are still
(and always will be) very important. Tower servers cannot be rack-mounted, so rack mount ability is another item affected by server form factors. If possible, technicians should remotely control the network device. Data can also be included in a bare metal recovery image. Modern access and payment cards, such as RFID chip cards and smartcards,
have embedded circuits that can transmit data wirelessly. Given the PID, kill terminates processes. The default gateway is a router that allows traffic into and out of a network, in some cases based on conditions. What is the server's purpose? Routing D. For example, switch ports 1-12 might be called VLAN1 and switch ports 13-24 might be called
VLAN2. An available alternative since Windows 2008 is the DNS GlobalNames zone. • Connect your network to the cloud provider with a private network experts—this is true! Your servers can interact with a large variety of services and
network components on a large scale, and you must understand how all the moving parts work together. Exam Details You can book your Chinese Simplified, English, or Japanese CompTIA Server+ SK0-004 exam online at www.pearsonvue.com/comptia/ or by phone with your local Pearson Vue testing center. chmod C. Companies should implement
strict hiring and background check policies to ensure that employees can be trusted with sensitive information. Network people normally configure VLANs to improve network efficiency. A big distinction between modify and write is that modify allows file deletion and write does not. The asterisks are wildcards that will show features containing the
text iSCSI. 13. Multifactor authentication is not in place when only the something you know category is in use, which is also true even if you enable PINs or enable periodic password changes. 42 UPS . The bs means block size for the 512-byte first boot sector that contains the MBR. 3-phase power • Plug types • NEMA • Edison • Twist lock •
Cooling • Airflow • Thermal dissipation • Baffles/shrouds • Fans • Liquid cooling 2.0 Server Administration 2.1 Install and configure server operation • RAID setup • Partitioning • Formatting CompTIA Server+ Certification All-in
One Exam Guide 362 • File system type • Ext 2, 3, 4 • NTFS • FAT32 • ReiserFS • UFS • VMFS • ZFS • Swap • Configure hostname • Local account setup • Compliance to company procedures/standards • Enable services • Install
features/roles/applications/drivers • Performance baseline • Server optimization • Swap or pagefile optimization • Unattended/remote installs • PXE boot • TFTP 2.2 Compare and contrast server roles and requirements for each • Web server • Application server • Directory server • Database
server Appendix D: CompTIA Server • Routing and remote access server • Network services server ser
KVM • Serial • Virtual Administration • RDP • SSH • VNC • Command line / shell 2.4 Given a scenario, perform proper server maintenance techniques • Change management • Patch management • Operating System
Impact analysis • Client notification • Memory utilization • Disk IOPS • Storage capacity • Comparison against performance baseline • Processes and services monitoring • Log monitoring • CPU utilization • Disk utilization 
Error codes • Beep codes • LCD messages • Replace failed components • Fans • Hard drives • RAM • Backplanes • Batteries Appendix D: CompTIA Server+ Certification Exam Objectives (SK0-004) 365 • Preventative maintenance • Clearing dust • Check proper air flow • Proper shutdown procedures • Fault tolerance and high availability
number • Asset tag • Documentation • Service manuals • Network diagrams • Architecture diagrams • Recovery documentation • Change management policies • Service level agreement • Server configuration • Secure storage of sensitive
documentation 2.6 Explain the purpose and operation of virtualization components • Hosts and guests • Management interface for virtual machines • Hypervisor • Type I • Type II 
• CPU • Storage • Memory • Network connectivity • Direct Access (Bridging) vs. Ask your cloud providers such as Microsoft Azure, shown in Figure 3-1, offer virtual machines templates that customers can use to deploy not only the server OS,
but also additional services, such as a MySQL database server virtual machine. Documenting BIOS configurations is an important part of proper server management and facilitates troubleshooting. When roles and recovery steps are known, RTO is minimized. host bus adapter (HBA) A circuit board that connects a host to other storage and network
devices. Chapter 8: Preparing for the Worst 315 Figure 8-4 An example of a public cloud provider SLA Exam Tip Don't confuse RTO with recovery point objective (RPO), which is discussed later. On the left, right-click Reverse Lookup Zones and choose New Zone. 3-inch C. Port C. Check your hypervisor's details to make sure you're getting the
most out of your VMs. Server Installation Hardware compatibility lists (HCLs) provide details about which specific hardware is supported by a given server. The more stuff on servers, the more a malicious user could potentially tap into.
C. Dedicated network-based firewall appliances are designed to be a firewall (unlike an operating system running firewall software) and hardened to the hilt. Sometimes the problem is server add-on hardware such as expansion cards (including those for blade enclosure backplanes), or onboard components integrated with the motherboard.
Remember that network cards and network equipment also factor into transmission speeds. 248 Physical Security . MAC 18. 50 Questions . Enter Pa$$\pi$w0rd and click Finish, hot aisle A row in which the exhaust fans of server racks are facing one another. Secure Media Disposal Techniques such as disk scrubbing (software) can overwrite
storage media to prevent data retrieval. For many years, administrators have also managed Windows servers from the command line using batch files, Visual Basic scripts, and, more recently, PowerShell. On the Getting Started screen, ensure that This Server (SRV2012-1) is selected and click Next. On the Linux virtual machine, in a terminal window
type ping 192.168.1.200. TPM can store cryptographic keys used for encrypting and decrypting BitLocker disk volumes, and it can also detect unauthorized system startup modifications such as changes to the boot sequence. Rack-mounted equipment such as servers usually comes with a rail kit. There are many types of ACLs, such as those allowing
 access to a network and those that allow or deny access to a specific resource such as a file or a web site, often through the use of groups. All PowerShell cmdlets using the -computername parameter C. Mount the new partition into the folder by entering mount /dev/sdd1 /project-x. iostat B. Developers can build static HTML web parameter C.
web server and are transmitted to clients upon request. Exam Tip Don't confuse network file-sharing protocols with local file system types. Group Policy Objects (GPOs). (And, by the way, if you're just starting at a data center, be prepared for the 7 p.m. to 7 a.m. shift!) Why
This Book Is Relevant Because you're reading this book, you probably already see the value in learning about the CompTIA Server + SK0-004 exam. Buses Motherboards and expansion cards need a way to move data around, and this is where the bus comes in. For instance, RAID level 1 (disk mirroring) increases the resilience to failure, but RAID level
0 (disk striping) improves performance, sudo UNIX and Linux technicians can prefix commands requiring elevated permissions with multiple memory circuit board with multiple memory chips that plugs into sockets on a motherboard. Exercise 3-2: Install the DNS Server
Role in Windows Server 2012 R2 1. Storage is usually connected to a RAID controller. Move the existing data to the newly created filesystem. Remember that public services should be accessible from the DMZ through a reverse proxy. Which troubleshooting step involves making only a single change at a
time? With asymmetric encryption, a pair of keys is used, one for encryption and one for decryption. When backed files are modified in the live system turns on the archive bit so that the backup solution knows the file has changed since the last backup. What should you configure? How companies
implement technology is sensitive information. What should Roman do to enable domain controller replication between users on local lines while enabling users to share a limited number of external phone lines. The UPS runtime capacity
specifies how long UPS batteries can support a specific wattage load when the power goes out. Device D. Network load balancing (NLB) can be used to achieve optimal network performance, such as for a busy web site. The use of insecure tools can introduce malware or could serve as an attack vector for malicious uses—more trouble that we don't
need! Files can be hashed using various tools. The CompTIA Server+ certification also applies to server management in large environments (such as data centers), so always keep in mind how you can apply configurations on a large environments (such as data centers), so always keep in mind how you can apply configurations on a large environments (such as data centers).
users makes sense to reduce information overload, however. Notice the fakedomain.local zone. The public IP address of the NLB is what DNS FQDNs would resolve to, not the back-end server IPs. Load balancers can improved the performance of an on-premises application or a cloud application. Directory service B. Exam Tip Newer copper cable
standards will work with older network equipment. Custom Mode allows you to create custom exams from selected domains or chapters, and you can further customize the number of questions and time allowed. In accordance with your organizational policy, a server must remain running even if an operating system disk fails. Is the user in a group
that should have permissions to access a file? As with USB thumb drives, mobile devices and storage media are easily lost, stolen, forgotten at a client site, and so on. Just remember that hardware appliances also get firmware updates, so be sure to subscribe to vendor update notifications. LT 8. Common connectors include ST, SC, LC, and SFP.
Application servers and web servers—how are they different? Figure 3-12 shows RSAT tools on a client being enabled. Antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible, every device (including smartphones) should have an up-to-date antimalware where possible are up-to-date are up-to-date antimalware where possible are up-to-date a
them periodically based on your organization's security policy. 329 Business Continuity Plan . Type exit and press enter. 178 Subnet Mask . As mentioned earlier, the AWS Storage Gateway is a virtual appliance that runs on-premises and enables backup solutions to "see" virtual tape devices for cloud backup purposes. Users with accounts in AD
can log on using that account on any domain-joined computer—in other words, we don't have to create an account for user Bob on every computer with the same password; creating it once in AD suffices. Next you need to calculate valid IP address ranges within each subnet. Chapter 3: Server Operating Systems 79 We must also consider the
different types of virtualization, including operating system virtualization, and so on. Hot-swappable disks B. CompTIA Server+ Certification All-in-One Exam Guide 396 hot spare An extra component that can be used immediately when a primary component
fails. • Look for boot failures. IPv6ADDR; be careful! Chapter 5: Network Concepts 193 6. In the event of a server room or data center fire, this can impede fire extinction. Port addresses apply to Layer 4, LUNs are unique values assigned to network storage, and MAC addresses are Layer 2 hardware addresses. Turn off,
disable, or delete cloud resources when you are not using them! With many cloud services, you get charged for what you use while you're using it. For example, as little as 10 mill amps (thousandths of an ampere) at 110V alternating current (AC) can stop your heart. Click the + symbol to the left of Local disk (C:) and select the checkbox next to the
Contracts folder. While you won't need to be an expert in every topic covered in this book, you can't be sure exactly what you'll be tested on, so it's best to cover all bases. Which server component can help the most in speeding up processing time? Determine whether required skills are available internally or must be outsourced. HVAC can control
room temperature, but internal server temperature is more directly controlled with fans or liquid cooling systems, in which pipes carry cool liquid throughout the system . Network-based firewall This must exist at every network entry and
exit point, so it makes sense to configure packet-filtering rules on routers. Network and dataflow diagrams are useful documentation for troubleshooting, change management, and inventory purposes. Fencing 2. Your firewall has an ACL that allows inbound traffic destined for TCP port 25 to your company's DMZ. Notice the PMs group is
automatically allowed the Read & Execute, List Folder Contents, and Read permissions. Rack-mounted Servers will appeal to those who prefer tidiness and organization; they are essentially thin computers (from 2 to 12 inches wide) that are designed to be stacked vertically in a metal framework, or rack. EIDE A. Recovery pointed servers will appeal to those who prefer tidiness and organization; they are essentially thin computers (from 2 to 12 inches wide) that are designed to be stacked vertically in a metal framework, or rack.
objective (RPO) relates to the amount of tolerable data loss and does not align to a hot site as RTO does. PKI certificates contain related public and private key pairs. Advanced Intelligent Tape (AIT) was introduced in the 1990s. 165 Cable Placement . 74 Virtualization Servers . Yes, it's important to understand concepts
and the sequence of steps required to yield a desired result, but what about when things going wrong? Labeled or color-coded cables keep things organized and facilitate troubleshooting. You may remember a time (the 1980s) when sharing data involved copying files to tape cassettes or floppy disks. AMD Virtualization (AMD-V) AMD's virtualization
firmware support that is required by some Type 1 and Type 2 hypervisors. MX Mail exchanger Used for e-mail domain suffixes to locate an SMTP mail server. CAT6 C. The default gateway is not used for communication on the local subnet. For instance, if a DNS server doesn't seem to be responding to DNS queries from clients, yet it's up and running
on the network, check the DNS server and client logs. Operating system virtualization 13. Once A Day is currently set to 9:00 p.m.; change this to 8:00 p.m.; and then click Next. Fire Suppressant. But how is this useful? It is clear that the granted permissions (including
write) do not allow deletions. Mount the file system to a directory so it is ready to use: mount /dev/md1 /cust trans Exercise 4-5: Monitor Disk Space Using File Server Resource Manager 1. demilitarized zone (DMZ) A network whose hosts are exposed to the Internet with controlled access to an internal network. Type dmesg | grep scsi to view SCSI
disk device startup messages. Then click Done in the upper left. For every day offline, BetCRIS lost up to US$100,000. Cable Placement Large server rooms and data centers use racks to mount equipment—but what about all the power and data cables? A default gateway is not properly configured on both servers. SSD would be considered Tier 1
storage. Servers with more than one interface are said to be multihomed. RAID 6 can tolerate two disk failures. On the Select The Storage Layout screen, ensure that Simple is selected to configure disk striping across the three disks. When you attempt to run the installer, nothing happens. Create a group following company standards. When a
program requires administrative privileges, a prompt appears asking whether you do or do not agree to give the program administrative privileges; this prevents scripts and programs from executing without user consent. VLANs Chapter 5: Network Concepts 207 C. • Naming conventions CompTIA Server+ Certification All-in-One Exam Guide 216 2.
Reproducing problems might involve changing system configuration settings—so it's important to back up all settings and data prior to making any changes. Server items that might be inventoried include the following: • Make and model • Motherboard and device serial numbers • Physical or digital asset tag (a sticker or stored in the BIOS) • RAM •
Storage • Network interfaces • Other peripherals • Printers • USB devices other than storage • Monitor displays CompTIA Server+ Certification All-in-One Exam Guide 92 Here are some reasons for creating a detailed and accurate hardware inventory: • Inventory audits • Asset tracking • Determine asset use • Asset repair and warranty • Asset
recall • Asset security Solutions provided by Spiceworks, Altiris, or Microsoft System Center Configuration Manager (SCCM) (see Figure 3-15), for example, provide ways to inventory devices on a large scale, such as in a data center. UDP 53 is used for DNS client queries; TCP 53 is used for DNS server zone transfers. This begins with hardware
such as network cables, connectors, routers, switches, network cards, wireless access points, and so on. The downside is false positives—the reporting of a problem when one does not exist. What benefit does VMFS offer over NTFS? WINS simply resolves NetBIOS computer names to IP addresses; there is no hierarchy as there is in DNS. MX B. A
data center uses disk images to deploy new physical servers quickly. CompTIA Server+ Certification All-in-One Exam Guide 82 VM settings, as seen in Figure 3-10, include the following: • Amount of startup, minimum and maximum memory, dynamic memory • Number of vCPUs and compatibility settings • Storage such as virtual hard disk files, raw
disk space, and SAN storage • Virtual network adapters and their connected virtual switches, virtual MAC address, network • NAT Uses the hypervisor host IP address to access the network • VM to VM Enables communication only between VMs • VM
and host Enables communications between VMs and the hypervisor host • Display settings for number of monitors, accelerated graphics • Integration tools with the host hypervisor for time synchronization, backup services, and so on • Snapshot/checkpoint settings Some virtualization solutions provide an integration tools installer that optimizes
VM display settings, keyboard and mouse movement, time synchronization with the host, Figure 3-10 Virtual machine settings Chapter 3: Server Operating Systems 83 and other settings when they selected the word "Universal"—you can plug just about anything into a USB port: • Keyboard • Storage device (see
Figure 2-9) • Smartphone Figure 2-9 An external USB solid-state drive CompTIA Server+ Certification All-in-One Exam Guide 40 Table 2-5 USB Standards and Transfer Rate USB 1.0 12 Mbps USB 3.0 5 Gbps • Tablet • USB hub • Coffee mug warmer • Lamp • Cute mechanical puppy Servers
commonly use USB for keyboards and mice, which are referred to as human interface devices (HIDs). From a command prompt on Srv202-1, enter ping 192.168.1.210. If the problem resulted from a user tinkering on their Windows workstation, perhaps locking down settings using Group Policy is an appropriate resolution. This difference encourages
the flow of electrons, so, with a higher voltage (difference in charge), we have a stronger flow of electrons being forced through a circuit. Enter tar -cvzf /backup/asia contracts. 4G A. Warms sites provide power, communications links, as well as equipment and software, but lack up-to-date data. It's no problem remembering
www.mheducation.com, but try memorizing 52.72.96.223, and doing similarly for hundreds of different sites where the IP address can change periodically. Also bear in mind it takes only one compromised mobile device that can access the network to bring down or compromise servers, so remote wiping is a big deal. w w w8. Inventory scanning
schedules determine whether inventory data is up to date. Cloud computing resources must be available from anywhere, at any time, using any type of device. Write-back caching, read-write caching, and restartenabled write caching are incorrect terms in this context. File and print servers enable connectivity to these resources over the network and
must have properly configured ACLs to allow access. What can be used to prevent server interruptions when disks fail? Install the certificate on the web server. Longer cable distances (approximately 60-100 meters) can be run at 1 Gbps. RAID Configuration Groups of disks not yet configured to work together are called JBOD—Just a Bunch of Disks.
Of course, the appropriate mobile device e-mail apps will have to be installed and configured correctly. (A standard rack-mounted server has dual power supplies and at least two network cards, so that's four cables right away for a single device.) When you pull out a rack-mounted device (on the sliding rails), the cable arm expands so that you don't
pull the cables out. Also, you'll need to adopt a backup and tape rotation strategy. This is normally measured in fractions of a second; a smaller value is better in this case. FC uses special equipment such as FC host bus adapter cards in servers and FC switches, to name a few. IP packets have the delivery details, such as the identity of the server or
appliance serving up the disk space (the iSCSI target). Most modern Type 1 hypervisor require 64-bit architecture as well as hardware virtualization support. For example, a user complaining about being unable to print to Network Printer Z. Change
IPV6 AUTOCONF to no. CompTIA Server+ Certification All-in-One Exam Guide 102 7. Notice the Backup Schedule, Backup Once, and Recover options on the far right. UDP 53 B. Type Is to verify that there is no longer an /asia_contracts folder. field replaceable units (FRUs) A computer component that can be quickly and easily removed from a
computer or other piece of electronic equipment and replaced by the user or a technician without having to send the entire product or system to a repair facility. 261 7 CompTIA Server+ Certification All-in-One Exam Guide 262 Identify the Problem We have to be able to identify exactly what the problem is before we can solve it. Server OS images can
be used as well, and a server installation from media or an image can be completely automated using answer files or enterprise deployment solutions. CompTIA Server+ Certification All-in-One Exam Guide 236 • Disable Wake-on-LAN. hardening a system by reducing its attack surface, usually by removing unneeded services or programs
and applying patches. It basically sends out packets and then immediately forgets about it. • Users • Devices • Other group nesting) Note Adding group members in Microsoft Active Directory requires that the user added to the group log off and log back on again. A DHCP server cannot be reached. DHCP 15. Replace the straight-through
cable with a switch cable. Click the Start button and type Active. Assess risk 7. Network load balancing (NLB) distributes incoming traffic to the least busy of multiple back-end servers offering the same service. 202 Chapter 6 Security . Exercise 4-4: Configure Software RAID Using Red Hat Enterprise Linux 7 1. 316 Data Backup . iSCSI The
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acronym iSCSI stands for Internet Small Computer System Interface (SCSI). At the bottom left, choose C: and click Add. Form factors also apply to computer to improve disk I/O performance (striping) or for disk fault tolerance. TCP 123
14. Storage tiers need to be configured so that the database and related files are available on fast SSDs, while logs are stored on hard disks. Full B. User awareness and education! Ransomware is usually spread by phishing e-mails or by people clicking on web page links or opening file attachments they weren't expecting via e-mail. Warning log
entries are displayed. NTFS is the most common Windows Server file system type; it is a journaled file system type; it is a journaled file system type; it is a journaled file system type; and disk quotas. What should you acquire? 65 Chapter 4 Storage. PKI Certificate Contents The certificate itself, also called an X.509 certificate, can be used as a
file (ideally password-protected), or it can be burned into a magnetic strip or smartcard. Consider the three PowerShell remote management examples in Table 3-5. 3 Server Memory . Identity federation servers provide these digitally signed claims to apps that are configured to trust the identity provider. Ask yourself how many miles of cables or
wireless transmissions are involved when you check the local news web site each morning—it really is amazing how it works, since there are so many different technologies actually talking to each other. Virtual machine live migration Administrators can essentially move a virtual machine from one hypervisor to another with zero downtime, but only if
shared storage is used, and in some cases, similar CPUs exist in the source and target hypervisor. Cable management arms can be used to organize cables for rack-mounted devices. 215 Groups . Ensure that Disk 0 Unallocated Space is selected. TCP provides connection-oriented reliable transmissions, whereas UDP does not and is therefore
quicker. This measurement is a standard that refers to the vertical distance between the holes in the rack to which rails and rack-mounted equipment are secured. Double-click the Contracts folder. In the GUI, you can view the properties of a file Chapter 7: Troubleshooting and Performance Optimization 283 or folder to see the effective permission
for a given user or group if a user is unable to open a file. bring your own device (BYOD) A policy that allows people to bring their own personal computing devices into a business environment. This can damage sensitive electronic components, so precautions such as ESD wrist straps or ESD mats should be used. Thin provisioning enables
administrators to set a disk volume to grow to a maximum size if required, but the space is not allocated in its entirety, thereby allowing other thinly provisioned disk volumes to consume that same space as needed. RFID card B. If Windows Explorer was already open, press f5 on the keyboard to refresh the screen. Industrial and manufacturing
environments, along with data centers, often use 3-phase power because of the larger power draw. A D. Service Level Agreements (SLAs) can quarantee uptime among other details; it is a contract between a provider and a consumer. The following example adds the SetUID bit to a file called /backupscript.sh. They come in both hardware and software
appliance forms. A LUN mask is normally configured at the HBA level. CompTIA Server+ Certification All-in-One Exam Guide 126 Figure 4-2 A USB flash drive and a 32GB SDHC (high capacity) flash memory card Cost-wise, SSHDs fall between traditional hard drives and SSDs. Consider the following price comparisons (in US dollars): • 1TB hard
drive: $70 • 1TB SSHD: $95 • 1TB SSD: $320 You can see why SSDs are often used only for frequently accessed files or any type of disk-intensive activities. Chapter 7: Troubleshooting and Performance Optimization 295 2. Why re-create users and passwords in the cloud? Keyboards and mice have different interfaces; modern devices use USB, but
older input devices use PS/2 or serial connectors. L3 cache The next fastest cache available to the CPU after L2 cache. There are battery testers you can use that work even when the batteries are in use, but some of these can be expensive. This 64-bit parallel transmission standard runs at various frequencies (often the case with expansion slots and
cards), which influences the data transmission speed. With the advent of server virtualization, Preboot Execution Environment (PXE) network boot, and operating system imaging, installing from optical media has become less common. You must be able to talk to your router (default gateway) on your LAN. For Wi-Fi routers, use the WPA Enterprise or
WPA2 Enterprise option. The IT team has been directed to deploy IPv6 for test VLANs in both cities in anticipation of the eventual requirement of using IPv6. SANs and NAS are not the same. Cloud Storage Public Cloud Sto
provider subscription. The overarching premise is to restore business operations as soon as possible. Server Installation Methods You can begin the server OS installation files. This can be done in the future as well to detect whether or
not a file or transmission was modified since the last hash. They can accommodate standard hardware components, but they don't often come with redundant power supplies. Enter openssl enc -aes-256-cbc -in project_b.txt -out project_b.txt -out project_b.txt to encrypt the new file. The big guys (Dell, HP, IBM) often offer rollback options if you don't like the
applied firmware update. Various RAID levels determine how many failed disks can be tolerated. SAN storage is local to the server. Glossary 393 EXT4 A journaled UNIX and Linux file system. Don't get cheap here; disks are often the slowest component in a server. On occasion, you may find yourself reconfiguring or migrating disk stripe settings
and data and this feature proves useful; however, a common use is when stopping and restarting a disk array. iLO, iDRAC, and RDP are remote management tools that rely on network connectivity. Tower 2. Each individual glass or plastic core fiber can carry different light wavelengths, which means it can carry multiple signals over different
channels. Chapter 6: Security 249 Network Security Networ
Authentication can occur at the network packet level. PCI Express The serial transmission-based PCIe standard supersedes both PCI and PCI-X, with more bandwidth, which is especially useful with video, storage, and network cards. Consider that fact that if you want to secure an HTTP web server and an SMTP mail server you need
to acquire a PKI certificate and configure both apps to use the certificates. IPv6 by itself would not provide security. Technically, creating a new VLAN creates a new broadcast domain (just like a new physical network would). Dual-mode D. Enable UEFI Secure Boot. Power 16. Then plot your binary 8 bits into the table. When things go wrong, the SLA
can be very valuable. On the Welcome screen, click Next. If you have the option, you should encrypt all internal traffic. There are various categories of authentication, as discussed in the following sections. The machine is not configured with a valid subnet mask. bare metal  
This term is often used to describe installation or disaster recovery
scenarios where a computer system has no operating system installed. Group Policy is often used to harden Windows clients and servers, but sometimes it might be a little too restrictive, and it's important that you know how to view effective Group Policy Objects (GPOs) for a server to troubleshoot this type of issue. RFID was designed to be used for
inventory and asset tracking, but its use has expanded in a variety of ways. When the Network And Sharing Center option is displayed, click it. SLAs themselves do not provide fault tolerance. 107 Server Installation . Round-robin 15. It's not enough to know just the theory; make sure you have experience configuring and using various RAID
configurations, even at the software level. DHCP provides centralized IP settings for DHCP client devices. Although a software developer was able to block that particular attack, further attacks by DDoS extortionists are expected, and this type of attack is becoming more problematic for other online businesses. In corporate environments using mobile
devices, the company often exercises control over business apps, settings, and data on the device in a separate logical device partition that can be selectively wiped while leaving personal apps, settings, and data intact. An incorrect DNS server has been specified. The timely and efficient resolution of server-related issues is what distinguishes a
casual server technician from an outstanding server technician. CompTIA Server+ Certification All-in-One Exam Guide 250 VPNs Virtual private networks enable encrypted connections to a private network over an untrusted network 
only. From this information, you can also determine the server's network configuration, firewall settings, patch history, and other important factors. Choose two. Storage Capacity Planning From this information, you can also determine the server's network configuration, firewall settings, patch history, and other important factors. Choose two. Storage Capacity Planning From this information, you can also determine the server's network configuration, firewall settings, patch history, and other important factors.
larger number and capacity for partitions. Internet Control Message Protocol (ICMP) A protocol of the TCP/IP suite used to check for network connectivity issues. Basic CompTIA Server+ Certification All-in-One Exam Guide 332 3. megabyte (MB) A unit of digital information equivalent to about 1 million bytes, or 1000 kilobytes. In larger
networks, multiple 24-port switches might be linked together to accommodate large numbers of devices and cabling are in place, use rack fillers (blanking panels) to cover empty spaces in the rack. Name the virtual machine Srv2012-1 and specify a location that has sufficient free hard disk space. From a terminal
prompt on RHEL7-1, enter iptables -F to flush (remove) rules. www.rfc-editor.org Requests for comments; used to define networking standards implementation. Communication between devices is protected regardless of the protocol being used. UDP 53 is used for DNS client queries, UDP 80 is not normally used, and TCP 80 is the default HTTP
web server port. This term is often used to refer to a virtualization server, uninterruptible power supply (UPS) A device that provides emergency battery power when the input power source fails. But for this to work, we need the correct hardware, as seen in Figure 4-7: • Converged network adapters (CNAs) in each server, which combine Ethernet
and FC functionality in a single card CompTIA Server+ Certification All-in-One Exam Guide 132 • FCoE switches, which serve as the connection point between servers and Microsoft Hyper-V enable virtual machines to communicate with a SAN
through a physical FC host bus adapter (HBA) installed in the hypervisor host. This will open a Windows Explorer window with your HTML report. Here are the seven layer 7 • Layer 7 • Layer 5 • Layer 5 • Layer 5 • Layer 5 • Layer 7 • Layer 7 • Layer 7 • Layer 8 • Layer 9 • Laye
layer Physical layer 163 5 CompTIA Server+ Certification All-in-One Exam Guide 164 Layer Characteristics 7—Application • Operating systems can use this layer without user knowledge or consent 6—Presentation • How data is presented • Differing character sets • Encryption and decryption 5
 —Session • Session establishment, maintenance, and tear-down • Does not imply authentication • Session IDs 4—Transport • Responsible for end-to-end data transmission • Can require acknowledgment of sent data • Port addresses (port numbers) 3—Network • Routing of network packets • IP addresses • Routers, Layer 3 switches 2—Data link •
 Methods of accessing transmission media • MAC addresses • Bridges, Layer 2 switches, network interface cards 1—Physical • Electrical specifications • Cables, connectors • Wireless specifications • Hubs, repeaters Table 5-1 OSI Model Layers One way to remember the seven layers, starting from the top, is by using a mnemonic: "All People Seem
To Need Data Processing." Table 5-1 explains the purpose of each layer. zone transfer DNS servers can replicate DNS zone records using TCP port 53. 802.1x Use 802.1x-compliant devices such as network switches and wireless access points to require authentication before being allowed on the network; use a central RADIUS server for
 authentication. ST connector Straight tip, a fiber-optic connector that is rounded and elongated, and commonly used with multi-mode fiber. Each encrypted file has a different FEK. Fiber-optic cables, on the other hand, have a bend radius of about 2 inches. Unlike other VPN solutions, limited configuration options for encryption are available. USB
local boot and PXE network boot do not rely on optical media. Increases wattage for components requiring it D. Security measures such as firewalls and antimalware won't help if your server disks are not behind locked doors in a protected facility. One of your clients, FakeRUs Inc., needs a new physical server to store files and run a small customer
database application. The second command saves the ACL entries to a file, and the third command restores ACLs to the file system from the Project ACLs Server1 file. There is no such thing as BIOS disk striping. Asynchronous C. This is useful when you want to allow inbound connections to hosts on a private network through a NAT router. 24. Your
smartphone receives an alert stating that ServerHFX-234 is not responding. www.whatismyip.com Shows your public IPv4 address as seen by the Internet. Close Notepad by clicking the X in the upper-right corner and save the change. PKI Public Key Infrastructure (PKI) is a hierarchy of trusted digital certificates used for security. 282 Too Many
                    . w w w.c isco.com/c/e n/us/suppor t/docs/se curit y/ios - firewall/ 23602-confaccesslists.html Cisco network ACL reference. Multicast D. Storing hardware, whereas Type 2 hypervisors require an existing operating system and do not interact
directly with hardware. Fencing does not prevent tailgating. The secured book PDF requires Adobe Acrobat, Adobe Reader, or Adobe Digital Editions to view. Except as permitted under the Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system,
without the prior written permission of publisher, with the exception that the program listings may be entered, stored, also called host records, resolve FQDNs to IPv4 addresses. Software iSCSI initiators can be used only when the operating system is
already running; therefore, SAN booting using this solution is not possible. When it comes to component redundancy, most tower servers fall short. Right-click the Contract A file and choose Restore Previous Versions. Which server rack item prevents cables from pulling out when you slide out a server for servicing? Hardware initiators support
enhanced options such as a server booting the operating system over the network; this isn't possible with software initiator is available. Secure Sockets Layer (SSL) An application-specific security technology for providing an encrypted link between a server and a client; requires a PKI
certificate for the server. Some Linux variants, such as Red Hat Enterprise Linux Server 7.1, have evolved to different tools such as FirewallD. Mobile devices introduce enormous risks, yet they are ubiquitous at home just as they are at work. B and D are incorrect. 209 Premises Access . A file hash is a unique value that represents the state of a file
You can even store the ISOs on a USB flash drive with enough space if you choose. Keypads are great for server rooms—we don't want unfettered access to racks of equipment that includes storage media. The "distributed" part of DDoS means an attacker could have hundreds or thousands of infected computers (zombies and zombie nets) at their
disposal to execute the attack. The ipconfig /all command shows IP information including that related to DHCP. RAM B. Start Windows Explorer. Type 2 hypervisors rely on an underlying operating system to manage hardware; Type 2 hypervisors rely on an underlying operating system to manage hardware access. Print servers act as an intermediary between clients that related to DHCP. RAM B. Start Windows Explorer.
want to print and the physical printer devices; security and printer settings for many printers can be managed using a centralized administrative tool. Storage media sometimes has storage areas that do not reliably store data; disk-scanning tools will mark these areas as "bad sectors" to prevent the server OS from attempting future disk write to these
locations. virtual private network (VPN) A private network that extends over a public network or the Internet using an encrypted tunnel. Chapter 6: Security 243 Figure 6-20 Microsoft Intune device wiping options Hands-on Exercises Exercise 6-1: Set NTFS File System Permissions 1. A node is a network device that can transmit and receive
packets. IPv6 must be configured. A preshared key is the weakest option, because it is a symmetric key, which means that the same key is used for encryption and decryption. This way, your IP phone traffic could be on an isolated network. Ensure that you are logged into RHEL7-1 with the root account. ESD, or electronic static discharge, is the
transfer of electronic between two differently charged points in a circuit. Keeps servers running when the power goes out C. The HBA can have multiple ports, each of which can connect to different FC switches for redundancy. Compression, data deduplication, disk quotas, and thin provisioning are options for optimizing disk space use. Tunnel modes
can also be used between a client and server or VPN appliance. On the Windows iSCSI target server, open Server Manager and navigate to iSCSI. DHCP scopes contain IP address ranges as well as additional settings such as lease duration, default gateways, DNS servers, reservations, exclusions, and more. Server Components Server motherboards
use either the older BIOS or the newer UEFI firmware standard. The maximum distance between servers and network switches is approximately 30 meters. Multiple NICs might be required—for example, when using a server as a firewall appliance connected to multiple networks. MAC D. Northbridge 20
To increase security A. 4G 24. Anyone in a group who, for example, has been granted read and write permissions, because the user is a member of the group. Make sure you understand how to visualize the RAID levels in terms of where data versus parity are stored, how many disks are required, and when a
specific RAID level solves a problem. Clients initially discover DHCP servers using software broadcasts that cannot traverse routers, in which case a DHCP relay agent would be required. Windows Server 2012 R2 will allow up to 128 partitions, each being up to 256TB in size, although theoretically the partition size could be up to 9.44 zettabytes (ZB)
Larger server rooms and data centers tend to use a collection of rack-mounted storage arrays available over a storage area network (SAN). Larger networks need an easy way to determine which server+ Exam Manage your daily
routine to ensure that you have the proper time to study for the CompTIA Server+ exam every day. IMAP allows synchronization between different devices, unlike POP. 15 Questions and Answers . On the Select Destination Volume screen, click the Add button and choose drive I:, which was created in an earlier lab for iSCSI virtual disk files.
CompTIA Server+ Certification All-in-One Exam Guide 154 8. Integrity ensures the trustworthiness of data, in that it is authentic and has not been tampered with. What kinds of jobs relate to the CompTIA Server+ certification? Cable management arms prevent cables from being pulled tight when rack-mounted equipment is pulled out on rails from
the rack. The web server is basically an HTTP engine; it doesn't address a specific business solution. Set the UID bit on scripts so that they run as the owner. Software in use is critical. Common backup rotation strategies include Tower of Hanoi,
incremental rotation, and Grandfather-Father-Son. ESD 25. It depends on the BIOS manufacturer. • Look for component failures (sometimes identified during POST). Transmission Control Protocol/Internet Protocol (TCP/IP) A suite of protocols that map to different layers of the OSI model. Like VMware Workstation, you can use the product for free
for 30 days. Common backup types include the following: • Full All data is backed up and the archive bit is cleared. Reverse proxy servers listen for incoming traffic, such as traffic destined for a web server. PCIe uses lanes to transmit
and receive data. Not only that, but we don't want racks tipping over, so bolting them to the floor is recommended. Invoke-Command (Get-WmiObject win32 bios) - computername Server1, Server2 For cmdlets without a -computername parameter, you can use invoke-command. PCIe D. 184 Default Gateway . For the Preferred DNS Server
enter::1. Industrial-grade equipment uses a twist-lock mechanism to prevent the accidental disconnection from the socket. 314 Business Continuity . The great thing about cloud storage is that somebody else deals with the disk devices, their configuration, and their availability on the network. large form factor (LFF) A 3 1/2-inch hard disk drive.
EIDE 5. EFS decryption is dependent upon the user being successfully authenticated. You should see four replies are scattered throughout the chapter to put you in the security frame of mind. Other than the OS, application software runs in an environment that could be hosting Chapter 7: Troubleshooting and
Performance Optimization 269 Hardware Problem Possible Cause Possible Solution BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air and remove warm air • Update (flash) the BIOS • Newer optimized airflow to introduce cool air airflow to introduce cool air airf
failure • TPM firmware detects a boot configuration change • Failed hardware components such as a bad RAM chip or non-ECC RAM • Enter TPM recovery code and configure boot options • Replace failed components Memory failure • Often shows up as a POST failure • Random OS freezes or reboots • Run memory diagnostics • Replace failed
components Processor failure • Overheating •
unsupported or not enabled in the BIOS • Configure bootable disk order in BIOS • Configure bootable disk partitions in OS • Flash BIOS so that USB boot is supported Storage failure • Drive failures • RAID array drive failures 
Replace failed components • Power surge • Use a UPS Power failure • HVAC malfunction causes overheating • Accumulated dust hampers airflow and adds a layer of insulation to chips
• Not enough humidity increases ESD Table 7-1 Common Hardware Issues and Solutions • Ensure that HVAC keeps a consistent relative humidity CompTIA Server+ Certification All-in-One Exam Guide 270 Figure 7-5 Windows
Server 2012 R2 built-in memory tester literally millions of other software components; no wonder we spend a lot of troubleshooting time here! Don't forget to check the obvious. This helps with planning equipment lifecycle costs and how to quickly recover from failed components. Grandfather-Father-Son is the most common backup rotation type and
is used for long-term data archiving. • Restart problematic services. Users must log off and back in for their group membership changes to be in effect. Samba The term "Samba" stems from Microsoft's Server Message Block (SMB) protocol; it is an open source product that provides Windows file and print services on various UNIX and Linux
platforms. Patch Management UNIX and Linux variants sometimes require a subscription before updates can be applied, just like Windows Server OSs require activation before all updates are available. Which type of restore should be used for operating system, data, and configuration settings that can be applied to different servers? To install those
 Linux operating systems, you first have to disable UEFI Secure Boot by entering UEFI settings on your server. IDE C. PKI is a hierarchy of security certificates; it can be used to secure traffic but not to link two networks together. Reduced Instruction Set Computing (RISC) A CPU with a simplified instruction set. The name configured within the
operating system can be something completely different, although in further exercises it will be set to the same value. L4 cache 7. File systems provide an archive attribute that is turned on whenever a file is modified. Magnetic hard drives and SSDs are both plugged in using the Serial Advanced Technology Attachment (SATA) interface. Thin
provisioning B. This type of backup clears the archive bit and takes the least amount of time to back up but the most amount of time to restore. 291 Chapter Review . CompTIA Server+ Certification All-in-One Exam Guide 194 12. For the Zone name, type fakezone.com and then click Next. Hard quotas actually prevent additional files from being
stored on a server once the quota is reached, so they aren't as useful as soft quotas for tracking purposes. You might know everything there is to know about Microsoft Server 2012 R2, but if you don't know how it is configured, especially in a large network, you may as well know nothing at all! Server documentation will define which roles the server
for instance, how many virtual CPUs (vCPUs) a virtual machine is configured with. Also, if you're looking for more detailed information on topics touched upon in this book, but also includes references for more in-depth coverage of more in-depth covera
has a negative impact on the business. Multifactor authentication combines at least two different categories of authentication, such as a smartcard). Client DNS queries target the DNS server on UDP port 53. In order for the initiator to contact the target, it first needs some kind of
radius • Cable ties 6.0 Disaster Recovery 6.1 Explain the importance of disaster recovery principles • Site types • Hot site • Continuity of Operations • Disaster recovery plan • Replication methods • Disk to disk • Server to server • Site to site • Continuity of Operations • Disaster recovery plan • Compart of the site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disaster recovery plan • Compart of the site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site types • Hot site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to site • Continuity of Operations • Disk to disk • Server to server • Site to server to server • Site to server 
Business continuity plan • Business impact analysis • Who is affected • Severity of impact 6.2 Given a scenario, implement appropriate backup techniques • Methodology • Full/Normal • Copy • Incremental • Differential • Snapshot • Selective • Bare metal • Open file • Data vs. 25 Blade Servers . Enter get-eventlog security
access this iSCSI storage. There is no cmdlet called fix-volume. The Southbridge chipset controls data flow to slower components such as expansion card slots and USB devices. Replace the straight-through cable with a rollover cable. Verify that Charlie's station has a default gateway configured, seek time. The time it takes for a disk drive to locate
where the data that is to be read is stored. As IPv6 becomes more and more common, we'll need a way to get IPv6 traffic sent through the IPv4 Internet. RAID 0 versus RAID 1 C. Because everything is being backed up, full backups take the longest to complete. Enter chgrp sales /projects. RAID controllers have their own firmware configuration utility
to set up the specifics. ReiserFS A journaled file system that is supported on Linux. The purpose of a BCP is to ensure that overall business operations resume quickly after a negative incident. Have you ever wondered why, for example, you can use an IP address of 192.168.1.100 on your home network, and your friend on their home network can
use the same IP address? 79 Hypervisor Host Configuration . A network switch or router can be used as a repeater. DISC CompTIA Server+ Certification All-in-One Exam Guide 18 15. Click the Open button at the bottom. binary Numeric system consisting of 0's and 1's. Identity Federation Today's business computer environments are increasingly
complex: there are business-to-business connectivity requirements as well as on-premises-to-public cloud connections. Internet Protocol (IP) The primary communications protocol for relaying datagrams between networks. RFID mobile reading devices scan items with RFID tags in close proximity, so, for instance, Figure 3-15 SCCM hardware
choose Edit Bindings. Many (not all) security problems are preventable, however, and this section will discuss how to troubleshoot security problems are preventable, however, and this section will discuss how to troubleshoot security problems are preventable, however, and this section will discuss how to troubleshoot security problems are preventable, however, and this section will discuss how to troubleshoot security problems are preventable, however, and this section will discuss how to troubleshoot security problems are preventable, however, and this section will discuss how to troubleshoot security problems are preventable, however, and this section will discuss how to troubleshoot security problems are preventable.
network prefixes: • FE80 Self-assigned link-local address • FF Multicast traffic Chapter 5: Network Concepts 183 • 2001 Global unicast address • FC00 Unique unicast, similar to private IP ranges IPv6 Settings IPv6 uses DHCP, default gateways, and DNS servers in the same way that IPv4 hosts do; just enter the IPv6 addresses for these
components into the appropriate places. Monthly backups can then be stored offsite. network address space into another. This gives you a picture of which is related to which firewall ports should be open on both host-based firewalls. The
access token that contains groups memberships is updated only upon initial user logon. A few USB versions have evolved over the years, from USB 1.x all the way up to 3.x. You'll find these details in Table 2-5. • Does the server support BIOS or UEFI? route print 17. The slash 24 (which is called CIDR notation) means there are 24 binary bits in the
subnet mask, so /24 and 255.255.0 have the same meaning. storage tier Two or more types of storage that are differentiated by various attributes such as frequency of access. Details to Consider Why It Is Relevant Plan physical server hardware. • VMs can talk through the hypervisor's Fibre Channel host bus adapter to access SAN storage
directly. Linux administrators commonly use tools such as ps, top, and iostat for performance monitoring. 261 Chapter 8 Preparing for the Worst. The maximum tolerable amount of failed services C. Server Documentation Server documentation includes the following: • OEM service manuals • Hardware and software inventory • Log files •
Network/dataflow diagrams • Service level agreements • Baseline documentation • Recovery documentation changes during the useful life of the server. Then enter ls -ld projects. If all this interests you
(and you need this certification to get a job!), then you are in the right place. In addition to having backups stored in a safe. Which term is used to describe the act of tricking people into divulging sensitive information? out-of-band management. The use of a dedicated channel for managing devices outside of normal
communication methods. Rotational latency is related to the amount of time it takes for hard disk platters to spin to the correct position; SSDs do not have spinning platters. An alternative is to use a reverse proxy in the DMZ that listens for requests and forwards them to the actual servers located on a protected internal network. WINS uses AAAA
records for IPv6; DNS uses A records for IPv6. Data can now be transmitted between the parties and is acknowledged by the opposite end of the connection; otherwise, the packet is retransmitted if the sender doesn't get an ACK from the recipient after a time interval. The compromise of one trusted root means devices will gladly trust its certificates
• High-speed communication links must be in place between the sites. What benefits do SSDs provide over magnetic hard disks? Name the virtual machine RHEL7-1 and specify a location that has sufficient free hard disk space. Start the Server Manager GUI tool (second taskbar icon from the left). The folder permissions are set as shown in the
following illustration. This means traffic not normally visible becomes visible to all switch ports. Break out the bubbly! Figure 5-10 Manually configuring IPv6 settings in Windows CompTIA Server+ Certification All-in-One Exam Guide 184 Transition Technology Description 6to4 • Allows IPv6 traffic over the IPv4 Internet • Routers on both ends
must support IPv6 • Routers have an IPv6 address configured on their internal interface Intra-Site Automatic Tunnel Address is embedded within the IPv4 address is embedded wi
on the IPv4 Internet • Public Teredo servers and relays are available Table 5-4 IPv6 Transition Technologies The Internet in 2016 uses primarily IPv4. • Schedule the exam online. USB The fastest transmission technologies are serial, not parallel, and that includes universal serial bus, or USB. This journaled file system
is used with many Linux distributions. In the early 1990s, we had modems with dial-up bulletin boards at nonscreaming, painfully slow transmission rates. Incremental Backup Where differential backup, incremental backup, increm
number 63 in binary is 0011 1111, and 001 is 32, and when you set the rest of the bits (001 defines subnet 32, so all of the bits after 001) to 1's it means broadcast—it's just a rule you have to remember. Chapter 8: Preparing for the Worst 313 Figure 8-3 Configuring a DFSR replication group in Windows The rsync tool can be used to synchronize
data between two or more local folders over an intranet or over the Internet. Standard network hardware and software makes iSCSI possible; compared to a SAN, iSCSI is cheaper, slower, and less reliable. Continue through the wizard accepting defaults. In some cases, the PCIe card might be hot-pluggable. Right-click and select New, Folder. Which
server form factor occupies the most space? Consider the fact that there is a front side bus (FSB), a PCIe bus, and others. SRAM is used in smaller amounts and is faster than DRAM, which requires a constant refresh of electricity. A U is 1 3/4 inches. Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) Allows IPv6 traffic on an internal IPv4
network. To allow ICMP ping packets to Srv2012-1, from PowerShell, enter the following: New-NetFirewallRule -DisplayName "Ping Allowed" -Direction Inbound -Action Allow -Protocol icmpv4 -Enabled true 15. Several considerations are related to SAN-based tape backup security: • Which user account performs backups Root or Administrator?
Data Replication Synchronous replication ensures that data is written to primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate locations without delay; this results in up-to-date data between a primary and alternate location without delay; this results in up-to-date data between a primary and alternate location without delay; this results in up-to-date data between a primary and alternate location without delay; this results in up-to-date data between a primary and alternate location without delay; this results in up-to-date data between a primary and alternate location without delay; this results in up-to-date data between a primary and alternate location without delay; this results in up-to-date data between a primary and alternate location with the up-to-date data between a primary and alternate location with the up-to-date data between a primary and alternate location with the up-to-date data between a p
how claims can be configured: the Employee-ID attribute in the left column is changed in the claim to EmpID. The first 2 is used since you're working in binary (0's and 1's); there are only two possible values. Enter vi /projects2/project_b.txt. It's not just the voltage that can harm humans, but the voltage and amperage, or the flow of current.
Determine the scope. TCP 161 C. Chapter 6 will demonstrate how to install and configure a PKI using Windows Certificate Services. Exam Tip Web SSO between on-premises networks and public cloud providers is achieved by replicating an on-premises directory service to a cloud-based directory service. This is often used to control mobile device
apps or web sites. With the availability of cheap and fast external USB devices, consumers have moved away from optical media in favor of USBs because USBs are easy to work with, accommodate many writes—and they just work! Writing multiple times to an open CD, on the other hand, can be tricky, and you need the right software to do it. How
does that work if you can both get on the Internet? www.defaultpassword.com List of default usernames and passwords used for network devices. On the Subscription Management Registration page, choose No, I Prefer To Register At A Later Time. 323 Hands-on Exercises . CAT7 B. Certificate authorities issue certificates. Key fob B. • Snapshot
Settings and data stored in virtual hard disk files and volumes are captured. When determining the best configuration options for your DHCP scopes, consider the following: • Talk to the network infrastructure team to determine which valid IPv4 or IPv6 address ranges can be used. Right-click in the white space on the right and choose Paste. You will
SSDs are superior to HDDs • Plan storage devices • Recognize ways to maintain file systems • Discover a variety of RAID configuration options Today's server storage implementations can be configured from a wide array of options based on
 several considerations, including whether the stored data is directly available to the server or whether it is accessible to the server—for example, down to 600 MHz. Where desktops and servers commonly use the more powerful
Complex Instruction Set Computing (CISC) processors, mobile and consumer electronic devices need less power, which means less heat and cooling required, so they tend to user Reduced Instruction Set Computing (RISC) processors. top D. Servers can use USB for input devices such as keyboards. We can apply an image by booting from alternative
media, including booting over the network using the following: dism /Apply-Image /Images win 2012.wim /index:1 /ApplyDir:c:\ Because multiple images can be stored using the Windows Imaging Format (WIM), we specify the image with the /index parameter. In a data center with thousands of pieces of IT equipment, inventorying and
monitoring is easier when radio-frequency identification (RFID) tags are used. Ensure that both the Srv2012-1 and RHEL7-1 virtual machines are running. You can also use the GUI to view disk, file, and folder properties by right-clicking and choosing Properties. The arp -a command shows IP address to MAC address resolution information. Having a
number of devices that talk frequently on their own small network instead of everybody on a large network makes sense. This can lead to remote escalation attacks. CPUs generate a lot of heat the faster they run. Each server NIC will have its own unique MAC address. File Systems File systems are determined when you format a disk partition.
Encrypt network communications using BitLocker. 83 Installing a Server Operating System . Here are a few UPS remote management considerations: • The UPS can be connected to the server via a USB cable. 46 Exercise 2-3: Create a Red Hat Enterprise Linux 7 Virtual Machine Configuration . Packets going through a router constitute a hop
count. At the GUI level, you can use tools such as these: • Disk Management • Server Manager • Disk Defragmenter • Disk Defrag
as a larger number of partitions than a master boot record (MBR). Because the FC s tandards are designed for speed and reliability, they are more often used in data centers or by service providers. Save the ISO file in a place that you can access from the machine on which you install VMware Workstation 10.x. You'll need approximately 4GB of disk
space to store this Windows Server ISO file. Administrators make token files available to users to import into their software token application, as shown in Figure 6-3. IPSec applies policy settings to computers, and this dictates how IPSec will be used. CompTIA Server+ Certification All-in-One Exam Guide 244 11. Enter Notify of CPU spikes for the
Various SAN standards will be covered in Chapter 4. kill 13. UEFI C. This is a good thing, because having too many services running simultaneously on a single server can negatively affect performance. CompTIA Server+ Certification All-in-One Exam Guide 394 form factor An aspect that defines the physical size and shape of components. In a
RADIUS authentication environment, client devices are referred to as supplicants. ps D. DHCP discovery • Client sends a network broadcast seeking a DHCP server. Different types of RRs are used for different purposes—for example, DNS A records are used to look up IPv4 addresses when a FQDN is provided, and mail exchange (MX) records are
used to find Simple Mail Transfer Protocol (SMTP) mail servers. Edge devices (RADIUS clients) should be configured to forward authentication requests to a central RADIUS authentication server. Cold sites are much less expensive than hot sites, but they must fit into an organization's business continuity plan (BCP) to be acceptable. The Northbridge
is a chipset that connects the CPU to memory via the memory controller. Click IPv4 on the left. Airflow in server rooms and data centers is crucial to keep incoming cool air separated from outgoing warmer air. CompTIA Server+ Certification All-in-One Exam Guide 158 6. Create a mount point folder by entering mkdir /project-x. Transmission Control
Protocol (TCP) A TCP/IP suite transport protocol that establishes a connection between two hosts before transmitting. • Establish implementation timeline. Choose Applications | Utilities and open a terminal window. • Disable unused services and daemons. In the navigation panel on the left, click Edit Virtual Machine Settings. Chapter 2: Server
Hardware 59 11. 17. Once the installation has completed (if it seems stuck, press enter in the PowerShell window), click the Start button at the bottom left of the taskbar. Keep in mind that an increase in RPMs means a decrease in rotational latency, which translates to faster data access times. 87 Server Documentation . CompTIA Server+
Certification All-in-One Exam Guide 116 4. This allows for transmissions at higher frequencies, which results in greater bandwidth. Type Q to exit. Certificates have an expiration date, after which they can no longer be used. Chapter 5: Network Concepts 165 5. Solid-State Drives Solid-state drives (SSDs) have no moving parts, which means less
 physical wear and tear, less power required (no motors to drive), less heat, and less noise (less ventilation needs, as they run cooler because of reduced power draw). Once the Status shows "Completed," click Close. Another example of something you have is a PKI security certificate. Easy! Via the port address. Most manufacturers supply an MD5
hash value on the download web page that you can recompute after downloading, to verify that the file hasn't been changed. Chapter 2: Server Hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server OS supports hardware RAID: • Don't worry about whether your server of the property whether your server of the property hardware RAID: • Don't worry about whether your server of the property hardware RAID: • Don't worry about whether your serv
at a specific rate to reduce crosstalk interference from adjacent wires. Cloud Computing Many organizations and individuals are using, to some degree, some type of cloud computing. Windows from Vista onward. Provision servers
and their IT workloads. You'll also hear the term tape library used on occasion. Storage location of virtual machine hard disks For hypervisor clustering, virtual machine hard disks For hypervisor clustering hard disks For hypervisor cluste
the Linux terminal prompt, type hostname rhel7-1 Then verify that the hostname rhel7-1 Then verify that the hostname has been changed by typing hostname. (We'll take about environment controls later in this chapter.) Sensitive electronic components, when not in use, should be stored entirely in ESD bags (those shiny metal-looking bags). The default gateway,
or router, is used to send traffic outside of the LAN; it must be reachable on the LAN. With identify federation, apps don't have to handle authentication themselves; instead, they consume trusted security tokens containing claims. Most modern computers have wired NICs embedded on the motherboard; servers, including blade servers, often have
on BSD UNIX. The maximum tolerable amount of lost data relates to the recovery point objective (RPO). Widgets, Inc., has offices in London and Paris. It is only with a clear understanding of IP addressing and protocols in a multisubnet environment that you can properly support TCP/IP. What should you do? Firmware updates should also be a part of
hardening, along with setting CMOS passwords on servers and ensuring that antimalware solutions are kept up to date. Data backups should also be encrypted for additional protection. The amount of network traffic has not changed. Contents at a Glance Chapter 1 Introduction to CompTIA Server + Essentials. Chapter 2: Server Hardware 33 CPU
Cache CPUs have small amounts of high-speed memory, or caches, to speed up the execution of anticipated CPU instructions—or, said differently, to increase the hit rate. Naturally, this will make you valuable in the real world! Storage Troubleshooting Because the former CompTIA Storage + certification body of knowledge is now included in the
CompTIA Server+ certification, not only do you have to understand the subject of storage, but you also have an obligation to know how to fix it when it's broken or performing badly. When an alternate site is active and a negative incident occurs, things are set into motion, such as the following: • Failing over IT services to the alternate site is active and a negative incident occurs, things are set into motion, such as the following: • Failing over IT services to the alternate site is active and a negative incident occurs, things are set into motion, such as the following: • Failing over IT services to the alternate site is active and a negative incident occurs, things are set into motion, such as the following: • Failing over IT services to the alternate site is active and a negative incident occurs, things are set into motion, such as the following: • Failing over IT services to the alternate site is active and a negative incident occurs, things are set into motion, such as the following: • Failing over IT services to the alternate site is active and a negative incident occurs, things are set into motion in the following: • Failing over IT services to the alternate site is active and a negative incident occurs, things are set into motion in the following: • Failing over IT services to the alternate site is active and a negative incident occurs, the fail of the fail occurs in the fail occurs i
and DNS • Hosted web sites • Virtual machines • Line of business applications • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv4 and IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv6 addresses • Ensuring that notifications are sent to affect IT service consumers • Dynamic DNS updates for changed IPv6 addresses • Dynamic DNS updates for changed IPv6 address
clustering solutions. Pointing to a different DNS server could mean the required service location records are not present. CompTIA Server+ Certification All-in-One Exam Guide 408 Wi-Fi A technology that enables computing devices to connect wirelessly using the IEEE 802.11 standard. UDP UDP is much simpler than TCP. 150 Exercise 4-7
Retrieve Disk Information Using PowerShell . Start Windows Explorer (fourth icon from the left on the taskbar at the bottom of the screen; it looks like a yellow folder). Imaging D. x64) • Apply previous dependencies first • Acquire patches for appropriate platform architecture Service failure • Dependency services failed to start • Service account
has insufficient permissions • Service account password has expired • Ensure that dependent services are still being applied • Use Task Manager in Windows or Linux kill command to terminate offending process • Wait until updates have
finished being applied Users cannot print • Windows print spooler service • Ensure that printer in OS • Incorrect or corrupt
printer driver Table 7-2 Common Software Issues and Solutions • Grant the service account required permissions • Set service account password CompTIA Server+ Certification All-in-One Exam Guide 272 Figure 7-6 User Account required permissions • Set service account password CompTIA Server+ technician, you will have software
 utilities available at all times to resolve software issues guickly. Which server role stores network configuration objects in a centralized and replicated database? You may have to wait a few minutes as the snapshot is created. Modern CPU chips consist of multiple logical CPU cores within a single physical chip. Click the + symbol to the left of
Srv2012-1. Exercise 6-2: Set Shared Folder Permissions 1. We ensure that you will easily pass the CompTIA Server+ exam either by using SK0-004 PDF questions or taking the practice exam is web-based and desktop formats. You can set this up at the software level (within the server OS) or at the hardware level using a RAID controller. Physically
today's server motherboards accept Dual Inline Memory Module (DIMM) chips. Client web browsers normally use DNS to resolve FQDNs to IP addresses; this is so much easier than typing in a difficult-to-remember IP address in the browser's address bar. Reproducing the problem relates to problem identification. Most hard disk platters have either
a 2.5- or 3.5-inch diameter. Table C-3 Cloud Computing Best Practices Storage Server storage is often the slowest subsystem in a physical or virtual server. File servers housing thousands of user home directories are enforced.
The certificates contain keys that provide security in the form of authentication and encryption. CISC B. In Chapter 3, we will install an AD domain for centralized administration. 281 Malware Troubleshooting . You might choose to encrypt backups for additional security
Other daily tapes keep getting reused as the cycle continues. Large data centers can increase their server density using blades, so scalability is not a problem. 176 PAT . • Keep your antimalware solution up to date. SCSI B. IPv6 addresses are exposed in hexa decimal, where every 16 bits is separated by a full colon. Windows administrators assign
                           permissions to control network access to files. They take up a lot of space and they can't be rack-mounted, as you can see in Figure 2-1. • Rename or disable default accounts. Enter lsblk --scsi to list SCSI disk block devices. Unlike a hub, switches allow multiple concurrent network conversations. 383 Total Tester Prem
Exam Software . ESD is not reduced by storing components in plastic bags or freezers. Remember that cloud backup solution that is similar to physical backup storing components in plastic bags or freezers. Remember that cloud backup solution that is similar to physical backup storing components in plastic bags or freezers. Remember that cloud backup solution that is similar to physical backup storing components in plastic bags or freezers. Remember that cloud backup storing components in plastic bags or freezers.
and authenticated using IPSec without your having to configure security for each app or network service. business continuity plan (BCP) This proactive planning ensures that business operations continue when negative incidents occur; this plan is not as detailed or specific as a disaster recovery plan. Table 2-4 shows examples of PCIe speeds in
megabytes per second (MBps) as well as gigabytes per second (GBps). OS restore • Backup media • Control of the 
retention • Media storage location • Offsite • Onsite • Security considerations • Identify the problem and determine the scope • Question users/stakeholders and identify changes to the server/environment • Collect additional
documentation/logs • If possible, replicate the problem as appropriate • If possible, perform backups before making changes • Establish a theory of probable cause (question the obvious) • Determine whether there is a common element of symptom causing multiple problems • Test the theory to determine cause • Once theory is confirmed, determine
next steps to resolve problem • If theory is not confirmed, establish new theory or escalate • Establish a plan of action to resolve the problem and notify impacted users • Implement the solution or escalate as appropriate • Make one change at a time and test/confirm the change has resolved the problem • If the problem is not resolved, reverse the
change if appropriate and implement new change • Verify full system functionality and if applicable implement preventative measures • Perform a root cause analysis • Document findings, actions, and outcomes throughout the process 7.2 Given a scenario, effectively troubleshoot hardware problems, selecting the appropriate tools and methods •
Common problems • Failed POST • Overheating Appendix D: CompTIA Server+ Certification Exam Objectives (SK0-004) 377 • Memory failure • Incorrect boot sequence • Expansion card failure • Operating system not found • Drive failure • Incorrect boot sequence • Expansion card failure • Incorrect boot sequence • Incorect boot sequence • Incorrect boot sequence • Incorrect boot sequ
problems • Third-party components • Backplane failure • Environmental issues • Dust • Humidity • Temperature • Power surge/failure • Hardware diagnostics • Compressed air • ESD
equipment 7.3 Given a scenario, effectively troubleshoot software problems, selecting the appropriate tools and methods • Common problems • User unable to log on • User cannot access resources • Runaway process • Cannot
mount drive • Cannot write to system log • Slow OS performance • Patch update failure • Service failure • Hangs no shut down • Users cannot print • Cause of common problems • User Account Control (UAC/sudo) • Corrupted files • Lack of hard drive space • Lack of system resources • Virtual memory (misconfigured, corrupt) • Fragmentation •
Print server drivers/services • Print spooler • Software tools (resource monitor) • Defragmentation tools • Disk property tools (usage, free space, volume or drive mapping) 7.4 Given a scenario, effectively diagnose network problems, selecting the appropriate tools and methods • Common
problems • Internet connectivity failure • Resource unavailable • DHCP server misconfigured • Non-functional or unreachable • Destination Exam Objectives (SK0-004) 379 • Default gateway misconfigured • Failure of service provider • Cannot reach by
hostname/FQDN • Causes of common problems • Improper IP configuration • VLAN configuration • Port security • Improper subnetting • Component failure • Incorrect OS route tables • Bad cables • Firewall (misconfiguration • VLAN configuration • Improper subnetting • Component failure 
hosts file • IPv4 vs. column access strobe (CAS) latency A memory characteristic that defines how long it takes for requested memory content to leave the actual memory characteristic that defines how long it takes for requested memory content to leave the actual memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested memory characteristic that defines how long it takes for requested how long it tak
various graphical tools, either locally on the server or remotely using a remote management solution such as Remote Desktop Protocol (RDP). Consider a malware infection in one data center that somehow goes undetected and gets replicated to other data centers, or a region-wide outage that might be caused by inclement weather. BISC C. At the
server level, today's storage (per disk) falls somewhere in the 1 to 8 terabyte (TB) range, but this is constantly evolving. This publication and CD-ROM may be used in assisting students to prepare for the CompTIA Server+ exam. One-phase power is used for small power draw needs such as heating systems and lighting. An example of a public IPv4
address is 199.126.129.77. It has happened!) Disk Scrubbing Disks don't get dirty and therefore don't need to be scrubbed for cleanliness. Maintenance Once servers are humming along, we want to keep them going. 374 6.2 Given a scenario, implement appropriate backup techniques . Input/output operations per second (IOPS) How often a disk
can perform disk I/O operations depends on the specific workload, but generally more is better. Table 5-6 shows some common UDP-based services. IPMI also provides server monitoring and inventory functionality. Naturally, synchronous replication solutions tend to be more expensive than asynchronous ones, but with a short RTO, the cost of
synchronous solutions could be justified, especially when you consider the fact that some data could be lost with an asynchronous solution. Software is hosted at a central location and provided on a subscription basis. incremental backup A backup of files that have
changed since the last full or incremental backup. 132 Storage Capacity and Future Growth . • Cause: They were not added to the required groups. On the right, click Change Settings, and then click the Change button. This can be difficult it if involves specific functionality in a custom app, so in some cases the end user can help by further
explaining the issue. To the right of the Wired network connection, click the slider so that it changes from OFF to ON. Network-Attached Storage File-sharing protocols such as Microsoft Server Message Block (SMB) and the UNIX Network File System (NFS) enable user connectivity to shared file systems over a network. Your firewall can filter traffic
based on the contents of packet payloads. Exam Tip Know the application layer protocols and their port numbers. Broadcasts are transmissions that are received by all network nodes on the LAN. Configure an IPv6 tunneling solution. To ensure that network services are listening on a specific TCP or UDP port, use the Windows netstat command.
Anycast 20. The virtual switch may allow communication only between virtual machines on the hypervisor or it may allow access to the real network. As an example, EMC, the same company that owns VMware, offers the fully automated storage tiering (FAST) feature. This applies to both IPv4 and the newer IPv6. daemon A background process on a
UNIX or Linux system not tied to a user session. Rollover cables are used to connect administrative stations to the console port on network equipment such as routers. Conceptually, this is similar to putting out a fire and preventing other fires from occurring by identifying sources of a fire—such as leaving the stove on after cooking. • Your third
subnet address is 200.200.1.96/27. • VMs can use raw disk space on the hypervisor. Ensure that servers at both locations are configured with the same default gateway. On the Backup Options screen, ensure that Schedule Backup Options are configured with the same default gateway.
to have proper documentation. TDR C. Right-click the SwRaid storage pool and choose New Virtual Disk. Cable Standard Maximum Transmission Rate Frequency CAT5 • Also called 100BASE-T or Fast Ethernet 10 or 100 Mbps (1Gbps) 100 MHz 1 Gbps (100m) or 10 Gbps (55m) 250 MHz CAT6a • More
expensive than CAT6 10 Gbps 500 MHz CAT7 • Individual wire pair shielding 10 Gbps at 100m 600 MHz • Also called 1000BASE-T (55m only) • Useful in high EMI environments • Also called 10GBASE-T • Cables are larger and heavier Table 5-2 Copper Cable
Categories CompTIA Server+ Certification All-in-One Exam Guide 170 Contrary to popular belief, the term "fiber-optic" does not always means faster transmission rates, although many vendors market it this way, such as FibreOP for the home. User Account Control is the most likely problem. For example, /24 can be used to represent 255.255.255.255.00
clock multiplier Defines a relationship between the external CPU bus speed (MHz) versus the internal CPU bus speed (MHz) versus the internal CPU bus speed (MHz). You are planning the use of a new 8TB HDD. Today's standards include Linear Tape (DLT), which are discussed in the following sections. Enter openssl enc -d
-aes-256-cbc -in project b encrypted.txt -out project b decrypted.txt 10. Create a folder called Projects on C:\ by right-clicking Local Disk (C:) in the left navigator and choosing New, Folder. The question does not state that files are encrypted, so decryption and recovery agents do not apply. Removing the NIC is unnecessary since driver rollback will
solve the problem. WINS is not hierarchical; DNS is. iSCSI initiators connect to iSCSI targets either on the same or a different voltages using alternating current (AC) as opposed to direct current (DC), which is provided by batteries. The difficulty with symmetric keys is how to
distribute them securely—knowledge of the symmetric key is all that is required for decryption. • Is support available only during business hours? Many companies often use a hybrid of hypervisor solutions. 331 Questions and Answers . 106 Server Roles . Each server OS supports various file systems—some old, some new—that can meet your
requirements. The operating system sees only one l ogical disk. Hardware to consider includes the following: • Routers • SAN switches • SAN s
network switches, there is an entire set of configuration items to consider when hardening. RAID disk striping arranges multiple disks to work as a single unit to optimize disk reads and writes. With IPv4, there is a shortage of addresses. Logical Access Control Managing individual user access to resources is difficult to manage on a large network;
therefore, it is rarely done. Although SSH is normally used for command-line remote management, CompTIA Server+ Certification All-in-One Exam Guide 88 X-forwarding can be enabled within SSH to redirect graphical UNIX and Linux applications to show up on the client computer. Click Notepad to launch the application. Let's detail this packet
exchange: 1. Blade servers increase server density in data centers compared to rack-mounted and tower servers. This is often used on service provider backbones and requires optical multiplexer and demultiplexer and demultiplexer and demultiplexer and tower servers. This is often used on service provider backbones and requires optical multiplexer and demultiplexer and demultiplexer and tower servers.
demanded US $40,000 to cease the attacks for up to 12 months. Quicker file access 7. alternating current (AC) This type of power uses small variations in voltage and current and is available from power outlets and consumed by power supplies. This will begin the installation process and place an icon on your desktop and in your Start menu. On the
left, expand your server name, and then expand Sites. An enterprise IPv4 or IPv6 environment can be tricky to troubleshoot because the problem is specific to that implementation. Keypads are another option for opening doors, as well as arming and disarming security systems; you have to know the code. Right-click Personal and choose All Tasks,
Request New Certificate. Plan server roles. One way to ensure server uptime is to configure failover clustering. Press the i key. Keep up with the latest security issues related to hardware and software used in your environment Take proactive steps to address discovered vulnerabilities. Simultaneous read/write from multiple nodes 20. Subnetting
occurs when host bits are borrowed to address subnetworks beyond the original network. NIC teaming groups multiple network cards together for the purpose of redundancy or greater bandwidth. Click Address Leases. Table 4-1 Storage Speed Factors Modern enterprise server environments often use a hybrid of SSDs and slower agnetic hard
disks that are configured in different storage tiers. MAC addresses are also called Layer 2 addresses. PXE booting occurs over the network without local media, and services such as Microsoft RIS/WDS provide this functionality. Who and What Are Affected? A router has memory that storage tiers. MAC addresses are also called Layer 2 addresses are also called Layer 2 addresses.
branch office servers to a central server where data backups take place. It prevents local area network broadcasts from reaching other subnets. Troubleshooting Methodology Solving IT issues is a combination of knowledge, experience, and the application of a sound troubleshooting methodology. Multifactor authentication Usernames and passwords
are single-factor authentication and can be guessed or brute-forced from anywhere over a network. • This can also specify how quickly the provider responds when you need support. AAAA C. What happened to IP addresses 1-31? Start the w32time service by typing start-service w32time. Which Linux tool should you use to view disk device read and
write statistics? 6. Business Continuity Plan The BCP ensures that business operations can continue or resume quickly during or after an IT failure. DHCP clients will attempt to renew their leases before they expire. A single rack-mounted device might be 1U or up to 7U in height. You need to configure DHCP to deliver a specific IP address to a
specific network printer. DHCP D. Check the box that says Do Not Start Server Manager Automatically At Logon. The motherboard must have multiple CPU sockets. So if we perform full backups and differential backups are supported by the support of the backups and differential backups are supported by the backups are supported by the support of the backups are supported by the b
Tuesday, and Wednesday). CAT6a D. SLAs provide fault tolerance. Close Internet Explorer. The client device will not be able to communicate outside of the LAN, and within the LAN it can communicate only with other APIPA hosts. Clients need the DC not only for authentication, but also to
periodically pull down Group Policy settings configured by the Windows administrator. PXE In addition to performing the server OS installation from local media (setup.exe for Windows server installations) or a locally stored image, we can also boot over the network—this is referred to as Preboot Execution Environment (PXE). Some cloud providers
support server-side encryption; otherwise, you'll have to encrypt data before backing it up to the cloud. MAC flooding attacks overwhelm the limited switch memory to retain MAC addresses plugged into switch ports, which makes traffic flood to all ports, much like a hub. USB 2 C. • Configure a host-based firewall. Hands-on Exercises Exercise 4-1:
Configure a Windows Server 2012 R2 iSCSI Target 1. Take care to follow the principle of least privilege—it's inconvenient, but it matters: assign only the rights and permissions necessary to perform a job task, and nothing more. Which of the following is a valid concern regarding ceiling cable channels? Of course, it takes nothing to spoof the source
IP address of the zombie computers that ran the attack, so tracking down the culprit machines is made more difficult. DDR3 chips can be plugged into DDR4 sockets. The CompTIA Server+ Certification SK0-004 exam will not test you on many specifics of the Windows operating system, but you will be tested on general server concepts that are
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Certification All-in-One Exam Guide 76 accessing files over the Internet. • The human element Have thorough background checks been performed on backup administrators? Then, on the final wizard page, click Finish. Windows Server Update Services (WSUS) A program developed by Microsoft that enables administrators to deploy updates
selectively to computers in a corporate environment. Low RTO D. (Actually, this is just a techie's attempt at humor [fail?]; Brain+ does not exist!) xix CompTIA Server+ Certification All-in-One Exam Guide xx The following list provides some general test-taking tips: • Have a positive attitude. All stakeholders must know their roles for the effective
recovery of failed systems. The IIS default web page should be displayed. Table 2-1 shows common CPU cache sizes, which will vary between CPUs and motherboards. Virtual CompTIA Server+ Certification All-in-One Exam Guide 56 Questions and Answers 1. 209 Physical Security . 9 Security Considerations . Chapter 1: Introduction to CompTIA
Server+ Essentials 17 10. You might wonder what role the MAC address then plays; in our example, your machine must know the MAC address of the router, or default gateway, to get traffic out of the LAN. Virus D. When a cluster node fails, users are redirected to a remaining node that offers the same network service. If your server room contains
only towers, you may find it tricky to organize all of the cables. As always, we need to determine who (or what) is experiencing network communication issues. So when we are working with electronic components, including customer replaceable units (CRUs) provided under warranty by a vendor, we must take care. BIOS The basic input-output
system (BIOS) is firmware built into a circuit board such as a motherboard or a RAID disk controller. They all run as services (or daemons) that enable connections on specific ports, as listed in Table 3-3. There is no difference. port aggregation — A network switch port configuration that groups ports together, often for the purpose of server NIC
teaming. This type of cable can also be required by older network equipment—to link two old Ethernet switches together, for example. Because Type 1 hypervisors don't rely on another operating system, they have the benefit of increased security over Type 2 hypervisors. All of the responsibility, however, isn't just on the provider. Growing Demand
Labor estimates predict some technology fields will experience growth of more than 20% by the year 2020. Perhaps we want to add a 10 GBps (gigabits per second) Ethernet network card to our rack-mounted server. Equalizing the charge between objects that will come into contact reduces the flow of electrons, which can damage sensitive electronic
components. What should you use? Nano Server A version of Microsoft Windows Server with a small footprint that is optimized for remote access and cloud services. • Over what distance must the transmission travel? A warm site provides a location, power, equipment, and communications links, but not up-to-date data. Wired Equivalent Privacy
(WEP) A security algorithm for IEEE 802.11 wireless networks that is superseded by WPA and WPA2, which provide better security. For example, compromising a hardware VPN security token and a username and password is much more difficult over a network. IPv6 is not required for iSCSI; IPv4 works well. Log forwarding is especially important
for edge devices like VPN appliances or public web sites in a DMZ. Complex Instruction Set Computing (CISC) processors tend to be used in desktops and servers where more complex processing is required. • With complex questions, ask yourself, "What is the question really asking?" At the Testing Center After booking your exam, take the time to
ensure that you know how to get to the center, including any buses you might take, and find out where you can park if you plan on driving. More than the RTO A. Data center C. A mail server is being flooded with spam. Choose Add A New Forest, and within the Deployment Configuration window and for the root domain name, type fakedomain.local.
Appendix C: Real-World Best Practices 353 Details to Consider Why It Is Relevant Potential virtual machines will start up on another cluster node, it has to have the physical hardware resources to accommodate the three failed-over virtual machines. Open
the Security tab, click the Advanced button, and then click the Effective Access tab. Other, third-party, disk volume encryption and Sophos Safeguard Enterprise, to name a few. • Try to specify at least two default gateways for remote network connectivity in case one
router becomes unavailable. Notice the four service location records for the domain controller. HDDs are disk platters only. Creating and using a BCP involves the following steps: 1. Click OK and then click Next. For example, on a Windows server, we can compress all files on drive D: with the following command: compact /c /i /d:\ From a terminal
prompt on a Linux host, we could use gzip -r zipped_budgets_2014 /budgets_2015 CompTIA Server + Certification Data deduplication can remove redundant data blocks to conserve space. Conduct UPS battery testing
periodically to ensure that the batteries will provide power when needed. 317 Backup Types . UEFI supports enhanced features such as IPv6 boot support and Secure Boot. northbridge Also known as a host bridge; communicates with the CPU directly through the front side bus. Winrs 25. VPNs enable encrypted connectivity to a private network
over an untrusted network. Another DNS server would be authoritative over the sales.mheducation.local zone, and so on. A mathematical algorithm is used with a key to change plain text into cipher text (encrypted data). As discussed in Chapter 3, SSDs perform better than magnetic HDDs, and you can configure them both in storage tiers so that
frequently accessed data is stored on the faster SSDs. Whether server storage is local or accessed via a SAN, hardware RAID levels designed for performance (disk striping, or RAID 0, for example) should be used. virtualization The ability to create a virtual version of something, such as an operating system, hard disk, or application. HDD 16.
Therefore, only one row of 7U UPS batteries can be mounted in the rack. Unless otherwise stated, it is understood that 100 meters is the maximum distance. You run an antimalware directly. CompTIA Server+ Certification All-
in-One Exam Guide 36 Figure 2-7 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR2 240 200-500 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR2 240 200-500 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR2 240 200-500 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR2 240 200-500 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR2 240 200-500 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR2 240 200-500 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR2 240 200-500 DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR3 240-pin memory module Table 2-3 DDR Memory Details Type Number of Physical Pins Approximate Bus Speed (MHz) DDR3 240-pin memory module Table 2-3 DDR3 240-pin memory m
a marker and laminated paper to write notes and calculate values, such as valid subnet ranges. The - 2 is required because a subnet address cannot be all 0's or 1's in binary, so you must subtract these two invalid possibilities. TDRs and OTDRs can be used to ensure copper-based and fiber-optic cable continuity. The account automatically changes its
password based on the Active Directory domain's password policy. RDP D. There are ways to enforce this centrally, such as using Group Policy in an Active Directory domain's password policy. RDP D. There are ways to enforce this centrally, such as using Group Policy in an Active Directory domain's password policy.
server). Click the Forward button. Also watch out for the appropriate use of USB cables—for example, one cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone, while a similar looking cable may be used for both charge a smartphone may be used for both charge a smartphone may be used for both charge as many be used for both 
Security . Double-click Notify Of CPU Spikes in the list. Run periodic drills to ensure effectiveness. Motherboard documentation will detail support for types of memory and denominations. RADIUS Servers Remote Authentication Dial-In User Service (RADIUS) is an old standard that persists today, with improvements made over the years. Virtual C.
Asynchronous replication introduces a delay from the primary write. Chapter 3: Server Operating Systems 117 7. You must always make sure that internal data is not r eplicated to a public facing network—examples include DNS servers in a public network replicating with internal DNS servers—and the same goes for replicating directory services
(such as Microsoft Active Directory). Follow a structured approach to solve problems as quickly and efficiently as possible. confidentiality Prevent disclosure of sensitive information to unauthorized users; provided by encryption. Layer 3 switches have built-in routing capabilities, so it's convenient to configure inter-VLAN routing using a single
device. File servers are file repositories in the enterprise. If your server will be a member of a specific VLAN, you may have to use a specific VLAN, you may have to use a specific switch port. Chapter 7: Troubleshooting and Performance Optimization 263 Check the Log Files There are many types of log files, listed here. fully qualified domain name
(FQDN) The complete domain name of a specific computer/host on the Internet, such as www.mheducation.com. When providers fail to meet SLA expectations, they may offer credits of some kind, and you should determine whether there is a maximum number associated with this. Unlike a normal expansion card, daughter cards have direct access
to CPU and memory resources. Warm sites include network links and power; they are missing only staff and up-to-date data. Press shift-del. CompTIA Server + Certification All-in-One Exam Guide 74 AD is a Windows PowerShell cmdlets Commands that enable automation
• Server Manager GUI tool on the server or the client Other Server Roles We have jobs in IT because we use technology to solve business problems. Reproduction or dissemination of this courseware sheet is prohibited without written
consent of CompTIA Properties, LLC. Press y (for yes, to continue creating the array). RAID is related to multidisk configure LUN zoning. Your virtual machine settings will then list three virtual hard disks as shown in the
following illustration. • Prevent certain memory pages from running executable code. Where the gpudate command forces a Group Policy update, gpresult /r shows the resultant set of policy, listing GPOs that are applied to the machine where the command was run. ESD 10. You can use VMware Workstation for free for 30 days, but you'll need to
create an account at VMware before you can proceed with the download. SYN Initial sequence number (ISN) is sent by the initiator and is used to track data sent and received. In the same way, a disk subsystem might accept only 4 disks, or it might accept 128. DDR3 Double data rate 3 memory; a type of dynamic RAM supported by some
motherboards. Storage Technologies A wide array of factors will influence your storage decisions, including decisions regarding where the storage will exist. CompTIA Server+ Certification All-in-One Exam Guide 186 DNS Hierarchy DNS is a hier
issues. What category of processor do mobile devices use? A Forward lookup record FQDN is included in the query and an IPv4 address is returned. A blade enclosure for the utmost in space savings (what techies like to call "increasing data center server density"). high availability
Continuous access to data or IT systems. Outside of PowerShell, you can use the Windows winrs command to execute commands remotely on a Windows host, but you need to ensure that WinRM has been enabled. • Get a full night's sleep for a few days prior to taking the exam. 361 2.2 Compare and contrast server roles and requirements for each
Reverse proxy servers are listeners on a publicly visible network that forward traffic to a specific network service on an internal protected network service on an internal protected network that forward traffic to a specific network service on an internal protected network service on the service of 
backed up within a certain timeframe. The term "bare metal" refers to a hard disk, the usual medium on which a computer's OS is installed. Do not use WEP or WPA For Wi-Fi networks, don't use WEP or WPA because they have been proven to be hackable using freely available tools such as Kali Linux. fdisk C. Which file and print sharing protocol is
used by Windows devices? virtual server A server operating system running within a virtual machine on a hypervisor. The DNS server will return the IP address for windowsupdate.microsoft.com to ServerA. Since we're working with binary 0's and 1's, the smallest possible value for an octet is 0 (00000000 in binary) and the largest is 255 (111111111
in binary), so you'll never see an IPv4 address like 267.3.52.378—it's not possible. UDP 123 D. Configure RAID disk striping. Exercise 3-5: Install an Active Directory Server in Windows Server 2012 R2 1. Storage location of snapshots, or checkpoints, can consume large amounts of disk space. 285 Performance Optimization . Some large
external USB drives are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles and features, click Add Features are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles and features, click Add Features are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles and features, click Add Features are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles and features, click Add Features are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles and features, click Add Features are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles and features are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles and features are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles are simply enclosures are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles are simply enclosures are simply enclosures that contain an internal magnetic hard disk. If prompted to add additional roles are simply enclosures are simply enclosures.
also like to thank the rest of the wonderful team at McGraw-Hill Education for making this project a great experience, resulting in a solid and fun book. This is a tedious task; users are normally requirements, such as some
uppercase and lowercase letters, numbers, symbols. Security-related hardware and software have log files that we can peruse to determine problem causes. 50 Environmental Controls . Some apps require administrative privileges not only to install, but also to run—it depends on the app and where it reads and writes to and from in the file system.
and registry. Remember to check related logs for clues. Your boss has asked you to determine what equipment must be ordered to set up a new FCoE environment. Chapter 2: Server Hardware 31 Here's a list of a few UEFI features that most BIOS firmware does not support: • Graphical interface with mouse support • GPT hard-disk support • IPv6
support during boot • Secure Boot • Support for new modules for additional functionality Let's zoom in to the UEFI Secure Boot feature for a moment. Servers provide services and content to use a lock-down security cable to protect expensive data projection units, but these are replaceable and don't contain sensitive
company data as laptops would. RDP is used to manage Windows computers remotely. Bluetooth is a short-range wireless standard used by headsets, speakers, and so on, but it is not used for payment card systems. This is a much better use of space than tower servers arranged on the floor. Consider software misconfigurations. SuperDLT Supports
larger capacities and transfer rates than DLT. Enter useradd utwo -G sales. On the Ready To Perform The Requested Operations screen, click Continue. The default gateway D. Print Server As the name implies, a print server manages the printers on a network. Updated metadata is synchronized from either Microsoft update servers online or from
another WSUS server, 197 Questions and Answers. lights-out management (LOM) The use of a dedicated management channel that enables administrators to monitor servers even when they are powered off. What must you have to ensure this? No permissions 10. You should total the draw for a UPS to ensure there's enough power to go around.
Layer 2 and Layer 3 Switches Most switches are Layer 2 devices because they work with MAC addresses. Instead, these edge devices should forward authentication requests from devices and users to a central authentication authentication requests from devices and users to a central authentication authentication requests from devices and users to a central authentication authentication requests from devices and users to a central authentication authentication authentication authentication authentication authentication requests from devices and users to a central authentication authenticati
running that code locally on a client computer. MAC flooding attack D. Double-click the downloaded .exe installer file. He specializes in web and print design, Microsoft Office applications, and computer maintenance, network, and security. Note About touching the computer chassis: ideally you will be touching an unpainted part of the case. • A
VM's virtual network adapter can be linked to a specific physical network adapter through a virtual local area networks (VLANs) are available also with Layer 2 switches, such as port-based VLANs, which group devices together based on the switch ports they are plugged into. Windows systems
might need User Account Control (UAC) settings loosened up to allow apps to run. There's also the issue of power and data cables. UNIX and Linux environments provide various tools to troubleshooting and Performance
Optimization 273 Figure 7-7 Viewing disk I/O statistics in Resource Monitor Figure 7-8 An alert Data Collector Set based on CPU usage • kill Terminates processes • df Shows disk free space Windows environments have built-in tools for mapping drives, such as the GUI, net use command (Figure 7-9), or the new-psdrive PowerShell cmdlet. 6
     . 238 Data and Mobile Devices . Click the Start menu, right-click This PC Tile, and choose Properties. On the number of physical or logical processors; talk to your software vendor to ensure your compliance with their
license rules. The mathematically related private key is used by the recipient to decrypt the message. In the cloud, it's important to deprovision unneeded resources (such as storage) to avoid charges. You might have to supply device drivers
during installation if they aren't detected by the installation program. 29 BIOS . Rack-mounted servers ship this way out of the box, and sometimes they also include rails and the screws needed to secure the rails on the rack. Even if a mission-critical database server has failed, if infrastructure services such as DHCP and DNS have also failed, they
need to be operational first. PKI certificates can be used to encrypt and digitally sign sensitive e-mail messages, to encrypt files, to authenticate a smartphone to a VPN, to secure a web site over HTTPS, and for other purposes. 103 Exercise 3-7: Configure Windows Server 2012 R2 to Use Internet NTP Time . An XML file is used as a catalog of
backed-up content on the LTFS and is not stored at the beginning of the tape, which makes access quicker (no need to rewind tape). 148 Exercise 4-5: Monitor Disk Space Using File Server Resource Manager . Dealing with bundles of unlabeled knots of network cables is not so great; check out Figure 5-1 to see what I mean. At a user station, you
notice the IP address begins with 169.254. 109 Questions and Answers . Many public cloud companies offer various types of firewalls in the cloud, a part of Security as a Service (SECaaS). volt-ampere (VA) The "apparent power" that is the product of the voltage applied to the equipment multiplied by the current drawn by the equipment. More
twists per inch for copper wire pairs means less interference from adjacent wires. Read and write C. In the left navigator of the DNS manager window, expand your career. The MAC address is the hardware address of a network
interface. Then, to the right of the network interface, click the Start button. Server Documentation If you've ever done IT consulting, you know that accurate and readily available documentation Server Documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation If you've ever done IT consulting, you know that accurate and readily available documentation IT consulting, you know that accurate and readily available documentation IT consulting, you know that accurate and readily available documentation IT consulting that accurate and readily available documentation IT c
19 Disk scrubbing storage media is sorting to ensure that sensitive storage devices are the ones that get destroyed. error correcting code (ECC) A type of memory chip often used in servers that can not only detect but also correct certain types of data corruption errors in memory. Common modern virtualization solutions include these: • VMware
• Microsoft Hyper-V • Citrix XenServer • Oracle VM VirtualBox The combination of slim-profile physical server com or a large data center facility. CompTIA makes no guarantee concerning the success of persons using any such
 "Approved" or other training material in order to prepare for any CompTIA certification exam. RADIUS authenticator and consumer are not valid terms in this context. Encrypting entire disk volumes or individual files and folders adds another layer of security. printed circuit board (PCB) An insulating sheet of material on which conductive leads of
conducting materials are placed to create electric circuits. Table 7-3 lists common storage problems, probable causes, and possible solutions. RSA token Used for VPN authentication, this device is synchronized with the VPN device and has a small display showing a numeric value that changes periodically, every 90 seconds for instance. Enterprise
class storage array vendors provide replication solutions for their disk array enclosures. I've run into plenty of IT people who state they don't need to bother learning anything about subnetting, especially with the advent of PAT and NAT. • Review the BCP with the BCP team. Multiple switches can be linked together with a straight-through cable,
although older switches may require a cross-over cable. Disk mirroring B. I would like to thank Hilary Flood for providing the opportunity to create this book. The idea is to minimize the risk of threats occurring. This exercise does not actually install the Windows Server operating system; it just gets the virtual hardware configured for use in a later
exercise. This server form factor has all server components housed within a single case that can sit directly on the floor or on a desk. Server racks have conduits into which makes labeling and troubleshooting easier. For example, if you want user disk quota and file encryption support on a Windows server
you should be using NTFS. • What can be done to improve the performance or security of an IT system? Operating system virtualization enables multiple OSs to run in their own virtual environments on the same physical host. For customers using Adobe Digital Editions and an iPad, you may have to download and install a separate reader program on
your device. This is the Internal IP address of Srv2012-1, and you should get a reply. With both IPv4 and IPv6, the Dynamic Host Configuration Protocol (DHCP) is used to provide central IP settings that are delivered to network nodes. 209 6 CompTIA Server+ Certification All-in-One Exam Guide 210 Access to a physical structure is always an issue.
Lock the server chassis or rack case. On the Input Sources screen, click Next. Let's say it's the first day on the job for a Services . Switch back to Wireshark, and choose Capture | Stop. This is a network interface identifier.
Clients on the network are configured to use DNS1 for name resolution. Fdisk is no longer used in Windows, and PowerShell implies that Windows is in use. 152 Questions . Computing and the Internet were taking off, and many companies realized they needed servers on premises. The answer, of course, depends on the IT workload the server will
be running. Planning servers before jumping into the actual configuration is paramount. Microsoft's Remote Installation Service (RIS) and the newer Windows Deployment Service (RIS) and the new Proposition (RIS) 
Certification All-in-One Exam Guide 90 Additionally, PowerShell Desired State Configuration (DSC) enables administrators to configure and manage Window and Linux hosts centrally using a declarative syntax, as shown in the following example: configuration IISInstall { node ("localhost")}
                                                                                                     } This would be placed in a PowerShell script. Your smartphone might use this to establish trust (at the device level) between the phone and a VPN appliance. We'll talk about how this works in Chapter 4. Topics formerly included in the discontinued CompTIA
Storage+ certification are now included with Server+. selective wipe A technique in which application data on mobile devices is wiped if access to the data has been revoked, while leaving personal apps, settings, and data untouched. You could use quarters and years as backup cycles for even longer term archiving Group Policy A Windows
feature that defines user, security, and network policies. Know beforehand what the server will be used for; this can sometimes dictate installation choices as well as hardware requirements. Servers need a FC HBA to connect to SAN storage. Security guard D. Table 5-3 lists common fiber-optic connectors. 49 Power . Web site developers can build
server-side/ client-side code for site functionality. Technical knowledge and network documentation (or details about network configurations including infrastructure) is central to snuffing out issues quickly when they arise. Layer 4 D. Which two of the following items are related to HVAC? CompTIA does not require a waiting period for your first or
speed access to network storage. 93 Other Documentation . Power From the same subnet with iSCSI initiators. PTRs are pointer records used in reverse lookup zones to return a name, given and IP address. One
quick way of achieving this is as follows: Get-gporeport -all -reporttype html c:\qpo report.html This example retrieves all GPOs and settings and puts them into a nicely formatted HTML document. network interface card (NIC) A device that connects a computing device to a network. You're working on some new virtualization servers that customers
will use to run their virtual machines. (Mbps means megabits per second.) Note Server rooms and data centers use KVM switches, which link numerous servers to a single keyboard, display, and mouse. As such, the RTO is an important component of a business impact analysis (BIA). Type ping 1:2:3:4::abcd and press enter. Start PowerShell (third
icon from the left on the taskbar at the bottom of the screen). Think of a web server listening for requests from client web browsers. Each server needs documentation and a change log, and, ideally, this is all automated and inventoried in a database somewhere that is easily searched. PXE allows booting over the network instead of from local media
and is normally used for imaging operations. On Linux, type ifconfig, ipconfig /release B. Using Less Disk Space Compression 4 4.1 Compare and contrast physical security methods and concepts Physical Security methods and concepts Physical Security methods and contrast physical security methods are security methods.
6 4.6 Given a scenario, implement proper environmental controls and techniques UPS Racks Electrostatic Discharge Humidity Fire Suppression 2 2 2 2 3.0 Storage 4 4 4 4.0 Security (continued) CompTIA Server+ Certification All-in-One Exam Guide exiv Official Exam Objective All-in-One Coverage Chapter No. 5.1 Given a scenario, configure
6.2 Given a scenario, implement appropriate backup techniques Backup Types Backup T
effectively diagnose network problems, selecting the appropriate tools and methods Storage Problems and Solutions 7.5 Given a scenario, effectively troubleshoot storage problems, selecting the appropriate tools and methods Storage Problems and Solutions 7.5 Given a scenario, effectively diagnose security issues, selecting the appropriate
tools and methods Security Problems and Solutions 7 7.0 Troubleshooting This page intentionally left blank to match the printed book. Service level agreement D. Wake-on-LAN (WoL) A standard that enables a computer to be turned on over a network when it receives a specially formed packet. Replace the straight-through cable with a crossover
cable. FTP servers normally listen on TCP ports 20 and 21. CompTIA Server+ Certification All-in-One Exam Guide 120 16. Server Operating Systems When it comes to servers, a myriad of questions need answers. Round-robin is a term often used with DNS where there are multiple A records with the same name, each pointing to a different IP
address. BitLocker Microsoft's disk volume encryption tool. Exercise 6-5: Use OpenSSL to Encrypt Files in Linux 1. What can you do to optimize application performance? CompTIA and CompTIA server+® are trademarks or registered trademarks or regist
often used for long-term archiving. Figure 7-16 shows the output from gpresult /r. warm site An alternate site that is stocked with hardware that can run business operations in the event of a disaster. Scenario-based questions may indirectly test your knowledge in this area. A DDoS attack would increase network traffic. Suppose you have five
Windows 10 images used within the company, and each image is approximately 10GB, for a total of 50GB. The MAC address is a hardware-unique identifier used only on the local area network (LAN). For example, a Cisco or Nortel IP phone, and Apple iPhone, and HP network printer can all be easily identified. Windows servers can
have the built-in Volume Shadow Service (VSS) configured for each disk volume to enable scheduled snapshots (called volume shadow copies). Smartcard D. Chapter 4: Storage 135 Figure 4-8 Setting user disk quotas on a Windows server 3. • Are we installing the Windows, UNIX, or Linux operating system? Cloud providers offer plenty of
templates so that you can have a server virtual machine, even one preconfigured with additional software, up and running in minutes. Today's enterprise servers tend to use storage area network (SAN) storage. Nothing. Most racks are 19 inches wide (they do come wider), and they often use metal sliding rails that the servers and other types of
appliances (such as network firewalls, storage enclosures, and so on) neatly fit into. Some are critical security updates that must be applied right away, while others add additional functionality to software. You can also alter permissions inheritance by adding a new access control list (ACL) entry for a user, group, or computer with a different set of
permissions that will then apply from that point in the file system downward. When maintenance of the UPS or its batteries is required, you can use bypass devices to ensure the UPS power load is not interrupted. Notice in Figure 7-21 that load balancers listen on a specific public port—in this case, TCP port 80 for an HTTP application—and that the
configuration specifies an internal Figure 7-21 Creating and Performance Optimization 289 port number that could be different. • Delete corrupt user profiles. Liquid cooling is another server cooling option that uses cool water brought into the server. Which
PowerShell cmdlet can fix corrupt filesystems? DAS is local storage specifically for virtual servers. • Arrive at the testing center 15 minutes early. For instance, you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive data leakage, or you might choose to disable collaborative sharing features in an app to prevent sensitive sharing features in a sensitive sharing features in a sensitive sharing feature
signed macros to execute. Using Less Disk Space What can we do to use less storage space? Single-mode B. From a high-level perspective, the GFS rotation scheme enables you to back up file versions that are recent or that are months, or perhaps even years, old. The result in this example is that the first three octets identify the network the device is
a member of (192.168.1.0/24). 147 Exercise 4-4: Configure Software RAID Using Red Hat Enterprise Linux 7 . Cloud backup C. Dism /Append-Image /ImageFile:Z:\win10 images.wim /CaptureDir:C:\ /Name:win10 sales 17. PCI B. You would like to improve disk I/O performance for data residing on a physical server. Second-level domains are those
such as mheducation, google, and so on. Points to an A record. After typing nslookup and pressing enter, you will be in interactive mode. 307 8 CompTIA Server+ Certification All-in-One Exam Guide 308 • The IT infrastructure has to be in place at the alternate site. Notice the long list of event log entries. Technically, EFS uses a bulk encryption key, a
file encryption key (FEK), to encrypt blocks of data. Running queries or reports against inventory data stored in a database makes managing server assets easier. IPSec can be used to encrypt all network traffic without having to configure it for each network service or application. Click OK and then click View Effective Access. 378 7.5 Given a
scenario, effectively troubleshoot storage problems, selecting the appropriate tools and methods . 376 7.3 Given a scenario, effectively troubleshoot software problems, selecting the appropriate tools and methods . Rotational latency D. Microsoft has long included the Encrypting File System (EFS) within its Windows operating system. For
resilience to disk failures, some drive enclosures support hot-swappable disks. IPv6 misconfigurations • net use/mount • route • ipconfig/ifconfig • nslookup • net use/mount • route • nbtstat • netstat 7.5 Given a scenario, effectively troubleshoot storage problems, selecting the appropriate tools and methods • Common problems
• Slow file access • OS not found • Data not available • Unsuccessful backup • Error lights CompTIA Server+ Certification All-in-One Exam Guide 380 • Unable to mount the device • Drive not available • Cannot access logical drive • Causes of common
problems • Media failure • Drive failure • Controller failure • Controll
configuration • Mismatched drives • Backplane failure • Storage tools • Partitioning tools • Disk management • RAID array management • System logs Appendix D: CompTIA Server+ Certification Exam Objectives (SK0-004) 381 • Net use/mount command • Monitoring tools 7.6 Given a scenario, effectively diagnose security
issues, selecting the appropriate tools and methods • Common problems • File integrity issue • Privilege escalation • Causes of common problems • Open ports • Active services • Inactive services • Intrusion
detection configurations • Antimalware configurations • Cipher • Checksums • Telnet client • Antimalware This page intentionally left blank to match the printed book. Technical Support For
questions regarding the Total Tester software or operation of the CD-ROM, visit www.totalsem.com or e-mail [email protected] or visit. Default gateway D. False positives Chapter 7: Troubleshooting and Performance Optimization 299 20. You won't need this if you're deploying
a cloudbased virtual machine or an image. Ask your network team about IP addresses that you can use, the subnet mask, default gateway, and, if needed, DNS server IP addresses. You need to ensure that DNS resolves only internal names. Chapter 2: Server Hardware 29 Server Components Whether we are working with tower, rack-mounted, or
blade servers, they all have components that give them specific functionality: • Multiple cores) • Memory (RAM) • Storage (local and/or network accessible) • Network connectivity (servers often have multiple cards)
software stored in a chip, and it's used all over the place—a server's motherboard BIOS, smartphones, and expansion cards, to name a few. Encrypting File System (EFS) Microsoft file and folder encryption. Some quota tools support soft quotas, where the quota is not enforced, but a log entry is made noting that the quota has been reached. Once
installation is complete, click the Reboot button in the bottom right. When the DNS tool is displayed, press enter. serial-attached SCSI (SAS) A serial protocol that moves data between computer storage devices and tape drives. remove C. Click OK, then Create, and then choose Save The Custom Quota Without Creating A Template and click OK.
Watch for the case and spacing; it's very unforgiving! 16. This applies to users as well as computing devices. 35. Press s and enter .5 to increase the update frequency to every half second. Another factor is that servers connect to NAS storage over a network consisting of standard network equipment and using standard network protocols such as
Internet Protocol (IP). Compared to EXT3, EXT4 supports larger files and file system sizes, and journaling can be disabled. kilowatt (kW) Equals 1000 watts, often used for UPS power ratings, although sometimes the rating is in volt-amperes (VA). To achieve this with FCoE or iSCSI, we would use separate VLANs. Storage Capacity and Future
Growth When it comes to servers, a myriad of questions need answers. air-gapped networks do not have a connection to the Internet either wirelessly or using a wired connection. You can either allow or deny permissions. PXE
Microsoft Active Directory user accounts by extending the schema (blueprint) to enable this to be stored as an attribute of a user. This can be done via a Group Policy or by using the winrm qc command. The RTO does not apply in this scenario as well as RPO does. A smartphone is attempting to authenticate to a RADIUS server through a Wi-Fi router.
Perform root cause analysis. mobile device management (MDM) The administration of mobiles devices, such as tablets or smartphones, using a centralized tool. Chapter 4: Storage 147 3. DAS allows the server to use network storage as if it were local. Double-click Contract A. For communication on today's enterprise networks (and the Internet),
devices must have a unique IP address—unique, at least on their LAN, or subnet. Enterprise Web SSO uses an underlying directory service, often in the form of identity federation. IPv4 and IPv6 IPv4 uses 32-bit IP address, where each 8 bits is expressed in decimal format and separated by a period. BIOS is a firmware motherboard standard that the form of identity federation.
predates UEFI. What exactly does that mean? There's also the issue of overheating, which greatly reduces the life expectancy of equipment and can cause erratic behavior. Dell's iDRAC and HP's iLO are hardware-based, out-of-band remote management solutions. KVM switches do not interconnect network devices, nor do they provide redundancy or
RAID controller features. Fibre Channel (FC) Enterprise-class high-speed network connecting servers to storage. User Two is now a member of the sales group. The Northbridge connects the CPU to memory and the PCI bus and some other components, but not all of them. Note Throughout this book, you will learn about not only Windows Server
operating systems, but also Red Hat Enterprise Linux OSs, in both physical and virtual environments. In retail, for example, potential customers in a mall might have access to coupons online only when they are in the mall. Create a snapshot of the installation in case you need to revert to this configuration in the future: From the VMware VM menu,
choose Snapshot, Take Snapshot. 347 Appendix C Real-World Best Practices. Many network problems stem from incorrect software protocol configuration. converged network adapter (CNA) Server expansion card that combines Ethernet and Fibre Channel functionality. Lightweight Directory Access Protocol (LDAP) A protocol for using and
approach to mapping and explaining these components. The RPO defines the maximum amount of tolerable data loss. Modifications result in a different hash. Certified CompTIA Server+ candidates demonstrate a solid understanding of topics ranging from server hardware to server operating systems, networking and security, storage, and cloud-
based solutions. Active/active means the clustered service is actually running simultaneously on multiple cluster nodes. 9 Monitoring . If you connect a device configured with halfduplex, you'll end up with degraded network performance—if they can communicate at all. Then click OK. SFP is a hot-pluggable
network transceiver used most often to interconnect fiber cables. Back to the example: chmod 760 /projects. However, a VM snapshot should not be relied upon as the sole backup. To view the book PDF on a portable device using a USB or other
connection. HDD 15. Class C is for electrical equipment, and class D is for combustible metal fires. Proactive management also includes ensuring that firmware can inject itself into the pre-operating system (OS) boot environment, then even the most secure OSs can be
compromised. KVM over IP can overcome this, but, again, physical servers must support this out-of-band type of hardware remote management. Layer 4 addresses are port addresses; HTTPS web servers must support this out-of-band type of hardware remote management. Layer 4 addresses are port addresses; HTTPS web servers must support this out-of-band type of hardware remote management.
out different chunks of disk space for servers to consume. ip route show D. Which software communication method is not used with IPv6? Packet flooding can bring down a victim server or an entire network if enough machines send enough bogus traffic in a short period of time. Windows shared printers can of course be configured in the GUI by
right-clicking a printer, and they can also be shared using PowerShell as follows: Set-Printer -Shared $True -Shared the COPS | Common UNIX Printing System (CUPS) has been around for decades. Which option must the controller support? 361 2.0 Server Administration | . Grant the Managers group write
permissions on each individual file. The required claim attributes are taken at 7:00 a.m. on weekends. quality of service (QoS) A defined measure of performance used to prioritize different types of network
traffic over others. Keys from PKI certificates make this possible; in most configurations, only the server needs a PKI certificate, not each connecting client. This works well when disk writes to the array aren't committed immediately and an issue such as a power outage occurs. Encrypting an e-mail message requires the public key of the message
recipient(s). Write-back caching B. 90 Asset Inventory . Hot-swappable B. 266 Implement a Solution or Escalate . The public key is normally stored by the user. One common problem with a cold site is software. From the Start menu, launch Wireshark. 223 VLANs . Recent answers to
DNS queries are cached in the local client DNS memory cache. This could involve asking your storage administrator to "carve out" a LUN (a number identifying a chunk of disk space) for you. Notice the text "New Changes" is not displayed because it did not exist when the snapshot was taken. iSCSI Initiators — The iSCSI initiator can be implemented
as software or hardware. Social engineering D. The specific software versions used at the primary location also must be available for use at a cold site. To control network access to shared folders, we configure share permissions (Figure 6-7). For video, older displays use Video Graphics Array (VGA) connectors, while newer displays use High-
Definition Multimedia Interface (HDMI) for both video and audio. Network Hardware It takes varying pieces of network equipment working together to result in a functioning network infrastructure. 235 Operating System Hardware It takes varying pieces of network equipment working together to result in a functioning network infrastructure. 235 Operating System Hardware It takes varying pieces of network equipment working together to result in a functioning network infrastructure.
employees about security awareness is usually not effective. continuous data protection (CDP) Real-time replication (synchronous) often used for data between data centers. Server administrators can configure one or more servers in a DFSR replication group as read-only to prevent changes from that host. 134 RAID Configuration . • How much
time is available to perform backups? HHDD D. The cable channels can also extend from racks to other locations in the server room or data center as required. In the address bar (it should currently say Apply A Display Filter), type http and press enter. For example, DAC may enable only read access to a folder for full-time employees in Orlando, yet
full-time employees at headquarters may be given read and write permissions. 1 Why This Book Is Relevant . Diskpart is used to work with disks and file systems, but not to fix corrupt filesystems. 115 Chapter 4 Storage . CompTIA Server+ Certification All-in-One Exam Guide 60 14. Type get-dnsserver. • Files • Bare metal recovery images •
Databases • Disk volumes • Storage arrays • Entire storage appliance • How much data will be backed up? The ipconfig /release command releases DHCP-acquired IP configurations. Currently the rack contains • Three rows of 7U UPS batteries • A 10U blade enclosure How many additional 7U UPS batteries can be mounted in the rack? 141 File
Systems . Like operating system or application software, firmware comes in different versions with different versions. Notice that the Internal network adapter has both an IPv6 address and a link-local IPv6 address
Failover clustering C. • Register for your exam at a Pearson VUE testing center. Failed RAID 5 disk CompTIA Server+ Certification All-in-One Exam Guide 296 7. GUID Partition Table (GPT) A layout of the partition table on a storage device such as a hard disk drive or a solid state drive that uses globally unique identifiers (GUID). NICs Most
physical servers have at least two integrated network interface cards (NICs), but it's pretty easy to find them with four or more interfaces in some cases. top-level domain (TLD) A domain at the highest level of the domain name system of the Internet, such as .com or .uk. 261 Troubleshooting Methodology . RAID 1 A. This allows for the
prioritization of assets and risks and helps you determine the impact that threats can have on business operations. Select SCSI and click Next. Stacey complains that she receives an "Access denied" message when she tries to delete budget files. SLA details can sometimes be negotiated. For example, a question could link the recovery time objective
(RTO) to a site type. Yes, you don't have the capital investment in hardware and in software licenses, but on the other hand, you will be paying monthly over the long term. Like everything in IT, it's a tradeoff—sure, we can fit more CompTIA Server+ Certification All-in-One Exam Guide 28 Figure 2-4 Dell PowerEdge M520 blade server, courtesy of
Dell Inc. Chapter 6: Security 253 9. The following command enables a regular user to set the password for bjones an executed script or binary to run not as the invoker, but as the file owner (which could be root). HDD D. Chapter 3: Server
Operating Systems 69 APIPAs fall in the 169.254.0.1 to 169.254.255.255 is the broadcast address for this network. Imaging and PXE are not file system features. Figure 8-10 shows an example of encryption options when uploading files to the cloud. Exam Tip Many exam questions will expect you to connect the dots
              Buses are sets of conductors that carry data (bits) around the computer, and a computer consists of various buses. Chapter Review Troubleshooting and performance optimization are linked. The following example creates an image of drive C: and appends it to Z:\win10 images.wim with a name of win10 sales: Dism /Append-Image
/ImageFile:Z:\win10_images.wim /CaptureDir: C:\ /Name:win10_sales Chapter 4: Storage 137 Figure 4-10 FSRM storage report The following example applies the win10_images. 5. CAT5 Category 5 copper-wire network cabling that is designed to support up to 100 Mbps; also called 100Base-T or Fast Ethernet
Malware is a catch-all term; ransomware is more specific. Rows of racks allow cool air to be exhausted out the back; these are called hot and cold aisles. Which physical security control prevents tailgating? Some restrictions, such as installing or running applications, can be related to UAC configuration, as shown
in Figure 7-6. A CPU core has the same functionally as a physical CPU and multiple cores can be embedded on a single CPU chip. The following sections summarize the characteristics of common RAID levels. There are other server roles beyond the basic infrastructure role mentioned so far that you need to understand. Cold sites don't continuously
replicate with primary sites, so restoring data from backup locations (tape or cloud) is required. Threat engineering B. In a Microsoft Active Directory environment, the domain Administrator account can decrypt files on any station joined to the domain. From the Applications menu, start a terminal session. For example, consider the following: IP
 address: 192.168.1.1 Subnet mask: 255.255.255.255.0 The first octet of the subnet mask (255) means all of the binary bits are set to 1's. The second issue is whether cloud backups are encrypted. USB thumb drive C. A HIDS must be tweaked for a specific environment and can be configured against a baseline of normal activity. Conditions can be
expression-based, such as only full-time employees, or CompTIA Server+ Certification All-in-One Exam Guide 392 users must be members of two specific groups and thus receiving group permissions. Web servers can be scaled to handle heavy volumes
traffic. You want to encrypt communications between web browser clients and the web server. The ReFS file system was introduced with Windows Server 2012 R2 and reduces the amount of file system corruption problems. 196 Cables and Connectors . NIC teaming Grouping two or more NICs together can be used for NIC load balancing or
aggregated bandwidth; talk to your switch administrator if you will be doing this. 351 Server Installation . How critical is it that the server stay up and running no matter what? Keep your server OS clean, and install only the components that
you are logged into the Srv2012-1 virtual machine with the Administrator account. Traffic to Chapter 3: Server Operating Systems 67 Figure 3-2 Installing a Windows Server 2012 R2 role using Server Manager the DHCP client is addressed to UDP port 68. As a Server+ technician, once servers are up and running, you might not find yourself
physically near them for day-to-day management, and this also includes UPS devices. But as with many other things, all storage media are not alike. This isolation can be used for testing purposes or highly sensitive networks. VMware's VMFS is designed to allow multiple cluster nodes to read and write to the same file system at the same time.
Trusted Platform Module (TPM) A firmware standard for a secure cryptoprocessor that is used to secure hardware by integrating cryptographic keys into devices. A security certificate can be applied to the software, so that when it runs it can authenticate to another component for proper functionality. Type w32tm /config
/manualpeerlist:"0.pool.ntp.org 1.pool.ntp. Chapter Review This chapter covered various aspects of locking down computer environments, from physical security, to server hardening, to data encryption. The FSB quickly moves data between system RAM and the CPU via the Northbridge chipset. Try not to turn around at the waist while carrying a
UPS; instead, turn your entire body around. The remaining options are all true; therefore, they do not address the purpose of the question. So it's settled. AAAAs are IPv6 host records. CompTIA Server+ Certification All-in-One Exam Guide 328 29. CPU cache High-speed memory used to keep recently executed data or CPU instructions readily
available for subsequent use. Chapter 6: Security 245 2. Using this book properly should not require a second exam attempt. keyboard video mouse (KVM) Used to connect a single keyboard, video, and mouse to multiple servers. 371 4.6 Given a scenario, implement proper environmental controls and techniques . Something You Know This type
of security is stored in your head and hopefully nobody else's. It sounds nasty, and it is. This information helps you to know what type of questions and topics will appear in the CompTIA SK0-004 exam. If the entire disk partition (or volume, if it spans multiple disks) is corrupt, or if users do not have the correct permissions, they might receive a
"cannot access logical drive" message. You can use GUI tools installed on a client workstation to administer servers remotely over the network, non-ECC • DDR2, DDR3 • Number of pins • Static vs. • TCP/IPv4 was groundbreaking. When planning server hardware, you should also consider the CPU speed. Exam Mode provides a simulation of the
actual exam. Make sure your KVM solution matches the connectors for your devices, or you'll have to buy adapters to get everything plugged in. 🍪 Sample security policy templates. Start VMware Workstation and ensure the RHEL7-1 virtual machine is selected. ipconfig /all 7. A Domain Name Service (DNS) record type that resolves fully
qualified domain names (FQDNs) to IPv4 addresses. So let's get started with the trig! The Sample Scenario You are a network specialist. An organization's BCP stipulates that the RPO is five hours. 266 Verify Functionality . RAID Controllers RAID groups physical disks together as a logical unit to increase disk performance and/or to provide disks.
level fault tolerance. If prompted, press v to remove the file. • Incremental Data that has changed since the last full or incremental backup is backed up and the archive bit is cleared. Table of contents: 00 FM01 Ch0003 Ch0004 Ch0005 Ch0007 Ch0008 Ch0007 Ch0008 Ch0009 APP A10 APP B11 APP C12 APP D13 APP E14 Glossary Citation
preview ALL IN ONE CompTIA Server+ ® Certification Exam Guide (Exam SK0-004) Daniel Lachance New York Chicago San Francisco Athens London Madrid Mexico City Milan New Delhi Singapore Sydney Toronto McGraw-Hill Education is an independent entity from CompTIA® and is not affiliated with CompTIA in any manner.
Modern operating systems and devices support IPv6. Chapter 2: Server Hardware 53 11. Southbridge A. CD B. Figure 2-6 shows a single CPU socket Windows host with four internal cores and with L1 and L2 caches. Of course, this might take a bit of research and testing on your part, and it's inconvenient—just like doing the right thing always is in
real day-to-day life! It's worth the up-front time investment to grant permissions correctly. Fix-volume D. Here's an example of a server life cycle: 1. DNS is a hierarchy of domains, where different DNS servers control different parts of the DNS namespace. Chapter 6 discussed social engineering and user awareness regarding network malware
attacks. At the bottom, specify Above 90 and click Next. Your users report that they cannot access Internet resources today, although yesterday this worked fine. File System Permissions Windows and UNIX/Linux servers can use a wide variety of file system types depending on how the file system will be used. In the case of a LAN device not
supporting IEEE 802.1x, it can be disabled at the switch port level. Windows Encrypting File System Individual files and folders can be encrypted to provide data confidentiality. Add a line to the bottom: IPV6ADDR=1:2:3:4::bcde/64, as shown next. The drive was initialized as GPT. Accept the defaults for the rest of the wizard and click Finish. The
more twists per foot, the less crosstalk, which means transmissions at higher frequencies are possible. There are three shared folder permissions Note When combining both NTFS and share permissions, the most
restrictive permissions will apply. chapter Server Operating Systems In this chapter, you will • Learn about server edministration methods • Understand the importance of server documentation
• Learn about patch management Servers are the core of network services. Printed in the United States of America. Remove the NIC. What should Aaron do? DAS D. Class E fire extinguishers are designed to put out cooking fires. DHCP C. 149 Exercise 4-6: Set a Disk Quota Using File Server Resource Manager . 108 Server Administration
Methods . Storage Device Characteristics characteristics such as RPMs, seek time, rotational latency, bus width, and IOPS all contribute to the overall transfer rate of data into and out of hard disks. Data and Mobile Devices Mobile device use in a business environment presents an enormous threat. Either way, we need an organized way to channel
these bundles of cables both horizontally and vertically using cable management trays or channels built into the rack. Incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups take the least amount of time; only changes since the last full or incremental backups the last full or increm
titles including higher-education IT topics. FTPS An extension of FTP that supports the Secure Sockets Layer (SSL) and Transport Layer Security (TLS) cryptographic protocols. Select the Contracts folder and click Next. Chapter 4: Storage 161 15. Then click the Add button and scroll down and choose Local Disk (C:). The Managers group has been
allowed read, read & execute, list folder contents, and write permissions. Enter a valid e-mail address, and then click Continue and then Finish. Of course, large server rooms and data centers are designed with these things in mind, but smaller environments might simply convert the janitor's closet into a server/wiring closet. Open a terminal
command prompt (choose Applications | Utilities | Terminal). Click the Browse button and navigate to drive I: to store the iSCSI virtual machines—apparently, there is some interest in Linux. On the left, expand Data Collector Sets. To
allow incoming SSH administrative traffic, an iptables command would look like this; iptables -A INPUT -p tcp -m tcp --dport 22 -j ACCEPT (the target of this rule). If prompted to change the
password, type Pa$$w0rdwindows. Security C. Chapter 4: Storage 131 Figure 4-6 iSCSI initiator sconnect to iSCSI target configured with LUNs Ethernet switch iSCSI target score iSCSI initiator sconnect to iSCSI target score iSCSI initiator score iSCSI initiator score is a scor
consumed by servers as depicted in Figure 4-6. You can see this in Figure 5-12. If the OS hangs, remote management of this type no longer works. 369 4.3 Explain basic network resource by name doesn't mean the Internet is broken. Enlarge the command prompt screen, and
then type ipconfig and press enter. Public cloud providers must undergo third-party security audits from various entities to ensure consumer confidence in their services. With RAID 5, you're spreading the disk I/O workload across three disks while also writing parity information in case one disk fails. Sample Scenario 1 In this first example, you're a
storage tech working in a data center with multiple tenants. Determine UPS V or W rating, calculate power draw average of devices. /27 is invalid. This means that if you plug in 24 network devices and configure them on the same IP subnet, they can all communicate with one another. (Source: CompTIA 9th Annual Information Security Trends study:
500 U.S. IT and Business Executives Responsible for Security.) CompTIA certification qualifies the skills required to join this workforce. Common NIC Features Modern desktop and server motherboards often have integrated network cards. Wireless access points, network switches, and VPN devices are examples of devices that can be 802.1x-
compliant. PXE BIOS UEFI File Systems Configuring IPv4 Co
scenario, use access and control methods to administer a server Server Administration Methods KVM iLO and iDRAC SSH RDP 3 3 3 2.4 Given a scenario, perform proper server maintenance techniques Maintaining Servers Patch Management Optimization Storage Problems and Solutions 3 3 7 2.5 Explain the importance of asset management
and documentation Server Documentation Service-Level Agreements Asset Inventory 3 3 3 2.6 Explain the purpose and operation of virtualization Server Administration 7 3 Introduction xxiii Official Exam Objective All-
in-One Coverage Chapter No. 3.1 Given a scenario, install and deploy primary storage devices based on given specifications and interfaces Storage Technologies Magnetic Hard Disks Solid-State Drives Storage Device Installation 4 4 4 4 3.2 Given a scenario, configure RAID using best practices RAID Configuration RAID 0 RAID 1 RAID 5 RAID 6
RAID 10 4 4 4 4 4 4 3.3 Summarize hardware and features of various storage Capacity and plan for future growth Base 2 vs. Thick provisioning C. Data center
equipment racks are normally how wide? Data and staff are available at hot sites but not warm sites. solid-state hybrid drive (SSHD) A combination of hard disk and solid-state technology in the same package. SSH Secure Shell (SSH) has long been the standard and secure way of remotely managing not only UNIX and Linux hosts but also network
devices such as switches and routers. Figure 5-2 UTP cable with RJ-45 connector CompTIA Server+ Certification All-in-One Exam Guide 168 STP cables have a shielding layer that sends interfering electronic signals to a ground wire that protects signals being transmitted within the cable. Click the Start button, enter Active, and click Active
Directory Users And Computers when it is displayed. Accept the default of a Primary zone, and then click Next. Details to Consider Why It Is Relevant Static IP configuration Servers are infrastructure and should not have dynamically changing IP settings. This offers benefits beyond the old File Allocation Table (FAT) file system, including the
following: • Local file and folder permissions • File system (EFS) • File system additing • F
List folder contents • Read • Write • Special permissions The list folder contents permissions to f olders, not files. A device is a node that can transmit and receive data on a network. 6to 4 B. Disk space statistics result from the iostat command. The purpose is to ensure that only authorized users (those with the
decryption key) can access private data. B, C, and D are incorrect. For the maximum size, set the Use Limit Value to 4000 MB. Each NIC needs to be configured with the appropriate IPv4 or IPv6 settings, more of which will be detailed in Chapter 5. rsync B. Which type of NTP time servers do you have on your network? One common mitigation
technique is to "black hole" the traffic—to discard traffic destined for the victim. Operating system updates do not determine partition size. Bandwidth throttling can also be configured so that replication doesn't consume all of the available bandwidth. DNS forward lookup. TCP 80 11. Traditionally, servers housed
local disks within their physical enclosures, otherwise known as direct-attached storage (DAS). Currently, the server has three NICs, each connected to separated VLANs. A fourth NIC is required for connectivity to a perimeter network. You need to prevent a dual disk failure from bringing down a RAID 5 array. Excessive traffic destined for the mail
server could indicate spamming is taking place. A cipher is an algorithm that is used to scramble, or encrypt, and decrypt data. Expand Forward Lookup Zones and click fakezone.com. RAID 1, disk mirroring, is used for fault tolerance. Service Level Agreements Data centers hosting IT services for numerous customers must diligently monitor server
performance and network availability to ensure adherence to SLAs. An SLA is a contract between the provider and consumer of a service that details expected levels of service—for IT, that includes the response time over the network and uptime (expressed as a percentage) of a network service. CompTIA Server+ Certification All-in-One Exam Guide
206 13. Hot and cold aisles, baffles, and shrouds are used to control airflow. For example, on a Windows Server 2012 R2 computer, IPSec is configured as part of the Windows Firewall under Connection Security Rules. Perform Root Cause Analysis When the true cause of an IT problem is known, solutions come much more quickly. Table 1 lists the
exam domains and their weight against the overall exam. Synchronous replication between data centers means there is no delay when writing data. User authentication options Exam Tip For computers joined to an Active Directory domain, the Kerberos protocol
```

is the best choice for authentication. In the cloud, customers can quickly provision and deprovision virtual servers as needs dictate. The BIOS, operating system, and device must all support PnP. Modify the registry on a Windows server to disable SSL 3.0 and enable TLS 1.2. Using OpenSSL with Linux also supports TLS; this is configured per

reinforced by completing the lab exercises. The archive bit is normally cleared. Most power companies around the world deliver 1-phase and 3-phase power. Red Hat Enterprise Linux 7, for example, uses Kickstart files to automate installations. It's safe to say that accessing your enterprise network probably performs better than CompTIA Server-

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application (web site, web browser, and so on). Backups are still required, but data replication can immediately provide the data without requiring a restoration procedure. (Be careful not to get pinched when inserting or removing equipment on these sliding rails.) Not all racks are equal. DHCP Now that you know about configuring TCP/IP settings
manually on each device, let's dive into how this gets done on a larger scale. Server Roles Infrastructure services such as Network Time Protocol (NTP), DNS, and Dynamic Host Configuration Protocol (DHCP) must be in place before anything else will work on the network. The New Volume wizard will automatically be displayed. Default Gateway The
term "default gateway" is an unfortunate choice of words; "gateways" have many meanings, but the term has become standard over the years ("default router" would have made much more sense). But this speed refers to how fast instructions are processed internally; you have to ask yourself, "How CompTIA Server+ Certification All-in-One Exam
Guide 32 quickly can data get to and from the CPU on the motherboard?" The following illustration shows a CPU in its motherboard socket. Which statement regarding blade servers is true? Electrostatic Discharge In a perfect world, our bodies (and clothing, jewelry, and so on) would have the exact same charge as the electrical components that we
touch, which would prevent the flow of electrons. In the address bar, enter . A database server is essentially a container that could be used for storage and retrieval of relevant data. One example is Microsoft's File Server Resource Manager (FSRM), shown in Figure 4-10, which is included with the Windows Server OS. • Reproduce the problem. RAID
can be configured within an operating system or using the more reliable hardware RAID controller solution. 151 RAID . Data Replication Having a readily available copy of up-to-date data is crucial with disaster recovery. Exercise 5-2: Manually Configure IPv6 on Red Hat Enterprise Linux 7 1. recovery point objective (RPO) Maximum tolerable
amount of data loss normally expressed in time, such as four hours. CompTIA does this occasionally to test out new content or question (s) this applies to. Air Flow Larger server rooms and data centers have racks of heat-generating equipment. DHCP offer • Each DHCP server (if more than one) responds
via broadcast with an IP address lease offer. The L1, L2, and L3 caches are typically built into the processor, while L4 uses main system memory. You need to know about the various types of RAM chips and which ones will work in your specific hardware. CUPS C. Although virtual machines can be provisioned without a cloud environment, one
characteristic of cloud computing is the rapid deployment of services by users, 94 Maintaining Servers . 48 Chapter Review . If you monitor hardware isn't being fully utilized—you aren't getting the biggest bang for your buck. Storing hardware components in
plastic bags 5. For a detailed Table 1 CompTIA Server + SK0-004 Exam Domain Percentage of the Exam 1.0 Server Administration 24% 3.0 Storage 12% 4.0 Security 13% 5.0 Networking 10% 6.0 Disaster Recovery 9% 7.0 Troubleshooting 20% Introduction xxi breakdown of CompTIA Server + SK0-004
exam objectives, visit certification.comptia.org/ certifications/server and click the Get Sample Questions And Exam Objectives button. Scanning D. For even better security, don't use Wi-Fi at all! Do not use a descriptive name for a wireless network name, or SSID, is easily viewable even if you disable SSID broadcasting. Right-
click the same disk again and choose New Volume. 366 3.0 Storage . For physical servers, you may also have to add an expansion card that connects the server to additional storage. All traffic between the client and VPN appliance is encrypted. The subnet mask, default gateway, and IP address cannot be problematic if communication with local and
remote hosts is working. IP addresses are used to route packets, not MAC addresses. The database is replicated between domain controller servers and is used for authentication, centralized Group Policy settings, and storage of some network application configurations including DNS and activation keys. Creating a VLAN creates a new broadcast
domain. Click OK, and then close Server Manager. This means the fingerprint scan must already exist somewhere on the system. LUN D. Double-click the Contract A file, enter New Changes on a separate line, close Notepad, and save the changes. Which server component can help the most in speeding up processing time? Then click the Members
tab, click Add, and enter user one. Power A, D. Now only HTTP network traffic is shown; viewing web sites uses HTTP. CompTIA is respected globally in the IT industry for its certifications for A+, Network+, Server+, Linux+, and many others. Which port must you specify in your ACL rule? Quicker file access C, D. Backup agents can be installed
within each VM as would normally be done on physical servers to granular backup and restore options. Virtual network switches Each virtual machine has one or more virtual NICs connected to a virtual network switch. The web page appears over an HTTPS connection. TCP requires an acknowledgment from the recipient for every sent packet.
Figure 6-19 shows a screen from Disk Scrubber from Summit Computer Networks. Installing a Type 1 Hypervisor Before installation, do your homework and make sure you have supported hardware. Accept the default of Typical and click Next. mheducation.com) to an IP address. As mentioned, storage administrators can configure storage tier
policies that categorize data accordingly. From the Red Hat Enterprise Linux 7.1 text installation screen, press i and then enter to install the product. This is where antimalware heuristic analysis becomes useful in detecting previously unknown malware by analyzing suspicious behavior, similarly to how IDS and IPS systems watch for abnormal host
activities or network traffic. 46 Exercise 2-2: Create a Windows Server 2012 R2 Virtual Machine Configuration . Patch management can be centralized and automated using a tool such as WSUS or SSCM for Windows environments. If one cluster node fails, users are automatically switched over to the service running on a remaining node. 16. RAID
0, disk striping, is used to improve disk I/O performance. Data in use Currently being processed • Data in motion Transmitted over a network • Data in mot
Could another cloud tenant potentially undelete your data? • Question stakeholders, optical time domain reflectometer (OTDR) A device used to certify the performance of fiber-optic links. Install the certificate on each client station. Table C-6 Security Best Practices This page intentionally left blank to match the printed book. Disk mirroring,
backups, and failover clustering provide high availability. How can you uniquely identify the web server on the same IP address? Managed service accounts On Windows servers, this type of account can be used by a service. Encryption B. The difference here is 99 billion bytes! Where Did All the Disk Space Go? Heat and Air
Flow Imagine cramming dozens of physical servers into a tiny closet with no airflow—excessive heat and servers do not get along well. Windows Shared Folder Permissions Individual files cannot be shared over the network, but folders can. CompTIA Server+ Certification All-in-One Exam Guide 326 8. If you were to configure NIC teaming for
bandwidth aggregation in an operating system, network traffic leaving the server could take advantage of this feature, but not inbound traffic (how would the sending station or switch know about the NIC teaming?). Let's apply the OSI model to the action of viewing a secured web site (HTTPS) using a web browser: 1. Volume shadow copies For
Windows servers, this enables users to retrieve deleted files as well as previous versions of files. broadcast Network broadcasts can apply at the hardware or software level. • Consider VMs that need to be plugged into specific physical network components such as specific switch ports for port-based VLANs; think about failover and migration of
VMs to other hypervisor hosts. If they are correct, the Windows tracert or Linux traceroute command can be used to determine how far down the line (through routers) transmissions are getting before encountering problems. Enter get-volume >> c:\diskinfo.txt and press enter. Right-click ExternalNAT, choose Properties, choose TCP/IPv4, and click
Properties. For instance, KVM can require its own authentication in addition to whatever is required by servers themselves. WINS uses TCP port 53 for client queries; DNS uses TCP port 53 for client queries; DNS uses TCP port 53 for client queries.
information with one another. Humidity Controlling the amount of moisture in the air is crucial for the proper functioning of equipment and to prevent ESD. 4G B. 46 Exercise 2-1: Calculate Rack Space . setfacl D. An IPv4 address is 32 bits long, but most of us are used to seeing it expressed in decimal with a period separating each 8-bit group, such
as 192.168.1.1., the binary equivalent of which is 11000000 10101000 00000001 00000001 certificate authority (CA) Issuer of digital security certificates in a Public Key Infrastructure (PKI). When Internet Information Services (IIS) Manager is displayed, click it. There is no such thing as a switch cable. Chapter 7: Troubleshooting and Performance
Optimization 301 7. differential backup — Backup method in which changed items since the last full or differential backup get copied. 18. Instead, administrators connect remotely over the network to manage servers. You might encounter vendor terms such as "NIC bonding" or "NIC balancing"; it all falls under the same umbrella. Organizations use a
variety of tools to document problems and their eventual resolutions, from recording this information in a spreadsheet to a full-fledged enterprise help desk ticketing system. Appendix About the Hands-on Exercises and Lab Set-up Performing tasks hands-on is, for most people, the best way to learn and retain information. ISATAP is used on an IPv4
intranet, not the Internet. Linear Access Tape Linear Tape-Open (LTO), is magnetic storage media that uses the Linear Tape File System (LTFS); it was introduced in 2010 and has since been revised several times. Security filtering enables Group Policy administrators to ensure that only specific users or computers get
Group Policy settings. With IPSec, you can secure network traffic without acquiring PKI certificates for each individual app or server. Click Browse and select the Red Hat Enterprise Linux 7 trial ISO file downloaded as per the instructions in Appendix A of this book. Logging must be enabled on all devices, and log copies should be forwarded to other
hosts in case a device is compromised and logs are cleared. On the security side, IP Security (IPSec) support is required for IPv6 implementations. 218 Peripheral Devices . Tech support social engineering scam. Chapter 3: Server Operating Systems 119 13. UDP is often used for data transmissions where timing is crucial such as with VoIP,
streaming applications, and multi-user gaming, to name just a few uses. Racks of equipment are arranged in rows, or aisles, for optimal airflow. Base 10 Storage Capacity and Future Growth Where Did All the Disk Space Go? Table 7-4 outlines the reasons for common network issues and potential solutions. RAID 1 means 50 percent of the storage
capacity is usable, and it is considered a fault-tolerant disk solution. Having enough fast disks is a primary concern here, as is the network speed for file access. org" /syncfromflags:manual This points Windows to two public NTP hosts. Double-click Local disk C:\, and then double-click the Contracts folder. There needs to be a way to centralize
authentication that supports Single Sign-On (SSO). Notice that the default group is now sales. Data at Rest Securing transmissions to and from servers is always a good idea, but what about data once it reaches a destination and is stored on media? 34. Tower servers are generally cheaper than blade or rack-mounted servers, and since they contain
standard hardware, reusing components is not a problem. 287 Software Optimization . 236 Application Hardening . The following illustration shows how ECC can be enabled in the BIOS. Cables and connectors matter as much to the average home Internet user as they do to IT pros installing cabling in office buildings, data centers, and provider
networks. C, D. This adds the write permission for the group assigned to projects. For example, a user claim might consist of an e-mail address and a date of birth. taskkill D. Dan is an experienced training in Canada and the Caribbean since the 1990s on topics ranging from various Microsoft products, including Visual
Basic, Hyper-V, and System Center Configuration Manager, to other products, including UNIX, Linux, Novell, and IBM Notes and Domino. Grant the it_admins group the execute permission. df shows disk free space, fdisk is used to work with disk partitions, and diskstat is not a valid Linux command. How much memory, CPU, disk, and network
capacity do you need? Use separate administrative accounts Accountability and auditing are made easy when each administrator has his or her own account. SC connector Subscriber connector; a snap-in fiber-optic cable connector that is somewhat square in shape. • "The cloud" meant it was going to rain. 129 Network-Attached Storage
Active/passive means if the node where the service is running fails, the service fails over and starts up on another cluster node. Of course, to handle more intense workloads, having more brains helps. Click the Start button, type file, and wait a moment. 151 Storage Device Characteristics . Learn More: Certification.CompTIA.org/aplus CompTIA
Disclaimer © 2015 CompTIA Properties, LLC, used under license by CompTIA Server+ Certifications, LLC. CompTIA Server+ Certifications, LLC, used under license by CompTIA Server+ Certification All-in-One Exam Guide 68 Scope Option Description Example IP address ranges Specifies beginning and ending IP address.
exclusions Prevents specific IP address already manually assigned from being delivered through DHCP A server configured with a manual IP address lease duration Indicates how long DHCP clients can keep their IP address settings 8 days Default gateway Sets the IP address (es) of the
router(s) interface on the local network; enables traffic to be sent outside of the LAN 172.16.0.253 DNS servers Sets the IP address to a device with a specific MAC address: 172.16.0.210 DHCP reservation Assigns a specific IP address to a device with a specific IP address to a device with a specific MAC address: 172.16.0.210 DHCP reservation Assigns a specific IP address to a device with a specific IP add
Options Figure 3-3 DHCP vendor classes for Nortel IP phones APIPA DHCP is a critical infrastructure service, and without it device communication can be a problem. In such cases, selective backups give server administrators the ability to restore only files that are required. WoL must also be supported by the BIOS or unified extensible firmware
interface (UEFI). Each CPU chip consists of one or more cores. We could then list firewalls rules with the following command: iptables -L Network-based Firewalls Routers or specialized appliances function as network-based Firewalls. The script might look at the subnet address and disable routing to and from the subnet, or it might disable the switch
port that links that subnet to the rest of the network. From Server Manager, click Add Roles And Features. We hear about it all the time at work and in the media when the latest Internet hack spreads like wildfire. This isn't quite the same as an IPv4 Automatic Private IP Address (APIPA) configuration; IPv6 nodes always have a link-local address,
even if they acquire another IPv6 address through DHCP or are configured at the software level and are not specific to SSDs. CompTIA Server+ Certification All-in-One Exam Guide 20 7. The Adobe web site has a list of recommended
applications, and McGraw-Hill Education recommends the Bluefire Reader. Backup media storage must be carefully considered—for example, we don't want to discover that high humidity has destroyed our backups or archives when we need to restore data. Compression Disk compression tools save disk space by reducing redundant occurrences of
data. It is the specific TCP/IP protocol that enables traffic to shoot around the Internet, and it applies to Layer 3 of the OSI model. Newer versions of the Windows Server OSs support Network Level Authentication (NLA) for RDP sessions.
prevented from accessing cloud tenant data. 244 Exercise 6-3: Set File System Permissions in Linux . On the server side of things, Table 2-2 outlines common CPU sockets and processors. Consider the following IPv6 address: fe80::883b:ced4:63f3:f297%8 Notice the two full colons together. Table 4-2 lists common disk interface characteristics.
Network load balancing B. From the Start menu, enter Notepad. The biggest showstopper for cloud backup adoption tends to be the perception that cloud security is lacking. Virtual A. Establish a theory of probable cause. Snapshots Snapshots, also called checkpoints, can be taken of a virtual machine (shown in Figure 8-7) to capture its settings as
well as data stored in virtual hard disk files. Close the dialog box. Targets are accessible only through FC switches. For example, we might want to prevent Windows server from seeing specific LUNs used by Linux servers. Using the Windows in the Windows server from seeing specific LUNs used by Linux servers. Using the Windows server from seeing specific LUNs used by Linux servers.
in the next illustration. Window PowerShell supports file hashing using the get-filehash cmdlet: get-filehash cmdl
mounted servers and equipment is important. Tools such as ping and tracert use ICMP. At the device level, a smartphone with a virtual private network (VPN) app might need a unique device Public Key Infrastructure (PKI) security certificate that is trusted by the VPN server before the user even gets a chance to provide their credentials CompTIA
Server+ Certification All-in-One Exam Guide 212 to the VPN. Batteries and power supplies provide DC. • The UPS can be plugged into the network. Which class of fire extinguisher is used to extinguish cooking fires? It can go one of two ways: • A good experience due to labeling and proper cable management • A frustrating experience due to a snake
pit of tangled cables Network wall jacks, as well as the other end of the cable on the patch panel in the server room or wiring closet, need to be correctly labeled. Enter chmod g+w /projects. From the VM menu, choose Manage, Clone. Group Policy Object (GPO) An Active Directory object that contains specific policy settings for defined groups of
users or computers. Without it, you are limited to communication with hosts on your local network. • Ensure that proper HVAC is in place. virtual local area network (VLAN) A broadcast domain that is isolated at the data link layer. 245 Exercise 6-5: Use OpenSSL to Encrypt Files in Linux . You can then run queries and reports against inventoried
software. On the Language screen, ensure that English (United States) is selected and click Next. biometric authentication Uses a personal identifying characteristic for proof of identity, such as a fingerprint or retinal scan. After a moment the server login screen is displayed. Here's an example: Using the open source Snort IDS, rules are created
that determine what gets monitored. Extended File Allocation Table (exFAT) A Microsoft file system often used with Secure Digital (SD) cards and USB flash drives. Memory • More is better, and faster is better. 194 Chapter Review . Deep packet inspection firewalls examine payload content beyond packet headers. It works by encrypting the
entire original IP packet (not just the payload) and adding a new IP header so that the transmission can get to the other end of the tunnel. RFID C. Check out Chapter 6 to learn more about crypto and PKI. Start with 128 and keep cutting it in half until you get to 1. In the case of rack-mounted network switches and similar equipment, network cables
are plugged into ports on the front of the equipment. The OSI layers are not tangible or visible in any way; they are a concept, albeit an important one. Certified technicians, such as those from a reputable vendor, will follow proper procedures when working with field replaceable units (FRUs). Microsoft Active Directory The Lightweight Directory
Access Protocol (LDAP) provides access over an IP network to a central network database. A blade enclosure can contain many blade servers that slide in to make a connection to the midplane. Some tape libraries are robotic in that specific tapes can be mounted upon request for access to the backed-up data. These are Layer 3 addresses. You can
also use Performance Monitor to reach out over the network to monitor servers. Which type of backup does not clear the archive bit? The lab exercises in this book are designed to familiarize you with how to configure the operating system to meet specific business needs. 191 Exercise 5-2: Manually Configure IPv6 on Red Hat Enterprise Linux 7
Check into data replication. Automatic Private IP Address (APIPA) Self-assigned unique LAN IPv4 addresses that Windows devices use when the Dynamic Host Configuration Protocol (DHCP) server is unreachable. A hands-on exercise in Chapter 4 can help guide you. This is a big part of reconnaissance when malicious users try to learn about a
network to identify vulnerabilities. Patch hardware and software This is continuous and needs to be monitored to ensure that patching completes successfully. Another example is excessive packets received from a remote network in a short amount of time; an IPS could block further traffic from that network address. Start VMware Workstation and
ensure that the Srv2012-1 virtual machine you created in Chapter 2 is open. It's important that you always monitor your environment for any changes in performance so that you can take action before you end up troubleshooting major issues. 307 Disaster Recovery . • Don't cram right before the exam. Other components such as PCI Express (PCIe)
expansion cards adhere to industrystandard form factors. A new 4TB drive is added to a server. Type ps -aux | grep sshd to view SSH daemon process information only. Interestingly, RAID level 1 (disk mirroring), when using two disks connected to two different controllers, is called duplexing. Type ExternalNAT and then press enter. From the Start
menu, open a command prompt by entering cmd. Table 2-1 CPU Cache Sizes Table 2-2 CPU Sockets and Processors Cache Size L1 96 KB L2 2 MB L3 8 MB L4 16 MB Socket R) Intel Core i7, Intel Xeon E5 LGA 1155 (Socket H2) Intel Xeon E3 CompTIA
Server+ Certification All-in-One Exam Guide 34 Figure 2-6 Multicore CPU and cache listing Note When you're working in the field, SMP and multicore systems present the CPUs in the exact same way to operating system monitoring tools such as the Windows Task Manager. The front side bus (FSB) moves data directly between the CPU and the
Northbridge chipset, which includes system memory (RAM) and, on some motherboards, video controllers. In the industry, this is generally referred to as hierarchical storage management (HSM). The most common type of expansion card slots on motherboards include • PCI • PCI-X • PCIe PCI is an older standard, and newer motherboards do not
have PCI slots. DHCP • DNS • FQDN • Default domain suffix / search domain • WINS Appendix D: CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card configuration • NIC teaming • Full • Half • Auto • Speeds • 10/100/1000 Mbps • 10 Gbps 5.2 Compare and CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card configuration • NIC teaming • Full • Half • Auto • Speeds • 10/100/1000 Mbps • 10 Gbps 5.2 Compare and Card CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • MAC addresses • Network Interface Card CompTIA Server+ Certification Exam Objectives (SK0-004) 373 • NetBIOS • NAT/PAT • NA
contrast various ports and protocols • TCP vs. Something You Are Each and every one of us is biologically unique in some way. Repeat steps 8 through 11 two more times to add more disk space. The following list shows a few common BIOS manufacturers: • ASUS • Phoenix CompTIA Server+ Certification All-in-One Exam Guide 30 Figure 2-5
Phoenix BIOS screen • IBM • Dell • HP If we're using a Dell system, for example, when the system is first powering up, we can press the f2 key on the keyboard to enter the BIOS settings. The trick is getting data into or out of memory addresses as quickly as possible. Organizations also outsource IT expertise in some cases, such as with public clouds for the biosetting and the system is first powering up, we can press the f2 key on the keyboard to enter the BIOS settings. The trick is getting data into or out of memory addresses as quickly as possible.
computing or synchronous replication solution vendors. Enter new-smbshare -name Project -path c:\projects -readaccess "fakedomain\PMs" Then press enter. All slots are not created equally; an older PCI Express (PCIe) x2 card will fit and work in a PCIe x16 slot, for example, but it won't work the other way around! Cards have their own form factor,
and you might even have run into this at home; some expansion cards might fit into a slot on the motherboard, but the card is too tall and the case won't fit back on. Notify the existing single virtual hard SCSI hard disk of 20 GB. Anycast A. Your intranet has a web server containing sensitive data. 4G Fourth-generation wireless telecommunications
network; speeds are faster than 3G, which supports more broadband applications. Bare Metal Backup When servers will not boot or are not behaving and can't be fixed, they may need to be reinstalled from an OS image. Overheating can cause CPU cores to throttle themselves (slow down) to reduce heat generated. It's not enough to know about
servers themselves; there is an entire ecosystem we need to be aware of. However, MAC addresses can be spoofed, or forged, so don't rely solely on MAC address filters for security. • Varying solutions determine how often data replicates. What is the most likely cause of the performance issue? A clean desk policy means not leaving sensitive
documents in areas where anybody can see them, and locking sensitive documents or even backup tapes in a locked cabinet is better than leaving them out in the open. VPNs have long been used by people who work from home or who travel, as well as to link sites together over the Internet. These solutions are all based on essentially the same LDAP
standards. USB standards and speeds are as follows: • USB 1: 12 Mbps • USB 2: 480 Mbps • USB 3: 5 Gbps Power The main types of power connectors are preat; they solve business problems efficiently and are absolutely required for businesses to remain
deals with the underlying hardware; you can use your cloud services on the left and that you've clicked Storage Pools. Airflow C, D. The business impact analysis (BIA) team would already be assembled if assets
have been identified. What is one possible drawback of heuristic host and network analysis? Determine UPS V or W rating, calculate power draw sum of devices. Type install-windowsfeature windows-server-backup includemanagement into cable channels, which can be built into
racks or added to existing racks. VLANs are configured within switches and are used to create multiple networks for the purposes of security or network performance. Port numbers do not apply to OSI Layers 2, 3, or 7. Layer 2 Tunneling Protocol with Internet Protocol Security (L2TP/ IPSec) A VPN solution in which IPSec encrypts data using a
variety of sources for keys, including a symmetric key, PKI certificates, Kerberos, and so on. Still, no system is perfect; consider, for example, intelligence agent Jeffrey Delisle of the Royal Canadian Navy, who supplied sensitive information to a Russian spy agency beginning in 2007. Tunnel mode is used for point-to-point connections such as with
disk mirroring solutions that are used within a site, not between sites. IPv4 was not designed to be used the way it is being used today; there have been countless changes and security fixes. Click the close button to close the Settings dialog box. Rack cable arm B. The more disks you have connected to a RAID controller, the more power that is drawn
276 Network Problems and Solutions . This is a good time to get a cup of coffee, but be quick! Depending on your machine, this part of the install may take only 2 or 3 minutes. When one disk fails, the other has an up-to-date copy of the data. DNS queries are used to find service location records for domain controllers. When the option is displayed,
click Network And Sharing Center. References have been provided for the objective exactly as the exam vendor presents it, the section of the exam guide that covers that objective, and a chapter reference. iSCSI dedicated VLAN This is good for security and performance. A virus is a form of malware that attaches to files. From the Guest Operating
System list, ensure that Microsoft Windows is selected, and from the Version drop-down list, ensure that Windows Server 2012 is selected. 65 Server Roles . IP On top of correctly configured network hardware, we have what most of us will configure and troubleshoot during our IT careers—Transmission Control Protocol/Internet Chapter 1:
Introduction to CompTIA Server+ Essentials 7 Protocol (TCP/IP), usually referred to simply as IP. ReFS C. Security Zones Planning a networks and services that should be visible to the Internal networks and services that should be visible to the Internal networks and services that should be visible to the Internal networks. 133 Base 2 vs. With so many people internal networks and services that should be visible to the Internal networks and services that the Internal networks and services that should be visible to the
in the workforce using mobile devices, our mail server will have to accommodate mobile device connectors are used for telephone cables, which transmit electronic signals. Over time, this type of knowledge base can prove very valuable. This reduces network
chatter and essentially creates a collision domain for each switch port. Choose Custom: Specific Virtual Network and choose VMnet5 from the drop-down list. Data classification makes it easy to determine what needs to be encrypted and what does not. For Windows, make sure you are logged on as Fakedomain\Administrator with a password of
Pa$$$w0rd. Occasionally, you might already know the IP address, but you're looking for the corresponding name, and this is called a reverse lookup. Larry, a server technician, is attempting to start the Linux operating system on a blade server but keeps getting "Access Denied" messages. MIBs are used to gather inventory and statistic data about
network devices. Configure LUN masking. 317 Backup Media . power on self test (POST) A process run by firmware immediately after a computer is powered on, which verifies basic power and hardware functionality. DHCP Scopes The first thing that gets configured with DHCP is the scope. If you're running on-premises hypervisors, make sure
they are clustered so that if one cluster node fails, virtual machines can still run on the remaining cluster node(s). Some server operating systems support conditional access based on user, device, and resource attributes. Stratum 1 C. The true skill required by CompTIA Server+ technicians is effective troubleshooting. NAS uses filesharing protocols
such as SMB and NFS to make network storage available. Print servers also spool print jobs from clients using server disk space. On the Specify Disk File page, click Finish. SC B. Linux Visit the Red Hat Customer Portal at access.redhat.com/downloads and click Start Evaluation next to Red Hat Enterprise Linux, as shown in Figure A-4, to download
the Red Hat Linux Enterprise Server 7.1 installation ISO file for x86 and x64 architectures. Resilient File System (ReFS) A Microsoft file system designed to succeed NTFS eventually. Occasionally false positives occur, where a problem is reported even though one does not exist. v=ws.11). This section gets into network cards, network switches, and
routers. Upon restart, data not yet written is cached (so it is not lost during a power cycle), so it gets written to disk. E D. Ensuring that objects coming into contact with one another have equal charges D. Trying to cut corners here will take more time later down the road. 2. Telnet listens on TCP port 23. Ensure that the Srv2012-1 virtual machine is
running and that you are logged on with the Domain Administrator account. CUPS is the UNIX and Linux print server standard. Chapter 6: Security Networks are cool: millions of interconnected devices share data around the planet in a matter of
seconds. Instead of host-based replication solutions such as Windows DFSR or the UNIX-based rsync, for serious replication between data centers more advanced (and expensive) solutions from vendors such as HP, IBM, or EMC (and many other vendor solutions are available) would be used. In a network environment, some fundamental services are
required for large-scale IP addressing, name-to-IP address resolution, and internetwork connectivity. What type of traffic is this? Click Primordial and look at the Physical Disks (bottom right). Table C-1 Server Installation Best Practices (Continued) 351 C CompTIA Server+ Certification All-in-One Exam Guide 352 Details to Consider Why It Is
Relevant Plan cloud-based virtual machine template use. data deduplication A storage mechanism designed to save storage space by removing redundant data blocks to conserve space. iLO D. 7. RDP Windows hosts normally use the Remote Desktop Protocol (RDP) for remote management of both Windows clients and servers. Enable iSCSI CHAP
authentication. In the Value field to the right, enter 192.168.1.210. Remember that URLs change, so some of the items listed below may not work exactly as listed, but luckily search engines make this a non-issue. Transport Layer Security (TLS) A cryptographic protocol that provides secure communications over a computer network. Which FCoE
item is required? Internet routers don't forward this type of traffic, but your organization's internal routers can. Keep in mind that many modern operating systems have just the bare minimum available with a default installation. Notice that the display changes every few seconds. Compressed air is used to clear away accumulated dust. Mantrap C.
Failed RAID 5 disk D. UEFI is a firmware standard that replaces the BIOS standard; it is not related to disk failures. These tasks help you determine how the loss of IT systems or data can negatively impact your organization. Figure 4-3 SATA disk data
cable connectors CompTIA Server + Certification All-in-One Exam Guide 128 Disk Interface Details Serial bit transmission • Hot-pluggable (can be swapped out while a machine is running) • Newer iteration of the older SCSI standard • More expensive than SATA • Smaller storage capacity than SATA • Designed for
constant use • Used often for servers Serial ATA (SATA) • Serial bit transmission • Not designed for constant use • Used often in personal workstations Small Computer System Interface (SCSI) • Parallel bit transmission • Not designed for constant use • Used often in personal workstations Small Computer System Interface (SCSI) • Parallel bit transmission • Many standards have evolved over the years, including SAS; traditionally SCSI used parallel transmission, SAS uses serial-based
transmission • Used often for servers Universal serial bus (USB) • Serial bit transmission • Convenient external connectivity • Used in storage area networks • Host bus adapters are required in servers to access SAN storage • Used often for servers Table 4-2 Disk Interfaces Write Once
Read Many (WORM) drives preceded optical drives. Exam Tip One thing to be careful of is ensuring that you configure the IP address for the router interface connected to your network. CompTIA Server+ Certification All-in-One Exam Guide 344 Figure A-2 VMware Workstation 10 download web page 2. From the Start menu, enter mmc.exe, and
when the Management Console displays, click it. Rebooting the server means there are no boot sector corruption issues. • Security • Patching Chapter 3: Server Operating Systems 91 • Compliance with laws/regulations • Change management policy and forms 4. hashing Mathematical algorithms are used with data to result in a unique value, or
hash. Type iostat to view disk read and write information. Windows Server user quotas can be set using the GUI, as shown in Figure 4-8. So, for instance, when you connect to an Internet web server's MAC address. The admin creates disk volume 1,
which is thinly provisioned during creation and is set to a size of 500GB. Some hypervisors (virtualization software components directly, whereas others emulate hardware for the guests to access physical hardware for the guests.
Linux system log file one screen at a time. Server technicians need to know all the details related to the type of servers they are responsible for. Your server environment requires the ability to replace a failed disk while systems remain running. Now, because we can place many servers together in a rack, it just makes sense to place server storage
appliances, power sources (including UPSs), and network cables in the rack, too. Hot sites provide a facility with power, communications links, equipment, software, up-to-date data, and staff. Perform a root cause analysis. ST D. Bumping up the number of vCPUs can also cause another problem: licensing. The server has its own power supply. set-acl
B. Objective Map The following objective map has been constructed to enable you to cross-reference the official exam objectives with the objectives as they are presented and covered in this book. Temperature control Chapter 1: Introduction to CompTIA Server+ Essentials 19 B, D. If clustering, make sure all cluster nodes have the same virtual
network switch configuration; otherwise, failed-over virtual machines will be inaccessible over the network. No wonder users get exasperated! Problems with passwords result in user frustration, less time spent at work being productive, increased help desk costs, and—as if that's not enough—they are not very secure. Enable IPv6 replication through
group policy. Scroll down to the Processor category and expand it. hypervisor A program that lets multiple guest operating systems running in virtual machines share the resources of a single host. Malware Removal The removal of malware can be done in many ways: • Vendor infection removal tool • Windows system restore point • Client OS only,
not Windows Server OS • Revert to previous configuration, not data • Reinstall or reimage the server • Ensure that you have a working backup • Boot to run removal tool Use more than one antimalware product to ensure that remnants
of the infection do not remain; however, do not run multiple antimalware products at the same time, because some infections could be missed due to configured to connect to the VPN. 129 Storage Area Networks . PKI will not enable
replication; it is used for security purposes. 45 Hands-on Exercises . 41 Wattage . CNAME Canonical name record or alias record Used as an additional name for an existing name. Windows Server 2012 R2 includes data deduplication for NTFS volumes, but it's not installed by default. Layer 3 switches can use IP routing to transmit packets to
destination networks instead of relying solely on MAC addresses and switch ports. Often called solid-state hybrid drives (SSHDs), they consist of spinning platters as well as the faster flash memory. NTFS file systems support encryption and auditing, which are not supported with FAT32 file systems. 216 Rights and Permissions . Install the
certificates on the web server. Enter install-windowsfeature fs-resource-manager -includemanagementtools 4. DNS A records are for IPv4; AAAA records are for IPv6. Stratum 0 is for reference clocks, Stratum 1 are time servers connected to reference clocks, and Stratum 0 is for reference clocks, Stratum 1 are time servers connected to reference clocks, and Stratum 2 time providers. The domain suffix can be
configured when you configure TCP/IP settings on a device. Web servers use HTTP to deliver HTML content to web browser and normally listen on TCP port 80 or 443 for secured connections. An incorrect default gateway has been specified. www.openssl.org Open source SSL and TLS tools. The chmod means "change mode"; it's how we set filed.
system permissions at a shell prompt (there are Linux GUI shells that will allow this to be done without typing). Note British thermal units (BTUs) are a standard way to measure the heat output of computing equipment. Open Systems Interconnection (OSI) model.
These units of measurement are not used in rack-mounted systems. 192 Exercise 5-3: Install and Configure NAT on Windows Server 2012 R2 . A low RTO means very little tolerance for downtime. 141 MBR and GPT . You must ensure that both virtual machines have redundant connectivity to a log file storage volume and an application database
storage volume on the SAN. business impact analysis (BIA) Identifies the degree and scope of impact on a business when negative incidents occur. RDP is the Remote Desktop Protocol used to manage a computer remotely over the network.
performance, • If you plan to migrate or fail over VMs within a cluster, you may need the same or similar CPUs in each cluster node; refer to your hypervisor documentation. Techniques such as LUN masking and zoning are used to restrict server access to specific LUNs. iSCSI enables storage consumption by hosts over a standard TCP/IP network. If
the client and server are on different networks, a router gets involved. Industrial B. It's crucial for all devices on the network to agree on the date and the time—log file entries, Microsoft Active Directory user logon time stamps, and many other activities depend on it! Network Time Protocol (NTP) is a service that runs on a network host, whether it is
UNIX, Linux, Windows, or a Juniper Networks router; it can run on anything, and there are thousands of NTP servers on the Internet. For example, a multihomed server (one with more than one NIC) might have each NIC plugged into different network switches or a specific switch VLAN port. When to Use Subnetting There are times when you'll have
a single IP network address but more than one network to allocate IP addresses to. You will be required to enter your voucher number or provide payment information at registration. Create DR plan D. USB This is a catch-all category; pretty much any type of peripheral can be plugged into a computer via USB, and this is really important from a
security standpoint. Solid-state drives (including flash drives) have no moving parts; everything is electronic. Permissions are a degree of access to a resource. Single-mode fiber is used for longer distances than multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server OS installation media often provides a repair option (Windows) or a boot Rescue Mode (Red Hataman multi-mode fiber. Luckily, modern server of the fiber of
Enterprise Linux) to deal with such situations. The archive bit is normally cleared when this type of backup runs, because we want to capture all changes each time the incremental backup is run. Ensuring that objects coming into contact with one another have different changes each time the incremental backup is run. Ensuring that objects coming into contact with one another have different changes each time the incremental backup is run.
problem first requires problem identification, followed by the establishment of a theory of probable cause. Hot-swapping enables the exchanging of hardware components while the server is running. Click the Start button and type DHCP. SSL VPNs have become popular because they use standard HTTPS ports, which are opened in most of today's
firewalls. Configure the internal server network interface to use itself for DNS name resolution by typing set-dnsclientserveraddress -interfacealias internal server network interface to use itself for DNS name resolution by typing set-dnsclientserveraddress -interfacealias internal server network interfacealias internal server network internal server net
Curriculum Program signifies that, in CompTIA's opinion, such training material covers the content of the CompTIA's related certification exam. Multiple FC switches. If a motherboard fails, the decryption key would be unavailable even if the disk
drive were moved to another c omputer, so it's important to store decryption and recovery keys in a safe location. TACACS+ enhances security by encryption transmissions, and it is based on the TCP transport mechanism as opposed to UDP, which is used by RADIUS. For example, the following example uses the dd command to back up (if means
input file) the master boot record (MBR) of a bootable Linux disk (/dev/sda) to a backup file (of means output file) in /backup called sda mbr back. www-03.ibm.com/systems/storage/san IBM SAN solutions. Racks may not come with rails, so you might CompTIA Server+ Certification All-in-One Exam Guide 26 Figure 2-2 Dell PowerEdge R515 rack
server, courtesy of Dell Inc. IPv4 The fourth revision of the Internet Protocol. Fibre Channel storage over a Fibre Channel storage 
support Integrated Dell Remote Access (iDRAC). SATA D. In the navigation panel on the left, click Power On This Virtual Machine. This could exist between your company and a public cloud provider, or you might use SLAs within an organization between business units and the services offered by the IT department. Cold aisles feed cool air to
equipment intake fans. direct-attached storage (DAS) Local storage available to a server. UDP does not use a three-way handshake; there are no sequence numbers and there are no sequence numbers and there are both considered OSI Layer 4 firewalls
because they can allow or deny traffic based on the following: • Source IP address • Destination IP address • Destination port • Protocol type Some Windows services such as Active Directory require multiple ports for communication, in which case it is possible to work with groups of firewall rules, some of which are already included in
Windows. Even though every lab may not mention it, if you have plenty of free disk space, you might want to take a virtual machine snapshot of each virtual machine after you successfully complete the lab exercises in each chapter. Following is the general troubleshooting methodology: 1. CAT7 6. It handles slower data transfers such as USB and PC
Express (PCIe) expansion card slots. Shared DR hot site facilities are used by multiple companies and are less expensive than a DR host site dedicated to a single company. The -a preserves extra attributes such as permissions, -v is for verbose output, and -z compresses the transfer: rsync -avz server2:/budgets/2016/ /incoming/rsync As with Windows
plenty of third-party replication solutions are available for UNIX and Linux, with varying options. start of authority (SOA) A type of DNS record that contains information about a DNS zone such as the serial number, zone refresh interval, and so on. txt file name; this shows that the file is now encrypted using EFS. Accept the defaults for the
remainder of the wizard and then click Install. True positives D. rsync and DFSR are asynchronous replication and they do not provide near-zero RTO. Glossary 405 snapshot See checkpoint. Differential backups take less time to perform than full backups but more time to restore, because we need not only the full backup set, but also the correct
differential backup set that includes changes since the last full backup. To delete files, users need the NTFS modify permission. If you're a Linux person, you can use the cat command to view the contents of the DHCP lease file, which normally resides under /var/lib/dhcp. Make sure you are logged into your Srv2012-1 virtual machine with the
Administrator account. This is because the hypervisor can get bogged down finding physical CPU time slots for all of the vCPUs; it really depends on what is running within the virtual machine, but sometimes less is more. This can be useful if you're looking through firewall logs and notice suspicious activity from a certain IP address. Practice Mode
provides an assistance window with hints, references to the book, explanations of the correct answers, and the option to check your answer as you take the test. SMB D. Your server IP settings are configured as shown in the following illustration. NTFS NT File System; the file system that Windows NT operating systems use to store
files on a storage device. • Type the computer name: Srv2012-2. Select Remove, and Windows will completely uninstall the software. Its only form of security is a password that is sent in clear text over the network. The correct FC HBA driver must be installed for this to work. Which requirement justifies the cost of a hot site? subnet mask A mask
that is used to determine what subnet an IP address is from. Residential D. Which of the following statements best describe a MAC address? You need to ensure that the Android devices are given IP addresses that place them on their own isolated VLAN. Bare metal backups can be used to quickly restore an entire operating system, applications, and
data, even to a new server. 240 Secure Media Disposal . Direct-attached storage (DAS) means storage local to the server. When combining share and NTFS permissions, the most restrictive permissions, the most restrictive permissions, the most restrictive permission applies. CompTIA Server+ Certification All-in-One Exam Guide 134 It really doesn't matter why. full wipe All information on the system is
completely deleted. Network Concepts Ah, networking. The hardware will present what appears to be a single disk to the server OS. Physical shredding using an industrial shredder or burning storage media can also be effective. Remove the DNS server default forwarders. Try to use apps, tools, and file formats that are standardized. Cable
management extender 18. He is the author of CompTIA Cloud Essentials Certification Study Guide and co-author of CompTIA Security+ Certification Practice Exams. Simultaneous journaling from multiple nodes C. 1U Unit of measurement of height for racks and rack-mounted equipment. Start Windows Explorer and notice the new drive letter for
your new striped volume, cable management arm In equipment racks, a folding arm that holds cables. Through multicast neighbor solicitation messages, IPv6 nodes can discover network settings from routers and also assign themselves a local IP address that always starts with fe80. It's not really about the number of VMs (VM density), but rather
what type of IT workloads will be running inside those VMs. An SMB file server used by 500 people, for example, won't need as much horsepower as a Microsoft SharePoint Server used by 5000 people. Many standards stem from here including 802.1x, 802.11, and so on. NAC Network Access Control (NAC) is often referred to as "port-based security."
These ports are logical, not physical—you can think of a port as some kind of entry point into a network. Intrusion Detection and Prevention Intrusion Detection and Prevention Intrusion Detection systems (IDSs) send administrative alerts when suspicious activity is detected. Exercise 3-4: Install the DHCP Server in Windows Server 2012 R2 1. When the option is available, TLS should be
used if it is supported by the applications, because SSL versions 2 and 3 are known to have serious security vulnerabilities. It enables you to add items to monitor such as network components, specific software components, hardware items such as network components, specific software components, hardware items such as network components, specific software components, specific software components, hardware items such as network components, specific software components, specific softw
instructions embedded on a motherboard that provide basic hardware functionality including the initial power on self test (POST) sequence when the machine is powered on. 9. To encrypt a file, use this command: openssl enc -aes-256-cbc -in project_b.txt -out project_b encrypted.txt To decrypt a file, use this command: openssl enc -d -aes-256-cbc -in
project b encrypted.txt -out project b decrypted.txt Figure 6-18 shows the unencrypted contents of the encrypted version of the same file. Select drive letter I (for iSCSI) and click Next. Newer SCSI adapters and devices are self-terminated, whereas older equipment requires a physical
terminating device. The listed troubleshooting steps are not as specific as a root cause analysis. Make sure your RHEL7-1 virtual machine is running in VMware Workstation and that you are logged in as user root with a password of Pa$$w0rdLinux. Are you concerned with fault tolerance, performance, or both? WORM drives worked well in archiving
situations. unshielded twisted pair (UTP) A type of twisted-pair cable that has no additional protection or shielding against outside interference. Enter Contracts for the folder name and press enter. The Linux execute permission is missing and is required to run shell scripts. Security tokens contain claims, or assertions about a user or device. RTO is
              m amount of tolerable downtime, and RPO is the maximum tolerable amount of data loss. We need special network cards and equipment to transmit and receive data over fiber-optic. 288 Hands-on Exercises . Switch back to the wbadmin screen. Malware Troubleshooting In addition to malware notifications, syn
infection include the following: • Excessive and prolonged hardware resource use • Inability to reach network resources • Web browser opens pages you didn't navigate to • Rogue processes or services (mystery processes) running • Missing log entries (cleared by the attacker) • Encrypted
files with a message demanding payment User awareness and training is the number one defense against most security problems, including escalation attacks, SQL injection attacks, cross-site scripting attacks, and so on. Chapter 5 will provide the
nitty-gritty for copper- and fiber optic-based transmission media. A virtual server is not an option since the question states a physical server is required. That leaves us with one octet (the fourth octet) to address devices, or hosts, on the 192.168.1.0 network. It also means TCP/IP settings must be configured at the hardware level to enable remote
access across WANs. IPMI The Intelligent Platform Management Interface (IPMI) is a remote server management solution commonly used with various vendor blade enclosures. RAID 3 A. USB 4 9. Booting from GPT requires UEFI. non-hotswap components 1.3 Compare and contrast power and cooling components • Power • Voltage • 110v vs.
Broadcasts are network transmissions addressed to all devices on the network; they don't cross VLANs, so multiple VLANs can reduce traffic overall. You can specify a script that runs on detection. Right-click fakezone.com and choose New Host (A or AAAA record). Then click the prompt when it is displayed. You are a Linux server administrator. This
prevents tailgating—when an unauthorized person slips into a door behind you. If you decide to install the server operating systems on physical systems on physical systems on physical systems or in a virtualization environment other than VMware Workstation 10, the exercise steps will differ slightly from the ones in this book. For the starting IP address, enter 192.168.1.50, and for the
ending IP address, enter 192.168.1.80. Enter 1s / to verify that the /asia contracts folder has been restored. You want to ensure that regular TCP/IP traffic does not impede iSCSI performance. • Scripts are normally used before and after backup  Are malicious scripts present? For example, Figure 7-1 shows the DNS server log on a Windows server
For nearly 20 years, he has deployed new desktops and operating systems, servers, and network hardware and software issues. Similar to server form factors, storage devices dimensions and form factors have to be considered so that storage devices can be physically
accommodated within servers or storage arrays. 366 3.2 Given a scenario, configure RAID using best practices . LT C. Neither CompTIA nor McGraw-Hill Education warrants that use of this publication and CD-ROM will ensure passing any exam. CompTIA nor McGraw-Hill Education warrants that use of this publication and CD-ROM will ensure passing any exam.
used to explain communication hardware and software, and the layers, beginning with Layer 7, are application, presentation, session, transport, network, data link, and physical. SANs do not use IP or file-sharing protocols; instead, they use block I/O protocols such as Fibre Channel. Given this scenario, the best solution is to acquire three fast, high
capacity SATA disks and configure them using hardware RAID in a stripe set with distributed parity (RAID 5). The New Subnet mask will change from /24 to /27. You can ignore the warning about automatic updating. TX is not a valid network cable connector type. IP B. Grant resource permissions to the group.
It's common practice for backup tapes to be rotated (reused) on a Figure 6-18 Viewing unencrypted and encrypted text file content in Linux Chapter 6: Security 241 periodic basis, but when they contain a fresh data backup, they're often stored offsite for added security. RAID 1 already offers the best performance. We'll also cover these juicy topics
in such a way that you'll be well armed working in the IT field, whether you're discussing network storage for cloud-based virtualized servers, determining specific server hardware that must be ordered, or working in a data center. (Note that Windows machines use the ping -6 Chapter 7: Troubleshooting and Performance Optimization 279 Network
Problem Possible Cause Possible Solution Internet connectivity failure • Service provider outage • Incorrect range for the subnet using ipconfig (Windows) or ifconfig (Linux) • Ensure that the configured default gateway (router) interface is on the LAN • Ping by IP address
instead of name to isolate name-resolution problems • Check your provider SLA to determine support options • Incorrect default gateway • Incorrect DNS server is running • Ensure that UDP port 67 is not blocked to the DHCP
server • For DHCP servers on other subnets, ensure that your LAN's DHCP relay agent is functional Network service misconfigurations velocity ensured that your LAN's DHCP relay agent is functional Network service misconfigurations on the subnet mask, default gateway, DNS server, etc. Incorrect DNS
server D. Figure 5-6 shows a UTP cable with RJ-45 connector plugged into a switch port. Ensure that IPV6INIT is set to yes. Malware infection B. Russell Christy Production MPS Limited Project Manager Poonam Bisht, MPS Limited Proofreader Paul
Tyler Illustration MPS Limited Acquisitions Coordinator Claire Yee Indexer James Minkin Art Director, Cover Jeff Weeks Information has been obtained by McGraw-Hill Education from sources believed to be reliable. Plan virtual server hardware. 285 Confidentiality and Integrity . If prompted to accept recommended settings, do so. SMP server
motherboards have multiple CPU sockets, and each CPU chip can contain multiple cores, which speeds up processing. Although most non-ECC modules can detect memory errors, they don't do anything about it. Blade enclosures make even better use of space. 293 Security Problems and Solutions . 123 Chapter 5 Network Concepts.. As a result, in
some cases, IT configurations change, business processes are improved, and security controls are further hardened. Scroll within the list, expand Physical Disk, and choose Avg. Differential CompTIA Server+ Certification All-in-One Exam Guide 334 13. This is the magic that kicks in the moment you turn on the power for your server or when a card
initializes. Insufficient disk space 10. DIMMs can have 168, 184, or 240 pins. Figure 2-2 shows ports on the front of the server; these allow a keyboard, mouse, video display, or a KVM (keyboard, video, mouse) switch to be connected. • How will patches be applied? Cleanagent fire suppression systems remove heat to extinguish fires, whereas inert-
gas solutions remove oxygen from the fire. • Decide which level of RAID makes sense for your situation. When Active Directory Users and Computers is displayed, click it. Remember that hot sites imply synchronous replication over high-speed network links. Write Once Read Many (WORM) A data storage device that can be written to only once.
Blade baffle 4. But after the connectivity is taken care of, disk space must be configured appropriately and file systems created. The blade will run Chapter 4: Storage 145 Windows Server 2012 R2 Hyper-V by booting from the SAN and will host two virtual machines running customer management software. Ensure that you are logged into Srv2012-18.
with the Domain Administrator account (Fakedomain\Administrator) with a password of Pa$$w0rd. What should Larry do? Currently users authenticate to these systems using a username and password. UPS devices are normally rack-mounted in server rooms or data centers, and you should make sure the floor can handle their weight. The IEEE
802.1x security standard controls access to a network. Length of network cables B. • Proper disposal techniques • Physical destruction • Sanitize/wipe media 6. You will see a list of AD user accounts. EFS ties encrypted files and folders to specific users (unlike disk volume encryption). You have numerous tape drive and media systems to choose from,
depending on your capacity, speed, and archiving needs. Too little humidity increases the likelihood of ESD; too much humidity results in water condensation on equipment. This is called the power on self test (POST). Are you using cloud storage? The Wi-Fi router is configured with WPA2 Enterprise. Think of computers buses like you think of real
buses, which move people around using roads; a computer moves data bits around the system using buses. Compliance with data protection laws often drives the data backup policy within an organization, including encryption requirements. Your server requires storage that will be supplied over the network. Getting operating system and application
software installed and patched can take time (less than the RTO; otherwise, a cold site would not be used). Network diagram B. DHCP acknowledgment • The DHCP server sends an ACK packet to the client along with any additional configured TCP/IP settings. 265 Test the Theory . This means virtual machines currently needing RAM can "borrow"
it from those virtual machines that do not currently need it. Authentication User, device, and service authentication uses at least two of these categories. The server must use UEFI. Dual power supplies D. This is why some
providers are reluctant to supply even the addresses of their data centers. Rack mount ability D. Tower servers are often used in smaller offices. • Test thoroughly. Being the server specialist, you have been directed to configure the site to improve user response time during peak loads. SAN solutions do not use IP and they are not considered local
storage; instead, they are considered network storage. server A computer designed and configured to be accessed concurrently by multiple users. Because it is cached (it is not lost during a power cycle), data gets written to disk. HTTPS requires a server-side SSL/TLS certificate to secure the connection. It's wise to test updates in a controlled
environment before pushing them out to production machines; sometimes updates cause problems. Server Hardware Basics Everybody uses servers in one way or another, even if they don't realize it—from teenagers posting content to social media from their smartphones, to shoppers making online purchases, companies backing data up to the cloud,
and all the way up to Wall Street executives making decisions based on server-supplied data. (This measurement refers to the diameter of the disk platters. In theory, the USB 2 standard can transfer data at approximately 480 Mbps. Each vCPU maps to a CPU core and not a physical CPU chip. The specific value that should be of concern here will
vary in different environments. Like IDSs, IPSs must be tuned for the specific host (HIPS) or network (NIPS) environment they will be monitoring. Right-click the first listed Offline disk and choose Bring Online. Which server form factor should you recommend to FakeRUs Inc.? iLO B. It listens on TCP ports 389 and 636 (clear text and encrypted,
respectively). 8. Microsoft Active Directory requires DNS. Common items in the certificate (along with examples) include the following: • Serial number • Subject name • User e-mail address, FQDN of web site • A unique mathematically related public- and private-key pair • The private key must be kept secret • Certificate use • E-mail or file
encryption, code signing for developers CompTIA Server+ Certificate can no longer be used once it expires The certificate can be exported with particular attributes, such as when a certificate is exchanged
with other users for e-mail encryption. Since disk I/O often tends to be the performance bottleneck, it warrants our attention when it comes to optimizing performance. A virtual machine is also called a guest. The London office currently has Active Directory domain controller servers configured with IPv6. NIC teaming C. Verify your work: mdadm --
detail /dev/md1 12. Directory servers provide a central network database of configuration objects, such as user accounts used for authentication. Name the server 26. For the password, enter Pa$$w0rd. This would mean backups must occur at least every four hours. Packet sniffing can also reveal the use of insecure tools such as Telnet (Figure 7-18).
which transmits data in clear text. Of course, you must know the PIN to use it, but you must also have the card in your possession to use it. PKI certificates themselves do not provide claims-based authentication. MAC addresses are OSI Laver 2 (data link) addresses. A 10,000 RPM disk performs better than a 5400 RPM disk, 230 IPSec... This would
occur if a consuming web app needed to see a claim with EmpID and not Employee-ID; this will vary from application. Then we need reports that can confirm that patches have been successfully applied. Hardware remote management solutions such as Intelligent Platform Management Interface (IPMI) and Integrated Dell Remote
Access (iDRAC) run independently of the operating system—so a server that hangs isn't a problem. Hardware problems can sometimes masquerade as software issues. An IPS can, for example, detect malware and remove or prevent the infection from spreading. This is not a coincidence. Read on. host intrusion detection system (HIDS) A system
that monitors a computer system, logs suspicious activity, and alerts administrators. Hosts are the physical machines on which quests run, and this is the same with hypervisor. Specific DHCP settings can be delivered to certain types of DHCP clients using vendor class identifiers. The organization's policies may be influenced by laws or regulations
that specify how often backups must be performed, how long they must be retained, and in which country the data must reside. capacity • Automated graceful shutdown of attached devices • Periodic testing of batteries • Maximum load • Bypass procedures • Remote management CompTIA Server+ Certification All-in-One Exam Guide 372 • PDU •
Connect redundant rack PDUs to separate circuits • Capacity planning • PDU ratings • Total potential power draw • Multiple circuits • Connect redundant power supplies to separate PDUs • Safety • ESD procedures • Fire suppression • Proper lifting techniques • Rack stability • Floor load limitations • Sharp edges and pinch points •
HVAC • Room and rack temperature and humidity • Monitoring and alert notifications • Air flow • Rack filler/baffle/blanking panels • Hot aisle and cold aisle 5.0 Networking 5.1 Given a scenario, configure servers to use IP addressing and network infrastructure services • IPv4 vs. Using additional buses not supported by the motherboard is possible
by using host bus adapter (HBA) cards, such as those used for SAN connectivity. In the Hardware group, click Network. Because an HTTPS connection is being used, the presentation layer (6) is involved due to encryption. It allows a powered-down system to still feed enough power to the NIC so that it can be woken up remotely with a specially
crafted packet. Chapter 1: Introduction to CompTIA Server+ Essentials 3 Server Form Factors Physical servers should never be used as a desktop! But
there are times when servers need a local optical drive to boot from for recovery purposes or to install an operating system. TLS version 1.3 is in draft as of this writing. Which unit of measurement is used for racks and rack-mounted devices? • Environments where clients are connected for short periods of time should have short lease durations to
maximize IP address reuse. 237 Data Security . The plan includes detailed steps that will be taken against affected systems, notification of stakeholders, and, for computer Learning Center of Memphis, Tennessee, where he delivers traditional and online
classroom learning for adults, covering a wide variety of products. • Follow the principle of least privilege when assigning rights and permissions. VLANs By default, all physical switch ports are configured within the same virtual local area network (VLAN). Test the theory. Reverse lookups do the opposite: given an IP address in a DNS query, the DNS
server looks up and returns the FQDN. IP addresses work similarly, where a single IP addresses work similarly and select CompTIA Server+ (SK0-004) from the Installed
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Question Packs list. Why would you do this? 352 Cloud Computing . Figure 8-2 shows the AWS Storage Gateway configuration screen. 171 Network Switches . Plan server IP configuration scree
reviewed or approved the accuracy of the contents of this training material and specifically disclaims any warranties of merchantability or fitness for a particular purpose. The new SwRaid storage pool is listed instead of Primordial. For more on this, be sure to read up on the CompTIA Brain+ certification. CPUs The central processing unit (CPU) is
the brain of the server and comes on a chip. Decrypt the budget files. So, stated simply, cool air should be channeled using baffles and fed to the front), and baffles and fed to the front of equipment (assuming intake fans are on the front), and baffles or shrouds should channel the resulting warm air from the back away from the cooler air. As long as the BIOS and operating system
supported PnP, all was good. Me Microsoft System Center Configuration Manager, otherwise called SCCM. SFP connector Small Form Factor Pluggable; this networks. You are ordering server hardware that will run mathematically intensive
engineering applications. TCP CompTIA Server+ Certification All-in-One Exam Guide 156 18. The 6 value is the sum of 4 + 2 (r + w), so the group associated with the file or directory has read and write permissions. • Procurement of servers on-premises or the cloud 2. Environmental Factors Adding virtual servers to a hypervisor host doesn't make as
much difference to power consumption and heat as does adding physical server room or data center. Certificates can be manually requested and issued or automatically issued, which is possible using Microsoft Group Policy. 25. MBR allows up to a maximum of four partitions, single-mode fiber Optical fiber designed to transmit
light over long distances. A centralized data leakage prevention tool must be used to ensure, for example, that sensitive file attachments cannot be stored on removable thumb drives or shared on social media sites. PCI Express (PCIe) The serial transmission-based PCI Express standard supersedes both PCI and PCI extended (PCI-X) with more
bandwidth, which is especially useful with video, storage, and network cards. 354 Networks . As IT administrators, we grant user permissions and set quotas on disk space usage. Figure 3-4 Setting Windows DNS server root hints Chapter 3: Server Operating Systems 71 Figure 3-5 DNS resource records RR Type How It Is Used SOA Start of
authority SOA contains zone details such as serial number and refresh interval. Which type of connector is commonly used with CAT6 cables? Turn off and uninstall software that is not in use, disable or delete inactive user accounts, and disable server GUIs. Table C-6 Security Best Practices (Continued) Appendix C: Real-World Best Practices 357
Details to Consider Why It Is Relevant Encrypt data in motion All network traffic should be encrypted, including internally on a private LAN. rsync D. This book includes entire chapters dedicated to troubleshooting and disaster recovery. 802.11 A. CPUs are mostly 64-bit. Chapter 2: Server Hardware 51 Questions 1. • Bare metal This enables the
entire OS and data to be restored. Despite this, protocols such as HTTP, DNS, and SMTP, to name just a few, are Layer 7 protocols. This means this entire octet identifies a part of our network; the same is true for the next two octets. Which term describes the chassis housing multiple blade servers? Rack cable extender D. With most modern switches
a standard twisted pair straight-through cable can be used to link switches together, although you may come across some that require a cross-over cable (receive and transmit wires are reversed on either end of the computers are used by the
accounting department and are configured with IPSec. Technicians who are certified in the specific solution being used are needed to configure and maintain the replication environments. In the navigator on the
left, click This PC. Note Do you see how the OSI model layers are reflected in sequence (Layers 2, 3, 4, and so on) when viewing packet headers? Press the spacebar to advance one line at a time. Start PowerShell. eFAT is a fictitious term. • We don't want servers brought down for maintenance to be remotely awakened. Running five virtual
machines on a single server that goes down is not good; you'd be better off with five physical servers in that case! Get the fastest disk subsystem your budget allows for. Chapter 7: Troubleshooting and Performance Optimization 291 Exercise 7-4: View Linux Log File Entries 1. 151 Local and Network Storage . Located on the CPU die. 328 Chapter
            . The x means extract, and the -C means extract to a specified path. It executes on an infected computer and encrypts any files that the infected computer and Encrypts any files that the infected computer and encrypts any files that the infected computer and under the infected computer and encrypts any files that the infected computer and encrypts are encrypts and encrypts are encrypts and encrypts and encrypts and encrypts and encrypts are encrypts and encrypts and encrypts are encrypts and enc
history database server on the same subnet named sect1-423. What is one possible explanation for this? FAT32 and exFAT are used most commonly with removable storage such as flash drives, although you can format flash drives as NTFS. Deploying and managing non-Microsoft updates in a Windows environment can be done using tools such as
Microsoft System Center Updates Publisher (SCUP) or other vendor-specific solutions. Verify step 3 in Windows Explorer by right-clicking Permissions. 262 Establish a Theory of Probable Cause . DISC C. Servers normally have multiple NICs. You
might consider configuring NIC teaming to group NICs together for better network throughput into and out of the server. For example, on a PAT appliance, routing must be enabled, but on a forward proxy server, routing should be disabled. The BIOS and UEIF are irrelevant to whether DDR3 chips can be used in DDR4 slots. In some cases, you may
need to escalate to another party with the expertise and authority to resolve the problem. 384 Technical Support . The good news is that most modern server operating systems do not have much installed by default, so right away you're off to a good start. There are times, however, when you may want to split your 24-port switch into smaller
networks. storage area network (SAN) A network that provides access to block-level data storage as opposed to servers having the own dedicated local storage. For example, adding virtual hard Appendix A: About the Hands-on Exercises and Lab Set-up 343 disks in VMware takes seconds, but on a physical host you need to acquire and install the
physical disks before they can be used by the server operating system. Once a virtualization solution is chosen, further details need to be determined, as you'll see in Table C-2. For instance, when troubleshooting Internet connectivity in a branch office, if you determine that network connectivity within your branch office is working, you may escalate
the issue to technicians in headquarters, where Internet traffic is centrally routed. XFS A 64-bit journaling file system created by SGI and used in Linux. Document the solution. The maximum tolerable amount of failed array disks. Cable
Types There are many different types of network cables, but regardless of your choice, cables must be properly organized and labeled. Secure Shell (SSH) for data transfers between hosts on a network. Failover clustering enables network services to continue even if servers fail, as long as at
least one cluster node remains running. Infrastructure Roles The network infrastructure enables devices to communicate with one another. 346 Appendix B URL Reference and running as quickly as possible in the event of some kind of problem, and the specific procedures should be a part of a DR plan. Make sure
system configuration settings and data are backed up before you change settings and test theories. The idea is that network edge devices, but instead forward those requests to a central authentication server on a protected
 network. A reverse lookup zone should be created for the subnet. Interactive PowerShell sessions can be started with Enter-PSSession. Type A D. This is also a function of the switch port the network, so network bandwidth use goes up. firewall
A hardware or software solution that controls network traffic into or out of an individual host or an entire network connectivity, storage for blade servers, management capabilities, and other things. 171 Network Interface Cards . dynamic • Module placement • CAS latency • Timing • Memory pairing
• Bus types, bus channels, and expansion slots • Height differences • PCI • PCI-X • NICs • RAID controllers • BIOS/UEFI • CMOS battery Appendix D: CompTIA Server+ Certification Exam Objectives (SK0-004) 361 • Firmware • USB interface/port • Hotswap vs. • The pope said so in the
Middle Ages. If you plan on creating a cluster of multiple hypervisor nodes for VM high availability, moving VMs from one cluster node to another could require physical CPUs to be similar or exactly the same on each node; consult your specific hypervisor documentation to see if this is the case. UNIX and Linux support log forwarding through the
traditional syslog dameon or its successor, syslog-ng. Note iSCSI LUNs can also be consumed by some client operating systems and devices. Windows Firewall and click Next. DHCP listens for client
connections on UDP port 67, so firewalls between DHCP clients and servers must allow this traffic to the DHCP. Instead, we humans have an easier time remembering names. Keyboard, video, mouse (KVM) switches can be used to administer
servers locally. Start PowerShell from the taskbar and type get-aduser -filter * to verify that AD is accessible via PowerShell. The complementary metal oxide semi-conductor (CMOS) is essentially your specific configuration of hardware settings supported by the BIOS. The fact that these higher layer protocols (SMB and NFS) are used is a factor that
distinguishes network-attached storage (NAS) from storage area networks (SANs). The admin creates disk volume 2, which is thinly provisioned during creation and is set to a size of 500GB. On the right, double-click Local disk (C:). Certificates can be used in many ways: • Authenticate a smartphone to a VPN appliance • Digitally sign an app before it
is published to an app store • Encrypt sensitive e-mail messages before transmission You can get certificates from a trusted third party on the Internal use. Table C-4 Server Storage Best Practices Networks Some servers are connected to internal protected networks, while others might offer a
public web site on a DMZ. Load balancer 3. Class A extinguishers are for paper, wood, or cloth fires. A link-local IPv6 address is a unique self-assigned address, but it is always bound to the network interface whether or not DHCP is reachable. Note that some manufacturers provide backplane and midplane redundancy to reduce single points of
failure. Press w (for write) to save the changes to disk. The Windows Reliability Monitor history shown in Figure 7-3, for example, can help. In this example, can help. In this example, assume we've installed an SSH listener on our Windows host and want to allow inbound SSH traffic: New-NetFirewallRule -Protocol TCP -LocalPort 22 -Direction Inbound -Action Allow ---
DisplayName SSHAdmin Chapter 6: Security 227 Figure 6-11 Creating a firewall rule using the Windows Firewall GUI Linux Firewall What is the difference between DAS and a SAN? Navigate to C:. 342 Contents xv Linux . MAC addresses are Layer 2 addresses. Right-click
Srv2012-1 in the left panel and choose Configure And Enable Routing And Remote Access. Create iSCSI virtual disks for consumption over the network 13. L1, L2, and L3 caches are common in today's server hardware: L1 is the fastest and L4 is the slowest (and largest). Which type of disaster recovery site provides a facility with power and
communications links only? Virtual machines running server operating systems have a variety of options, including these: • Using a physical disk partition available from the underlying hypervisor • Using a virtual hard disk (VHD) file VHD files might be stored on a local disk on
the underlying physical server or on a network storage location. NTFS supports auditing, compression, local file system permissions, encryption, and disk space quotas. Incorrect IP address 9. CompTIA Server+ Certification All-in-One Exam Guide 204 7. A near-zero recovery time objective (RTO) means very little tolerance for downtime; this is
provided by synchronous replication. Successful authentication is required before access is granted to computing resources such as web sites, databases, files, and so on. PowerShell depends on the Windows Remote Management (WinRM) service to be configured, to run, and to be accessible through firewalls. A blade enclosure contains multiple access is granted to computing resources such as web sites, databases, files, and so on. PowerShell depends on the Windows Remote Management (WinRM) service to be configured, to run, and to be accessible through firewalls. A blade enclosure contains multiple access to the configured of the configured
 blade servers. With thin provisioning, we don't have to know ahead of time exactly how much space each volume will end up needing. Each question throughout the entire exam. Chapter 5: Network Concepts 173 NIC Teaming NIC teaming is used to group multiple NICs
together, similar to grouping multiple disks together in a RAID array. Multi-mode Chapter 5: Network Concepts 199 7. This means you'll get great exposure to common administrative tasks on both platforms. Invoke-Command and the -computername parameter for some cmdlets allow remote code execution, but not interactively. Windows servers
and clients with a GUI can use the Microsoft Management Console (MMC), which is a general tool that enables you to add snap-ins for specific management capabilities. NTP Time is of the essence; this is so very true with computer networks, because so many operations depend on accurate date and time stamps. Business Continuity Business
operations must continue even in the face of natural and man-made disasters or technology failures. • Consider using RAID configurations that optimize performance. Some services such as Microsoft Active Directory Domain Services require and create a DNS domain in order to function. 294 Questions and Answers . You'll find more detail about
this in Chapter 5. Slimmer server form factors (such as rack-mounted servers) benefit from riser circuit boards that plug into the motherboard and enable expansion cards that otherwise wouldn't fit to be plugged in. If a malicious user were to steal BitLocker-encrypted hard disks or thumb drives, the data would be inaccessible without the decryption
key. Click Network And Sharing Center. Combined with firewalls that control the flow of traffic into and out of a network, this is a good first step to securing your network. Which command should Sean use? Choose Restart Now. rack-mounted server designed to be placed in a rack with other servers and equipment in a server room or data
center; takes less space than tower servers. The downside is that somebody may be able to scan private data stored on a card. Mantraps close and lock an outer door before allowing you to open an inner door. These are three separate disks. 40. Projectors Because a data projector doesn't store sensitive company information and its contents won't
endanger human lives, there's not too much more you can do to lock it down Figure 6-8 Setting file system permissions in Linux CompTIA Server+ Certification All-in-One Exam Guide 222 beyond preventing it from being physically stolen. 363
2.4 Given a scenario, perform proper server maintenance techniques . Failover clustering uses multiple servers (nodes), each having the same network service and access to the same data on shared storage. A password, PIN, mother's maiden name, color of your first car, middle child's nickname—stuff about you that shouldn't be easy to figure out
or find on social media or through web searches. Companies should have multiple DR plans for various IT systems. To assist in removing single points of failure, rack-mounted servers normally have dual power supplies. 367 3.3 Summarize hardware and features of various storage technologies . Layer 3 C. Not only will this keep your server running
quickly, but it reduces the attack surface, decreases patching time, and reduces the overall amount of troubleshooting. CompTIA Server placement and the role that there are hundreds of the total the fact that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that there are hundreds of the server placement and the role that the role that
different Linux distributions, the vast majority of concepts and command line syntax are the same. • Could electromagnetic interference (EMI) resistance be a problem? This could be a hostname such as storage1.acme.local or an IP address such as 172.16.54.56. Reimage the server. Once the installation completes and you've closed any installation
windows, go to your computer's Start menu and start the VMware Workstation application to ensure that it launches. Integrated Dell Remote Access (iDRAC) Administrators can connect to remote servers at the hardware level, even using a friendly web browser interface. As the rack-mounted device is slid out on a rail, the arm containing the cables
expands, so we don't have to worry about cables being pulled tight. This meant we didn't have to fiddle around with jumpers and dip switches to configure the card. Which of the following is a valid IPv6 link-local address? After IIS is installed, start Internet Explorer on Srv2012-1. For further hardware details refer back to Chapter 2. In the case of
Windows servers, administrators can download the Remote CompTIA Server + Certification All-in-One Exam Guide 86 Figure 3-12 Enabling RSAT tools on a Windows client machine Server Administration Tools (RSAT) to accomplish this. routetr A. The purpose is not long-term power but rather enough power to enable equipment to shut down
properly. The same is true for servers attempting to access network storage. Many organizations use a hybrid of both wired and wireless communications, and these apply to the physical layer (1) of the OSI model. USB 4 B. Glossary 397 Intel VT Intel's hardware virtualization support required by some hypervisors. AMD processors must support
AMD Virtualization (AMD-V) and Intel processors must support Intel Virtualization Technology (Intel VT). Drive-swappable is a fictitious term. But what exactly is stored in a PKI certificate? RJ-45 4. The server is down. This has evolved to the point where server storage needs are addressed by accessing storage over a storage area network (SAN) and
in some cases in the cloud. IPSec Transport Mode IPSec transport mode doesn't encrypt the entire original IP packet (headers and payload), but just the payload itself. It boasts new features including the ability to scan for and correct file system corruption while the disk volume is mounted and in use. 102 Exercise 3-6: Install the Red Hat Enterprise
Linux 7 Operating System . If the problem existed within custom software, you may need to involve a user who works with the custom software daily to test functionality before you can state that the problem has been resolved. It ensures that the Windows IIS web server is installed, and if not, it will be. Guest D. Fiber-optic cables enable signals to
travel longer distances than their electrical counterparts, however, since light can travel much farther than electrical signals, which can also degrade over long distances. Making the Grade The required passing score for the CompTIA SK0-004 exam is 750, and the exam consists of 100 multiple-choice questions that you must answer within 90
minutes. There is plenty of free disk space; file encryption is not mentioned in the question; and a runaway process would most likely increase CPU or memory utilization, which is low. In the real world and on the CompTIA Server+ exam, you have to be able to determine which permissions must be set to accomplish a specific goal, and you must also
understand permission inheritance and precedence. APIPA devices can communicate only with other APIPA devices on the LAN. • Touch the computer chassis Do this as often as possible to dissipate any built-up static charge. VLANs can be used to isolate one type of network traffic from another for performance reasons. You then notice the server
IP address is 169.254.46.63. DNS Resource Records DNS domains contain resource records (RRs), as shown in the DNS Manager screen in Figure 3-5. 352 Storage . RAID 5 can tolerate a single disk failure. You must carefully choose NICs to support your needs, which may include the following: • Supports your network topology (Ethernet, token
ring) • Includes the correct connector sockets (RJ-45, fiber ST) • Supports the correct speeds (1 Gbps, 10 Gbps Ethernet) CompTIA Server+ Certification All-in-One Exam Guide 172 MAC Address All network cards have a unique 48-bit hexadecimal hardware address, also called a physical address or Media Access Control (MAC) address. Too Few
Permissions Chapter 6 discussed file system permissions for Windows and Linux systems. Keeping systems secure is an ongoing process. For example, a FSB speed of 400 MHz with a multiplier of 10 would result in an internal CPU speed of approximately 4 GHz. Some motherboard manufacturers allow this value to be adjusted within defined ranges
Public Teredo servers and relays are available. In the upper right, click Tasks, New Storage Pool and then click Next. buffer overflow An exploit that provides more data than the programmer intended in memory. Using PowerShell, the get-volume cmdlet shows file system health status as well as size statistics (Figure 7-10). 56 Chapter 3 Server
Operating Systems . cross-over cable Cable in which receive and transmit wires are reversed on either end of the cable; used to link two network computing devices with business needs. Total Tester Premium Practice Exam
Software Total Tester provides you with a simulation of the CompTIA Server+ (SK0-004) exam. Click the checkbox for each of the three listed 60GB SAS disks. SRAM is used for L1, L2, and L3 CPU cache memory and not the main system memory in your server—that would be DRAM. 177 NAT ... RADIUS clients are edge devices such as Wi-Fi
routers and network switches. In a data center, server hardening is done through a centralized configuration and not on each and every individual server. If the RPO is five hours, then backups must occur within this timeframe. wim file to the C: drive: Dism /Apply-Image /ImageFile:Z:\win10 images.wim /name:win10 sales /ApplyDir:C:\ Of course
DISM isn't the only game in town; other tools such as imagex.exe, Microsoft Deployment Toolkit (MDT), and Microsoft System Center Configuration Manager (SCCM) do a fine job when working with Windows images. From the /24, you know you have a 24-bit subnet mask, stated otherwise as 255.255.255.0. So you have one octet, the last one (8 bits)
to work with. Hardware Problems and Solutions Hardware problems are quickly fixed with proper documentation (OEM and implementation) as well as tools such as multimeters to test power and diagnostic tools to test memory and RAID controller configurations. So with base 10, we could say 103 = 1000 (10 \times 10 = 1000), 100 \times 10 = 1000. More
than the RPO D. The lab exercises provide the original installation password, but if you changed the password, you'll have to enter it instead. Cold B. CAT6 supports 1 Gbps over 10 Gbps over 10 Gbps over 55 meters. Dism /Append-Image /ImageFile:Z:\win10 images.wim /CreateFrom:C:\/Name:win10 sales D. The site has power and communications
links but no computing equipment, staff, or data. Update the motherboard firmware. Traditional software-based remote management solutions such as VNC, Remote Desktop Protocol, and SSH all depend on the operating system function. Which type of fiber-optic cable should be used for the network backbone on a university campus?
 www.submarinecablemap.com Shows global layout of undersea communications cables. Port numbers are software addresses that uniquely identify network services, such as those listed in Table 5-5. Broadcast B. Newer operating systems,
including Windows, support optical media burning without requiring that you install additional software. What benefit does a Layer 3 switch? user computing/vmware workstation/10 0 Download page for VMware Workstation/10 10. From the Windows start menu, enter Network. All trademarks or copyrights mentioned
 herein are the possession of their respective owners and McGraw-Hill Education makes no claim of ownership by the mention of products that contain these marks. intrusion prevent the activity from continuing. Also notice the
Initiator ID shows the Linux host IP address. Click Next twice, click Create, and then click Close. When things that once worked no longer work, always ask yourself, "What has changed?" Finding the answer could involve reviewing server log files, asking other technicians, and a host of other activities. Click Root Password and type Pa$$w0rdLinux
into the Root Password and Confirm fields. The occupant then gets the role permissions. Click OK and then start the virtual machine. IPv6 supersedes IPv4 and has a larger address space as well as security and quality of service improvement, but there is no such thing as an IPv6 leased connection. After asset identification, prioritization must occur.
 What type of disk partitioning and file systems should we use? To optimize airflow B. Some have pointy thermal dissipation (heat sinks) on the chip; more surface area helps quickly dissipate heat. If you don't know how many servers are running the affected software, you can't even determine the scope of the work required! Similar to hardware
and relevant—thanks, Russ! Feedback about ideas and content from other parties always improves a product: thank you to Roman Lachance for invaluable feedback and great ideas that helped shape this book. 11 Troubleshooting and Optimizing Performance . dd if=/dev/sda_mbr_back bs=512 count=1 The following example
restores the MBR to a disk (/dev/sda) from a backup file. IMAP normally listens on TCP port 143 or 993 if enabled for SSL or TLS. In the past, client systems each had an LMHOSTS file containing NetBIOS names and IP addresses. Stratum 2 NTP servers point to Stratum 1, which in term uses a reference clock (Stratum 0). UEFI B. Figure 6-16
Hardening the PowerShell script execution policy CompTIA Server+ Certification All-in-One Exam Guide 238 Data Security Data, however it is being used, should always be encrypted when possible using strong encryption ciphers. This means failed disks can be replaced while everything stays running. How can ESD be reduced? Figure 3-4 shows the
default root hints configured on a Windows DNS server that enable the Windows DNS server to resolve Internet names. USB hubs enable you to plug in more devices that don't have their own external power source. Tower D. This symmetric block cipher
consumer-grade computing equipment as opposed to servers. Figure 7-16 Output from the Windows gpresult /r command CompTIA Server+ Certification All-in-One Exam Guide 284 Linux Linux administrators can use the sudo command prefix in front of a command that requires elevated privilege—of course, sudo has to be configured in the first
place to allow this. USB 3 D. 23 Tower Servers . Back in the day, RJ-11 connectors linked office phones to the PBX. Note the backup status items in the middle of the screen. A variety of storage technologies are in use today. This book maps to the official CompTIA SK0-004 exam objectives to help you prepare for the exam, but it also goes beyond
Protected Access (WPA) A security protocol used to secure IEEE 802.11 networks. 238 Tape Encryption . The Toronto office domain controllers are also configured with IPv6, yet replication over the Internet is failing between Toronto and London. Enter cipher.exe c:\budgets and notice the "E" to the left of the budget. 4 Storage . SAS B.
rotational latency The amount of time it takes for the desired part of the disk to pass under the read/write heads of a hard disk drive, quickstart-installation quide. If fault tolerance is important, configure RAID 1 or RAID 5. Kerberos A network authentication protocol
that uses tickets to identify computers over a nonsecure network; used by Active Directory. Finally, the physical layer (1) is involved whether a wired or wireless connection is used for connectivity. When the Routing And Remote Access option appears, click it. chapter Troubleshooting and Performance Optimization In this chapter, you will • Learn
how to apply a troubleshooting methodology to real-world problems • Troubleshoot hardware, software, storage, and network problems • Apply troubleshooting skills to resolve security issues • Optimize server and network problems. Hardware RAID
support is normally integrated on server motherboards, but if it isn't, you can get expansion cards (a RAID controller) to make this possible. aspx Windows Server 2012 WDS deployment guide. • Sample questions for a general overview of what to expect on the exam and examples of question format. Using Windows Explorer, create a folder called
Projects on the root of any drive letter other than C:. Client-to-site VPNs require client VPN software configured to connect to a VPN appliance in a company DMZ (or reachable through a reverse proxy in the DMZ). WINS uses a flat naming structure; DNS uses a flat naming structure; DNS uses a flat naming structure.
Lack of administrative privileges B. Then there's NIC teaming—grouping NICs. Virtual machine NICs. Virtual machine NICs can be tied to specific underlying physical NICs. Storage Storage is sometimes embedded on a server motherboard, such as with some blade
servers. Wait a minute! That's 1TB of disk space we may use down the road, but there is only 500GB. • Visit pearsonvue.com/CompTIA to find the closest testing center to you. CompTIA server-
Certification All-in-One Exam Guide 188 It means that a session is established between two communicating devices before transmitting data for the purposes of negotiating session parameters. One way to make sure data is very difficult to recover is to drill physical holes into hard disk platters. CompTIA Server+ Certification All-in-One Exam Guide
274 Figure 7-9 Mapping a drive letter in Windows with net use Figure 7-10 View disk volume information using get-volume Storage Problems and Solutions Always remember to check the obvious; for example, loose or faulty power or data cables for disk devices can cause the drive to be unavailable or available intermittently. These are Layer 4
addresses. 127 Cloud Storage . This is commonly used for imaging. The idea is to get used to using both. Then there's the issue of group membership being static (members are manually added and removed). Replicating credentials when they
access different resources. IT resource usage is metered so that consumers pay only for what they use. CompTIA Server+ Certification All-in-One Exam Guide 118 10. Of course, we'll also know all of this because of frequent software inventory scans on our servers. On the sharing host, the /etc/ exports file contains details about which folders clients
can mount (only Windows uses drive letters) over the network. Network Troubleshooting Problems with server network communications can be a real pain in the neck; in some cases, such as with physical servers, we may need to be physically present to solve a problem. Chapter 2: Server Hardware 61 18. Although rarely used for hard disks, it is
still used occasionally for smaller USB flash drives. The device address in this example is simply 1. Transfer rate 4. Configure RADIUS clients to forward authentication requests to the RADIUS consumer B. Notice the PID (column 2) and the %CPU
utilization (column 3). PSUs have total wattage listings, such as 500W, 1400W, and so on. Under the root domain are top-level domains (TLDs) that we've all heard of—.com, .org, .net, .mil, .gov, .beer, .uk, and so on—that are maintained by DNS root servers. Glossary 399 midplane A printed circuit board (PCB) with server blades that connect or
one side (the front) and other components accessible on the other side (the back). You will create a dedicated storage volume for iSCSI virtual disks. Of course, security cameras would capture somebody slipping in behind you. Ensure that the Srv2012-1 virtual machine is running and you are logged on with the domain Administrator account with the
password Pa$$w0rd. 165 Cable Labeling . 144 Sample Scenario 2 . When you combine NTFS and share permissions, the most restrictive permissions, the most restrictive permissions prevail. Many things must be done before a site failure occurs: • An alternate location must be acquired or built. Back in the day, client systems each had (and still have!) a HOSTS file containing
 FQDN names and IP addresses. www.kali.org Kali Linux penetration testing distribution. Memory Timing Schemes such as double pumping can transmit data on the rise and fall of a clocking, or timing, signal. The iLO solution offers not only secure remote management capabilities but also includes server monitoring and alert capabilities. It is
 installed as a "feature" (as opposed to a "role") on Windows Server 2012 for backward compatibility. All you need is an Internet connection and some kind of app—in many cases, just a web browser. Single-mode fiber has a smaller diameter (less than 10 micrometers) than multi-mode fiber (about 50 micrometers in diameter) and it supports greater
distances, but this means that single-mode is more expensive than multi-mode. When you're working with a lot of equipment, it's important to ensure that cool air is fed into devices and that the warmer resulting air is exhausted elsewhere and properly taken out of the room or cooled down again. Exam Tip Watch for troubleshooting questions that
indirectly imply that a change was made that results in a problem. aspx Windows Server 2012 dynamic access control. ifconfig C. Some operating systems may not have it up and running in seconds if you configure it. It's a good idea to ensure that the SLA includes a clause for leaving a provider if it chronically
fails to meet thresholds documented in the SLA. RAID controller B. It offers large capacities, fast data seek, and streaming, and it is commonly used with tape backup systems and for archiving. botnet A group of infected computers under centralized malicious user control. For example, a web service might use a PKI certificate to authenticate to a
back-end database. If one server fails and you're using DS for user authentication, other remaining servers can handle the authentication. As a server technician, when you create server disk volumes, you have the option of thin provisioning, which is also referred to as overbooking or overcommittal of disk space. 94 Proactive Maintenance
say, for example, that a software vendor has released a critical security update that needs to be applied immediately. Files can be encrypted using the following command, where /e means encrypt: cipher.exe /e D:\Projects\Project_A.txt OpenSSL Red Hat Enterprise Linux 7.1 includes the openssl package, which, among other things, can encrypt files.
A, C and D are incorrect. • The DHCP client works with the first offer it receives. Determine which virtual machine template you will use. Which type of storage would be considered Tier 2 storage? This appendix serves as a convenient quick reference for best practices related to servers. Data Security Encryption is used to ensure that only authorized
users can access sensitive data. 25 B. Disaster Recovery Plan A DR plan prepares an organization for potential negative incidents that can affect IT systems. This enables older software using flat computer names to function through DNS. Which type of hypervisor has direct access to physical hardware? The web server transmits data to clients on a
higher numbered port such as 45,000. Note that delete and modify are both included in the write permission. Rack-mount servers are installed in a tall metal rack along with other rack-mount servers are installed in a tall metal rack along with other rack-mount servers. Seek time The position of the read/write head over the disk platter determines the amount of time it takes to locate data on the disk. FC does not
require that fiber-optic cables are used, although it is common. 249 Firewalls . Storage Most individuals and business like to keep data around for a while. • Check out the CompTIA Certification Roadmap to plan your next career move. RDP is the Remote Desktop Protocol that is used to connect to a Windows computer over a network; it is not
related to storage, nor is TCP. The recovery time objective (RTO) relates to the maximum amount of tolerable downtime. Your company's e-commerce site is experiencing excessive traffic during the holiday shopping season. LT connector — Fiber-optic snap-in connector commonly used with single-mode fiber. Virtual servers, of course, don't have formed to the maximum amount of tolerable downtime.
factors. WINS Servers The Windows Internet Naming Service (WINS) isn't used often anymore. Multifactor authentication is already in use. Rack-mounted equipment can be blocky, with sharp edges, however. • Most vendors offer a mobile device app for UPS monitoring. 341 Appendix B URL Reference. revolutions per minute (RPM) Used to
determine access time and read/write speed of spinning physical media such as CDs, DVDs, and hard disk drives. For further DNS troubleshooting, use the nslookup command. Click Create and then Close. Unimode and dual-mode fiber are not common terms. Poor performance indicates that you should troubleshoot the case and remedy the issue
There are also hybrid solutions where enterprise file servers can synchronize and even do backups to the cloud. If you want the best performance, get the fastest disks you can afford and configure a RAID 0 striped array, for example. The Problem You have one IP network address, but your public-facing router is connected to three separate networks.
that need public-facing addresses. Configure accounting department computer to use only IPv6. Even though all ports are physically on the same switch, without a router, a device on VLAN1 will not be able to communicate with a device on VLAN2. Intrusion Detection and Prevention Systems Intrusion detection (ID) and intrusion prevention (IP) play
a big role in securing hosts and networks by looking for anomalous, or suspicious, activity that doesn't match normal network usage patterns. Configure Server Manager Properties. TACACS+ is normally used to administer network devices, while RADIUS is used
primarily for centralized authentication. • Eat properly before taking the exam. Claims are digitally signed by ADFS using a private key; trusting applications verify the signature with the related public key. Reactive maintenance involves viewing log entries, responding to alerts including error codes, server LCD messages, and so on. Multi-mode is
useful for distances less than 2 kilometers (1.2 miles). • If this fails, the client assigns itself an automatic private IP address (APIPA) that has a prefix of 169.254. This means a web server needs to be on the server to handle these requests. Some file systems support extended permissions, but here we will look at the standard permissions that will work
on any type of UNIX/Linux file system: • Read (r), 4 • Write (w), 2 • Execute (x), 1 You're probably wondering what the listed numbers mean. IP addresses, and a LUN is a unique value assigned to network storage. Server storage can come in the form of DAS, NAS, or SAN. This involves at least two
server nodes working together to provide the same service. Use strong passwords Enable password complexity requirements in your environment. Hard disks are considered nonvolatile memory because they retain information even with no power. CAT6 cabling supports 10 Gbps over distances up to 55 meters. The great thing about PXE
installation/imaging is that technicians don't have to carry around storage devices containing installation files or OS images. RAID 1, disk mirroring, is used for redundancy in case one disk fails. Questioning stakeholders is a part of problem identification. This chipset connects the southbridge and other performance-sensitive components of the
 motherboard to the CPU. Chapter 7 will dive into malware and firewall issues, group policy configurations, and many other problems (and resolutions) associated with security. RADIUS client B. This lack of a trusted signature can result in error messages when the system boots if the Secure Boot feature is enabled, so one solution is to disable UEFI
Secure Boot. DCSs differ from Performance Monitor in that you can control when to start and stop collecting this data, and you can configure alert notifications when certain thresholds have been exceeded. Some roles might be on their own server, but you can also co-locate multiple roles on a single server; it depends on the role and the scale of work
it will be performing. UNIX and Linux hosts in a Windows environment can also use Samba to print to Windows shared printers. For example, adapter cards that fit well within a server room rack. Enter ls -ld /projects. Connectivity with on-premises devices can
be accomplished with the following: • Site-to-site virtual private network (VPN) connection from on-premises to cloud provider, bypassing the Internet 65 3 CompTIA Server roles are installed
and configured, these services must be enabled to ensure that the service is running when the service is running w
determine what specific vendor class data is included in the network transmission. Blade servers cannot run on their own; they must be placed in a blade enclosure. DHCP before the Start menu and type network. From the
command prompt, enter cipher.exe /e c:\budgets 6. Windows On Windows servers, combining share and NTFS permissions results in the most restrictive permissions being applied, and this is a big part of troubleshooting file system issues in Windows environments. HDD A. Adding RAM enables more programs and services to run simultaneously, but
it doesn't help with the requirements in this scenario. NIC bonding See NIC teaming. Software developers determine whether TCP or UDP will be used. CUPS (Common UNIX [and Linux] Printing System) is the standard UNIX/Linux printer sharing solution. 163 The OSI Model . Storage attached to a local server is known as direct-attached
storage (DAS), whereas network storage can come in the form of network-attached storage (NAS) or storage area networks (SANs). Which two items are critical when planning server room racks? Adding more horsepower to a server is called scaling up, while adding additional servers to handle a workload is called scaling out. 27. Exam Tip Don't
confuse TDRs with tone and probe generators. Direct memory access (DMA) is supported by some devices and enables access to system memory without involving the CPU. Right-click the Internal network adapter and choose Properties. A point-to-point encrypted tunnel is established between the two VPN appliances that link networks together. NAT
Network Address Translation (NAT) maps external IP addresses on the NAT router to corresponding internal IP addresses for devices on the internal network. These, in addition to cable management arms, ensure that fan intake vents are not blocked. Simultaneous read/write from multiple nodes D. Consult the web site to find the testing center
nearest you, including directions to the center. electromagnetic interference (EMI) Also called radiofrequency interference (EMI) Also called radiofrequency interference. Arranging racks of equipment in rows facilitates the creation of hot and cold aisles. The standard is to connect over the Internet, but, from a security perspective, there are two alternatives: • Connect your network to the cloud
provider over the Internet with a site-to-site VPN. Type Fresh Installation for the name, and then click Take Snapshot. Traditionally, application servers run a server-side application that clients can access over the name, and then click Take Snapshot. Traditionally, application servers run a server-side application that clients can access over the name, and then click Take Snapshot. Traditionally, application servers run a server-side application that clients can access over the name, and then click Take Snapshot.
The first 1024 ports are reserved for well-known services such as an HTTP web server listening on TCP port 80. Exercise 5-3: Install and Configure NAT on Windows Server 2012 R2 1. You connect to the server using hardware remote control and issue the ipconfig command. You should periodically capture network traffic and examine the capture
results to ensure that only required network protocols are in use. This type of malware is in epidemic mode as of the writing of this book. Traditionally, the iptables command is used. DCs are discovered by clients through DNS queries. Chapter 2: Server Hardware 47 5. Your iSCSI vdhx file is created. Copper Cable Connectors RJ-11 connectors are
used for standard four-wire telephone cables. Some bare metal solutions can also be used to deploy new servers quickly while changing unique identifiers such as server names, IP addresses, and licenses. Redundancy D. NIC homing 19. A line-of-business database application is regularly accessed by many users concurrently. megabit (Mb) A unit of
digital information equivalent to 125 kilobytes. This requires both a public and private network interface connected to the appropriate networks. You can use the server Figure 7-14 Output from the Windows route print command Chapter 7: Troubleshooting and Performance Optimization 281 Figure 7-15 Using nslookup to view mail server
14 Questions . For example, plenty of Microsoft Office memory corruption vulnerabilities have been addressed by patches. Sit in a calm environment and do hard work daily to cover the entire SK0-004 exam syllabus. Fire suppression systems, including fire extinguishers (Figure 2-11), can help minimize equipment damage including smoke damage including smoke damage including fire extinguishers.
but no system is perfect. Figure 5-4 Fiber-optic cable with straight-tip connectors Chapter 5: Network Concepts 171 Connector Type Details Straight-tip connector, standard connector (SC) • Snap-in connector • Commonly used with multi-mode fiber Subscriber connector, standard connector (SC) • Snap-in connector • Commonly used with multi-mode fiber Subscriber connector, standard connector • Commonly used with multi-mode fiber Subscriber connector • Co
Somewhat square-shaped Local connector (LC) • Snap-in connector • Smaller than SC • Commonly used with single-mode fiber Small form-factor pluggable (SFP) • Modular transceiver for networks • Can be used with copper-cable networks Table 5-3 Common Fiber-optic Cable Connectors
Note Imagine the great distance covered using submarine fiber-optic cables linking Halifax, Nova Scotia, to Dublin, Ireland—we're talking 12,000 kilometers, or 7400 miles! Check out www.submarinecablemap.com/ to see undersea fiber links around the planet. RAID 5 • Uses disk striping with distributed parity • Requires at least three disks •
Data to be written to disk is broken into blocks (stripes) that are evenly written across the disk failure • Can recovery) information for each stripe on a separate disk from failed disk RAID 5 - Disk Striping with Distributed
Parity D1 D2 D3 P3 P1 P2 Data stripes (D) and the related parity (P) are stored on separate disks. Or you might simply use incrementing numbers (jack1, jack2, jack3, and so on). Set the limit to 200MB and ensure that it is configured as a Hard quota. The three virtual hard disks will be listed. Questions 1. Hands-on Exercises Exercise 7-1: Explore
Windows Performance Monitoring Tools 1. Enter iptables -A INPUT -p icmp -j DROP to block all incoming ICMP traffic. Shielding C. Low RPO B. Why Get CompTIA Certified? Open the Security tab, click the Advanced button, click the Effective Access tab. Leave the web browser open. Choose Yes on the confirmation screen. Hex is base 16; we use
numbers 0-9 and letters A-F where A = 10, B = 11, C = 12, D = 13, E = 14, and F = 15. In a Microsoft Active Directory Domain Services (AD DS) environment, DNS must be functional for AD to be functio
into a blade enclosure that provides cooling, networking, and power. BCP activities include these: • Assemble a team. The size of your enterprise and its data requirements, and the size of your enterprise and its data requirements, and the size of the data center, determine how many racks you can use. DISM D. Chapter 4: Storage 143 Windows Server OSs generally support the following file systems: • File
Allocation Table (FAT) • FAT32 • Extended FAT (exFAT) • New Technology File System (NTFS) • Resilient File System (ReFS) NTFS (shown next), which supersedes FAT and FAT32, is a journaled file system that supports compression, encryption, file system security, larger file and partition sizes, and user disk quotas, to name just a few features.
Smaller organizations and individual consumers indirectly partake in this through IT service provider disaster recovery (DR) sites. Enter get-physicaldisk > c:\diskinfo.txt and press enter. Also take note of the \%8 at the end. Similar to how the IPv4 subnet mask is compared to the IPv4 address, devices with the same IPv6 subnet prefix are considered
to be on the same network. The most restrictive permission applies when combining share and NTFS permissions. 289 Exercise 7-1: Explore Windows Performance Monitoring Tools . Signals can travel much farther than copper wires before degrading, and additional security is provided because it is difficult to wiretap fiber-optic cables. Load
balancer B. Battery-backed write caching is used for disk array controllers for a number of reasons. Some vulnerabilities. You are planning to upgrade your existing UPS system. DNS is used for name resolution. Type ping -6 1:2:3:4::bcde
Packets being sent to hosts on remote networks are addressed to that host's MAC address. Although this can work well for desktops that you want to push updates to in the middle of the night, servers are generally left on all the time. Virtual hard disk (VHD) A file format that contains the disk partitions and file system of a virtual machine. Only the
web server requires a PKI certificate. In this chapter, you will learn how to plan, choose, and configure storage to meet business needs. Bluetooth C. Other Server Roles Web servers use HTTP to transmit HTML web pages to web browser clients. If you're using true server-class hardware, this won't be an issue. On the Welcome To VMware
Workstation 10 screen, select I Want To Try VMware Workstation 10 For 30 Days. Although the change itself may not be the problem, how it was implemented may be. We'll go through this in detail, including a hands-on exercise, in Chapter 6. NFS C. Rackmountable devices use their own units of measurement for height, called rack units (U)—1U is
 1 3/4 inches, 2U is 3 1/2 inches, 4U is 7 inches, 4U is 7 inches, and so on. Ransomware 12. 274 Linux Tools . A newly installed tower server will function as a packet-filtering firewall. (Linux compressed tar filenames normally have a .tar.gz file extension, but this is not required.) 8. Servers often use ECC memory modules, which use an extra parity bit to detect and
correct memory corruption problems. Enter the following information: Address: 192.168.1.210 Netmask: 255.255.255.0 Gateway: 192.168.1.200 In the DNS server section, type 192.168.1.200. Under Lock and Key You might use a proximity or swipe card to gain access to a building and to certain floors or areas. Simple Network Management Protocol
(SNMP) A protocol for collecting and analyzing information about devices and configuring this information to affect their behaviors over a network. Once DHCP is reachable, the APIPA is no longer used on the network interface.
partition table and disk signature on /dev/sda: dd if=/backup/sda mbr back of=/dev/sda bs=446 count=1 Of course, there are many other file and disk backup solutions for Linux; tar and dd just happen to be built into most distributions. Where most tape media is accessed sequentially, or in linear fashion, standard disk storage, including USB drives
and CDs, DVDs, and Blu-rays, supports random data access instead of having to find data at a specific place on tape media. fd75::883b:ced4:63f3 C. DNS allows connections to hosts by name instead of IP addresses. Ceiling cable channels must be oriented carefully to avoid reducing the effectiveness of fire suppression systems. If problems are
encountered with the VM in the future, it can be reverted to a previous snapshot. This can be done using software or hardware solutions. Computer case fans are designed to take in cooler room air to pass over internal components and then expel the warmed air out to the room. In the spirit of redundancy (remove single points of failure!), you can
also use redundant RAID controllers. NIC teaming groups server NICS together for load balancing or aggregated bandwidth. You attempt to install a server application on a domain-joined server. PSD D. Web servers can be configured to handle heavy traffic volumes without cloud computing. Base2 disk size calculation (1000 vs. Of course, you are
also expected to know how to use a tool to solve a specific problem. Upgrade or functionally replace IT workloads. Table 8-2 lists common failure situations and responses that would be detailed in the DR plan. Repeat steps 8 through 11 one more time to add more disk space. 37 Storage . Compression of the file system would not cause only 2 of 4TB
to be available. Disk initialization is required CompTIA Server+ Certification All-in-One Exam Guide 142 for server operating systems to be able to use the space, and you can choose either master boot record (MBR) or GUID Partition Table (GPT) for this. 326 Exercise 8-4: Use the Linux tar Command for Data Backup . Which of the following best
describes RTO? PKI certificate 7. You might be using an older web browser that does not support the encryption required by the web server. For example, server file encryption software protocols that are not
directly impacted when choosing a server NIC. A second inner door opens only after the first outer door has closed (and locked). Notice that the Contract A file is listed; it can be undeleted from here. As its name implies, the automatic setting senses the speed when talking to the switch port. Technicians generally assume that authentication applies
only to individuals, but it can also be used to prove the identity of • Users • Devices • Services • Application can be implemented in plenty of ways, such as at the disk level, server level, and site level. Preboot Execution Environment (PXE)
Enables a computer to boot from a server prior to booting the OS; requires DHCP, a PXE boot server, and a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server, and a PXE boot server, and a PXE boot server, and a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server, and a PXE boot server, and a PXE boot server, and a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server, and a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE boot server prior to booting the OS; requires DHCP, a PXE booting the OS; requires DHCP, a PXE booting the OS; requires DHCP, a P
hybrid of command line and GUI tools. 379 7.6 Given a scenario, effectively diagnose security issues, selecting the appropriate tools and methods . CompTIA Server+ Certification All-in-One Exam Guide 230 Isolation is key—firewalls control traffic from the Internet into the public-facing etwork, which in turn has a second firewall that further
controls traffic into and out of an n internal secured network. Zoning is configured at the FC switch level and it does not apply to FCoE or iSCSI. DHCP delivers a valid IP configuration to hosts where DNS is used to resolve friendly names (such as www. You need to configure firewall ACLs to allow DNS server zone transfer traffic. A default gateway
sets the IP address(es) of the router(s) interface on the local network and enables traffic to be sent outside of the LAN. Routing and remote access servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two network interfaces and can be configured for IP routing, NAT, or VPNs. Virtualization Servers have at least two networks and the configuration Servers have at least two networks and the configuration Servers have at least two networks are servers have at least two networks and the configuration Servers have at least two networks are servers have at least two networks and the configuration Servers have at least two networks are servers 
hardware. • Response time • This specifies how quickly IT services respond when they are needed. Becoming a CompTIA Certified IT Professional Is Easy It's also the best way to reach greater professional opportunities and rewards. Be careful of distribution list groups, which is the case with Microsoft Active Directory (see Figure 6-4), because this
type of group (versus a security group) cannot be assigned for use by e-mail systems. For example, if you have a laptop computer that meets the following requirements, you're good to go! Here are the hardware requirements for your VMware host computer that will run Windows and Linux virtual machines: • 64-bit
computer • Hardware virtualization (Intel Virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtual machines (approximately 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space) • Enough storage space for both the Windows and Linux virtualization (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of disk space (Intel Virtualization) • At least 8GB of
minimum requirements; more RAM and disk space is better! VMware Workstation 10 from vmware/info?slug=desktop end user computing/vmware workstation/10 0, as shown in Figure A-2. Switch over to your web browser and connect to www.mheducation.com. Which troubleshooting step involves
reproducing the problem? • Your first subnet address is 200.200.1.32/27. file encryption key (FEK) A bulk encryption key used with Microsoft EFS. Configure iSCSI storage on the target 5. Of course, this means legitimate traffic is also lost, so the attacker is still achieving their malicious objective. Your motherboard Chapter 2: Server Hardware 35
documentation will specify what type of memory chip can be used and how to enable ECC. A domain, such as mheducation.local, can have subdomains. 173 Routers . 293 Performance Optimization . Dynamic Host Configuration Protocol (DHCP) . Centralized IPv4 and IPv6 settings deployed to DHCP clients. Settings such as dynamic memory can
more efficiently use host memory among multiple virtual machines. Multicast (group) traffic can normally traverse routers. Table 2-3 shows DDR memory details. You might use winrs with -r to specify the remote host as follows: Winrs -r:Server1 dir c:\ The preceding example lists items on c:\ on Server1. How should you go about this? Because the
most restrictive (the read share permission) applies, the other answers cannot be correct. 215 Logical Access Control . The "i" in iSCSI refers to the fact that standard network equipment, such as standard Ethernet switches and cabling, can be used along with IP. A DHCP server can run on a server OS, or it might run as a service on a router,
including a wireless router. W B. NAT A. Physical techniques such as physical media destruction ensure that sensitive data cannot be retrieved. Start Server Manager (second icon from the left in the taskbar). A network speed of 10 Gbps is preferred. RDP B, C. Choose Edit | Find Packet. Normally, users are added to groups, and groups are added to
ACLs and either granted or denied permissions. After the DNS server role is installed, type get-windowsfeature *dns* to ensure that it shows up as being installed (X in the box). Patching is always crucial—whether for operating systems, drivers, or specific application patches. Ensure that you are logged into RHEL7-1 with the root account, with a
password of Pa$$w0rdLinux. Select SCSI, click Next. The heated water then leaves the server and is cooled externally. Premises Access The first line of physical defense is perimeter security guards • Guard dogs • Limited access to areas of a facility • Motion-sensing security
systems It doesn't make sense for every organization and government agency to implement all of these measures, but some of the actual problem, it helps if you can re-create the issue. Preparation evaluation is very helpful to remove mistakes and
successfully prepare for the CompTIA Server + SK0-004 exam. From a command prompt on Srv202-1, enter ping 192.168.1.210 once again. When File Server Resource Manager is displayed, click it. If the packet is a transmission to the web site, the destination port will be 80 and the source port will be a higher value; otherwise, the port numbers will
be reversed. Too Much Running Modern server OSs are bare-bones, meaning they don't have many extra software components installed by default, so you have to install them. Devices should point to at least one DNS server IP address for name resolution. 223 NAC . Implement a Solution or Escalate After you have established a plan of action, it
must be implemented. Dynamic memory Consider better memory usage; virtual machines needing much. Each grouping of 8 bits is called a byte or octet. 182 IPv6 Settings . One of your servers, FS1, is configured with a RAID 5 array. PCIe versus PCI B. Commonly used tar
command line parameters are shown in Table 8-1. 44 Humidity . Social engineering involves tricking people into divulging sensitive information. For example, Domain Name Service (DNS) servers provide a name-to-IP address lookup service, mail servers enable communication through e-mail messages, and so on. Although some categories of
cables differ in their shielding, this is not as prevalent a difference as twists per inch. Make a useable file system on the mirrored array: mkfs -t ext4 /dev/md1 13. For example, a Windows 10 machine can consume an iSCSI LUN; to Windows 10, it's just more available disk space. 38. FCoE incurs less overhead than iSCSI because it packages disk I/O
commands directly into Ethernet frames instead of higher level IP packets. The server slides into an enclosure, 127 Optical Drives . Power cables for equipment are normally located in the back of the rack, as are network cables for servers, storage arrays, KVM switches, and the like, 381 Appendix E About the CD-ROM. A and B are incorrect. Bus
width The amount of bits that can be transferred at the same time. Which firmware standard supports the Secure Boot feature? IPv4 uses a 32-bit address space where addresses are expressed in decimal form, such as 192.168.1.1. IPv6

The sixth revision of the Internet Protocol. There is a value involving the FSB and CPU called the clock multiplier,
which defines a relationship between the external CPU bus speed (GHz). The added benefit of properly designed airflow systems is that they are less wasteful of energy and thus save money. • Use monitoring tools to identify memory leaks or runaway processes. Routers do not forward broadcasts by default. Open
Windows Explorer. A server might boot the operating system from DAS and store data on the SAN. Table C-4 Server Storage Best Practices (Continued) Appendix C: Real-World Best Practices (Continued)
/etc/resolv.conf and add DNS server IP addresses to the file. What is the server's purpose? Mail Server You can run several different types of mail solutions on your server, whether on-premises or in the cloud. Server OSs can be installed from bootable media or over the network, including PXE boot. CAT5 supports up to 1 Gbps. You could use quarters
and years as backup cycles for even longer term archiving. chapter Server Hardware In this chapter, you will • Learn how UEFI works • Review the basics of CPUs and how they handle data • Review the different types of memory •
Learn about bus types • Learn about NICs • Review storage types • Learn about the server case and components inside the server hardware isn't just about the server case and components inside the server case and components in the server case and case and case and case and case and case and case and
Figure 7-15. If you plan on running a hypervisor (such as Microsoft Hyper-V or VMware), your CPUs must support hardware virtualization. Hardening an application also includes modifying its default configuration. Hardening an application also includes modifying its default configuration. Hardening an application also includes modifying its default configuration.
if you run into trouble later. A help desk technician is addressing network connectivity issues being experienced by a user, Charlie. Configure the external server network interface to use itself for DNS name resolution by typing set-dnsclientserveraddress -interfacealias external server network interface to use itself for DNS name resolution by typing set-dnsclientserveraddress -interfacealias external server network interfacealias external s
expensive type of alternate site to maintain, because it must contain equipment, software, staff, and up-to-date data resulting from replication from the primary site. The bus width, or size, is commonly 32 or 64 bits. Ensure that you are logged into RHEL7-1 with the root account with a password of Pa$$\pi$0rdLinux. So if you are configuring IP on a
server named server1, you might configure a domain suffix of widgets.com, which results in a FQDN of server1.widgets.com. Server Message Block (SMB) A protocol implemented in Windows for network file sharing. In your Windows virtual machine, start PowerShell from the taskbar. RAID 0 • Uses disk striping • Requires at least two disks • Data
to be written to disk is broken into blocks (stripes) that are evenly written across the disk array • Improves disk I/O performance • Offers no fault tolerance Chapter 4: Storage 139 Figure 4-12 An Intel RAID 0 volume in Windows Server 2012 R2 RAID 0 - Disk Striping Data is broken into "stripes" and each stripe is written to a separate disk in the
array. Create an Enterprise CA, and accept the defaults for the remainder of the settings. This can be used to assure the recipient that the sender is who they say they are and that the transmission has not been tampered with. RADIUS consumer CompTIA Server+ Certification All-in-One Exam Guide 254 14. Large organizations and government
agencies control their own data centers, and hot sites are entirely under their own control. IPSec IPSec is used to authenticate drop-down list, choose Srv2012-1.fakedomain.local and click OK. 196 Network Interface Cards . There are normally at
least two network cards and in some cases management ports, and all of these connections are on the back of the device. Chapter 3: Server Operating Systems 87 KVM over IP These days, KVM also works over IP. Rack-mount D. The best security measure? Water should not be used as the primary fire suppressant when electronics are involved.
Business Impact Analysis Two of the first activities related to risk management are identifying and prioritizing assets that have value to the organization. The network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will work in your network infrastructure might support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fastest NIC possible that will be a support 10 Gbps, so you want to get the fa
Father becomes a Grandfather, and it will be used next for monthly backups. Train users about security, especially social engineering scams All other security controls can be defeated if users are easily fooled. IIS is Microsoft's web server product. Figure 5-3 RJ-45 connectors Chapter 5: Network Concepts 169 CAT5, CAT5e, CAT6 Copper cable
categories are distinguished from one another by the transmission speeds they can accommodate at higher frequencies. Enter mkdir /backup. Chapter 7: Troubleshooting and Performance Optimization 293 • Boot into safe mode, repair mode, or rescue mode. RAID Levels Many RAID levels consist of various disk configurations. Depending on the
scope or complexity, a team of technicians may have to be assembled and notified of their roles. 234 Hardening . CompTIA Server+ Certification All-in-One Exam Guide 398 L1 cache . The fastest cache available to the CPU. Differential 12. Exam Tip . If your server allows the use of both ECC and non-ECC memory and you plan to use both, make
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sure you pair ECC chips together and non-ECC chips together and non-ECC chips together. These connectors are plastic with tiny metal plates that connect to the copper wires in the cable, thus allowing for electrical conductivity when plugged into an RJ-11 or RJ-45 socket. IPSec Tunnel Mode IPSec tunnel mode is normally used between two endpoint VPN devices, such as a
site-to-site VPN over the Internet. Important backup considerations include the following: • Amount of time to complete backup (backup window) Chapter 8: Preparing for the Worst 331 • Backup devices and media being used: • Media capacity • Media lifetime • Backup data transfer speed • Cloud backup • Regulatory compliance • Data
retention • Backup type • Backup media rotation strategies are designed to retain data for a period of time and to reuse backup media. You'll also need
a way to connect remotely to servers through either a software or a hardware solution. If your PCIe slots can accommodate x16, like the example shown in Figure 2-8, then of course you should opt for that type of card if you have the option, since it has the highest transmission rate. Reimaging the server is overkill when only a driver was changed.
Fire Suppression The problem with baffles and shrouds being used to funnel airflow is that they are bulky. CompTIA Server+ Certification All-in-One Exam Guide 300 4. Digital Linear Tape (DLT) standard (the industry standard) has been around since the 1980s and has been revised numerous times. After the role is installed,
from the Windows Start menu, type Rout. Right-click in the right side of the screen and choose New, Text Document. Fibre Channel over Ethernet (FCoE) A standard designed to place disk commands into Ethernet frames as opposed to using higher level IP packets, which introduce more overhead. The principle of least privilege states that only the
permissions required to complete a tasks should be granted and this must always be followed. Close the Contract Properties dialog box. On the language selection screen, leave English selected and click Continue. As cloud consumers, we can connect from pretty much any device (such as a smartphone, as shown in Figure 4-4) on any network and still
get to our files. Enter install-windowsfeature routing -includemanagementtools 9. Expansion cards, such as PCI, may not fit into slimmer server profiles such as rack-mounted servers. Synchronous replication D. Assemble BIA team C. Virtual servers can be configured to use more RAM as needed. Table 3-2 DNS Resource Record Types WINS Prior to
Windows 2000, Microsoft TCP/IP networks relied on the Windows Internet Name Service (WINS) to resolve NetBIOS computer names (maximum 15 characters) to their respective IP addresses. A PBX is used essentially as an internal office phone system, for which you can configure extension numbers (the office would need only a single telephone
number), hold music, voicemail settings, call forwarding, and a full complement of telephony options. Distributed Denial-of-Service (DDoS) attacks are sophisticated; conceptually speaking, DDoS attacks are like jamming a communication channel with static so nothing meaningful gets through. • Enable
auditing or logging related to the IT workload. What is the most likely cause of the problem? Choose Open Properties For This Data Collector Set and click Finish. This is useful when you're upgrading equipment. A basic site is not a type of disaster recovery site. 370 4.5 Implement data security methods and secure storage
disposal techniques . Even logged-in administrators may have to right-click an installer and choose Run As Administrator. CompTIA Server+ Certification All-in-One Exam Guide 160 12. • RAID 0 Disk striping • RAID 1 Disk mirroring • RAID 1 Disk mirroring • RAID 1 Disk mirroring • RAID 5 Disk striping with dual distributed parity • RAID 10 Disk mirroring • RAID 10 Disk mi
Combines RAID 1 with RAID 0 Disk Initialization and File Systems MBR and GPT do not refer to a type of hard disk; disks are initialized in an operating system functioning properly. Fibre Channel over Ethernet (FCoE)
stuffs disk commands into Ethernet frames as opposed to using higher level IP packets, which introduce more overhead. A B. Chapter 6: Security 217 Figure 6-4 Creating a group using the Active Directory Administrative Center Figure 6-5 Configuring conditional file system permissions in Windows Server 2012 R2 CompTIA Server+ Certification
All-in-One Exam Guide 218 Rights and Permissions." A right is black-and-white: either you can or you cannot do something. Rack-mounting increases the potential server density in a server room or a data center, and using this equipment can increase
security, because most racks have front and back doors that can be locked. Servers, either directly (tower) or indirectly (tower) or indirectly (blade via backplane or midplane), often use PCIe NICs. Blade systems could require a backplane or midplane upgrade before supporting faster network speeds through expansion cards. Once the limit of 200MB is exceeded, you will
get a message stating that there isn't enough free space. Think of public cloud providers that have service level agreements (SLAs) with their customers that guarantee uptime, such as the SLA pictured in Figure 8-4. The same thing is true with a default installation of Red Hat Enterprise Linux Server 7—no GUI. Naming the wireless network
Acme Bank Security Cameras is a bad idea if it really is used for that purpose. 1024) • Disk quotas • Compression • Capacity planning considerations: • Operating system growth • Patches • Service packs • Log files • Temporary directories • Databases • Application servers • File servers • Archival 4.0 Security 4.1 Compare and contrast physical
security methods and concepts • Multifactor authentication • Something you have • Something you know • Something you are Appendix D: CompTIA Server + Certification Exam Objectives (SK0-004) 369 • Security concepts • Mantrap • RFID chip • ID card • Biometric • Keypad • Access list • Security guard • Security camera • Keys and locks •
Cabinet • Rack mount • Server • Safe 4.2 Given a scenario, apply server hardening • Install latest operating system patches • Application hardening • Install latest patches • Disabling unneeded services/roles/features • Endpoint
security • HIDS • Antimalware • Remediate security issues based on a vulnerability scan • Hardware hardening • Disable WOL (Wake-on-LAN) • Setup boot order • Chassis locks / intrusion detection CompTIA Server+ Certification All-in-One Exam Guide 370 4.3 Explain
basic network security systems and protocols • Firewall • Network-based • Port security / 802.1x / NAC • Router access list • NIDS • Authentication protocols • Endowed • Port security zones • DMZ • Public and private • Public key • Certificate authority • SSL/TLS • VPN • IPSec • VLAN • Security zones • DMZ • Public and private • Public key • Certificate authority • SSL/TLS • VPN • IPSec • VLAN • Security zones • DMZ • Public and private • Public key • Certificate authority • SSL/TLS • VPN • IPSec • VLAN • Security zones • DMZ • Public and private • DMZ • Public key • Certificate authority • SSL/TLS • VPN • IPSec • VLAN • Security zones • DMZ • Public key • Certificate authority • SSL/TLS • VPN • IPSec • VLAN • Security zones • DMZ • Public key • Pub
Intranet and extranet 4.4 Implement logical access control methods based on company policy • Access control lists • Users • Groups • Roles • Resources • File system • Network ACLs Appendix D: CompTIA Server + Certification Exam Objectives (SK0-004) 371 • Peripheral devices • Administrative rights • Distribution lists • Permissions • Read •
Write/Modify • Execute • Delete • Full control/Superuser • File vs. The answer is Port Address Translation (PAT). Table C-1 lists tips that can help make server installations smooth, but remember that organizations use servers for different purposes; this serves as a generic list of reminders. 188 Hands-on Exercises . Replication can be scheduled, or
servers can be set to continuous replication. MAC addresses are 48 bits long and expressed in hexadecimal format. This type of memory chip has the added capability of detecting and fixing memory errors at the bit (0 or 1) level. CompTIA Server+ Certification All-in-One Exam Guide 98 Configure a static IP4 address for the server 18. Your body
builds up a static charge naturally as you move about, and as little as 5 volts could fry a component. So if the server is not accessing storage over some kind of a network, it's DAS. Tower Servers have been around for a long time, and the tower is what most people think of when they hear the word "server." Powerful desktop computers
(such as those used by gamers) are often towers. Runaway process D. This is what make computing devices extremely useful—the immediate accessing of services and the sharing of data. Zeroing out all sectors on a disk is a common method of wiping a disk to minimize the possibility of data recovery. 325 Exercise 8-3: Configure and Use Windows
Server Backup . When planning server capacity, make sure you think about all components and their power requirements. Server components are easy to find, because this is a tried-and-true hardware technology. Enter cd /. Differential Backup This type of backup copies only files that have changed since the last full backup (not since the last
differential backup). Exercise 6-6: Use iptables to Set Firewall Rules in Linux 1. The few instructions that are available can be executed quickly. If the Figure 7-17 Results of a port scan against a Linux host CompTIA Server+ Certificate used by
the web site. More than the RTO Questions and Answers 1. Group Policy settings can be configured Chapter 6: Security 239 to require BitLocker encryption on certain types of drives and to prevent data writes to unencrypted drives. Software Optimization Having fast hardware is important, but so is the software configuration that uses it. 7 Server
Operating Systems . Guest C. Think of a company that plans to use public cloud services and has Microsoft Active Directory user accounts configured on-premises. Manufacturing D. Change control policy C. Disk commands that cannot be serviced immediately due to a busy disk are queued up, which is normal in most environments. Accept defaults
and keep clicking Next until you reach the Select Server Roles screen. 182 IPv6 Addressing . The default gateway is a router on your LAN through which you send traffic leaving the LAN. Reduce the list of trusted root authorizes on all devices There are way too many trusted certificate sources on today's devices that are rarely used. Enter
iscsi lun1 for the name and click Next. Once a server connects to storage of any kind, it's business as usual—partitioning, formatting, and setting user permissions. Your boss asks you to configure the firewall appliance to enable people to browse to the new site. The default gateway must on the same subnet as the device pointing to it.
Troubleshooting and Optimizing Performance Solid troubleshooting stems from truly understanding the underlying technologies and the proper application of a troubleshooting methodology. KVM Chapter 8: Preparing for the Worst 333 8. High RPO C. Ensure that the new virtual machine is selected, and from the VM menu, choose Settings. SSDs and the proper application of a troubleshooting methodology.
generally perform faster but are more expensive than hard disks. Remember that higher layers in the OSI model rely on some or all lower layers, depending on the specific protocol. Soft quotas can log the fact that disk space thresholds have been exceeded. The PowerShell repair-volume cmdlet can fix file system problems when the disk volume is not
mounted. Rack cable arm, rack cable extender, and cable management external firewall Internal firewall Internal firewall DMZ Internal firewalls in a DMZ network layout Exam Tip You could see an exam
question about placement of firewalls or rules on a network architecture diagram. Too many times I've seen messy racks with cables hanging everywhere, both in front of and behind the rack—not only is this a safety hazard, but tracing cables when troubleshooting will be next to impossible! Power distribution units (PDUs) provide power outlets to
racks in server rooms and data centers. Additionally, configurations might, for instance, restrict file attachments to corporate e-mail messages from being stored on personal cloud storage locations. For example, if a POP e-mail server is not running and therefore not listening on TCP port 110, clients will be unable to connect to their mailboxes. WDS
provides PXE network boot services. The server desktop is displayed and the Server Manager tool automatically launches. She is a member of the Managers group. Identify the Problem Scope Problem scope is often overlooked. Not only should we monitor aspects of physical virtualization hosts (hypervisors) but also the virtual machine guests that
run on them. The norm for desktop disks is 7200 RPMs; laptop disk speeds are around 5400 RPMs. Fast server hard drives spin at 15,000 RPMs, and you'll pay more for these drives than for slower 10,000 RPMs, and you'll pay more for these drives than for slower 10,000 RPMs.
cases this involves a malicious user gaining physical access to a storage device. From the Start menu, enter IIS. The problem with the traditional password is that it's not really all that secure—and users hate it. Placing iSCSI traffic on its own VLAN accomplishes this. NEMA connector The standard two-prong (or three-prong with ground) electrical
plug used in North America. 106 Virtualization Servers . 290 Exercise 7-3: Use Windows PowerShell to Retrieve Event Log Information . What type of replication is needed between data centers? The user PKI certificate must be backed up to a safe location. But wait! How can that work if a client doesn't have an IP address in the first place? Many
organizations use help desk ticketing software that integrates searchable knowledge functionality. You install a Windows Firewall using Connection Security Rules. Notice the source and destination MAC addresses. Check this out from home or work on different
devices (including smartphones and tablets) by visiting www.whatismyip.com/. Make sure your Srv2012-1 virtual machine is running in VMware Workstation and that you are logged on using the Administrator account with a password of Pa$$w0rd. 178 Reserved Internal IP Address Ranges . Blades do not have on-board power sources; this comes
from the enclosure. 322 Cloud Backup . Download and install the appropriate Windows Installer and then accept all installation defaults. For Linux, make sure you are logged in as root with a password of Pa$$w0rdLinux. Table 3-4 Type 1 Hypervisor Hardware Virtual Machine Guest Configuration Creating a VM (not installing the OS) is like
planning the physical hardware for a new server. NFS is the UNIX and Linux file sharing standard. Blade Enclosure is a proprietary chassis that can house several blade servers from the same vendor, and it can measure from 6U to 12U. SMTP mail traffic has a destination port of TCP 25. The type of data stored on a card varies from
one vendor's card to another, but g enerally you can expect the following: • Card type • Account numbers • Account expiry • Account holder name • Card and account expiry • Account holder name • Card type • Account holder name • Card and account expiry • Account holder name • Card type • Account holder name • Card and account expiry • Account holder name • Card and account expiration dates • PIN, or a hash of a PIN Chapter 6: Security 211 Figure 6-1
about a microprocessor chip embedded into a card (Figure 6-1)—and an average thief will not be able to reproduce this. From Server1, you are attempting to make an SSH connection to Server2, whose IP address is 200.1.1.70/27, but you cannot connect. 329 Business Impact . • Create a DR plan for each IT system. sandbox A tightly controlled
area and set of resources in which a program can be run without risking harm to the host operating system or computer. The first 1024 are called well-known ports and are reserved for common network services such as HTTP. Create a Primary IPv4 Reverse Lookup Zone. Allowing or blocking traffic based on details such as payload content provides
much more functionality than allowing or blocking traffic based solely on packet headers. A, C, and D are incorrect. Troubleshooting server issues without specific implementation documentation makes the process long, tedious, and less effective, and it costs much more because it requires more time to fix. Depending on your computer's
configuration, you may be prompted to allow the installer to run. It should return the name of www.fakezone.com—this comes from our reverse lookup zone. PCI Peripheral Component Interconnect (PCI) is a 32- and 64-bit bus and expansion slot card standard, but you won't find it on many of today's server motherboards. CompTIA Server+
Certification All-in-One Exam Guide 246 7. You will know right away whether you've passed the exam. Computing (CISC) A microprocessor design used in larger non-mobile communication (NFC) A set of protocols that enables two devices to communicate when
within approximately 4 centimeters (2 inches) of each other. After monitoring server performance metrics, you conclude that disk I/O is the bottleneck. When destination hosts on different networks are unreachable, the IP address, subnet mask, and default gateway must be checked to ensure that their values are correct. This applies to the data link
layer (2), as does the specific mechanism for gaining access to the transmission medium. Software Problem Possible Cause Possible Solution Logon failure • Incorrect credentials • Corrupt user profile and registry references • Ensure that
client station points to correct DNS server • Insufficient permissions • Encryption is enabled • Check group membership • Windows User Account Control (UAC) configuration is too restrictive • UNIX/Linux sudo is not configured to allow user access to certain commands • Ensure that user has decryption key • Poorly
written software • Malware • Reboot server to reclaim memory • Run antimalware scan • Runaway processes that keep consuming resources • Patch software • Find functionally equivalent software that does not result in memory leaks User unable to access resource Memory leak Table 7-2 Common Software Issues and Solutions (Continued)
Chapter 7: Troubleshooting and Performance Optimization 271 Software Problem Possible Cause Possible Solution Blue Screen of Death (BSoD) • Unstable device driver • Replace failed RAM chips • Update, replace, or roll back driver • Replace failed RAM chips • Update, replace, or roll back driver • Replace failed RAM chips • Update, replace, or roll back driver • Replace failed RAM chips • Update, rep
known good configuration (LKGC) Disk drive unmountable • File system corruption • Not supported by the local OS Logs cannot be written to • Log disk volume is full • Free up disk space • Store logs in alternate location with more free disk space •
Archive old log messages Slow OS performance • OS disk is full • Disks are fragmented • Free up space on the OS drive • Reduce the amount of processes running concurrently • Place virtual memory swap configuration of fast disks with plenty of free
disk space • Virtual memory swap file or partition is on slow disk, is using too much space, or is corrupt Software dependencies are not being applied • Previous software dependencies are not present • Patches don't match platform architecture (x86 vs. These scripts can even be scheduled using the Windows Task Scheduler in the Control Panel. Network
broadcasts are addressed to all devices on a network, although routers do not forward these broadcasts to other networks. 24 inches D. Many business complexes require that you present some kind of ID card, or in some cases a photo ID, before you can enter the facility, especially after hours. Threats have to be mapped to their potential impact to
the organization, and server technicians must be aware of the procedures within the disaster recovery plan to return IT systems to a functional state. The installation will reboot your virtual machine automatically and continue the installation will reboot your virtual machine automatically and continue the installation.
File level encryption • Disk encryption • Tape encryption • Tape encryption • Storage media • Soft wipe • File deletion • Hard wipe • Zero out all sectors • Physical destruction • Remote wipe 4.6 Given a scenario, implement proper environmental controls and techniques • Power concepts and best practices • UPS • Runtime vs. This is done by writing useless random
data to the disk in multiple passes (called a hard wipe). Proper documentation makes this known to technicians who must know their role in the DR plan. • Ensure that dependent services are running. Cloud computing is not necessarily cheaper than an on-premises solution. Server components such as disks and PSUs as well as rack components such
as PDUs are often duplicated to eliminate single points of hardware failure. From the VMware VM menu, choose Snapshot, Take Snapshot, Take Snapshot, Take Snapshot, Take Snapshot, Tou can prepare SK0-004 practice questions in PDF format at any time and from any place with smartphones, laptops, or tablets. Enterprise tools such as SCCM have these problems covered. You don't want to
know what happened to IP versions 1, 2, and 3. Which term correctly identifies your firewall? The only issue is incompatibility; most vendor replication solutions work only with their own products. A Stratum 2 NTP server might be off by only 1/2 millisecond.
Different applications will consume different claims; it depends on the app. 3-phase power — Designed for demanding power requirements; normally used in industrial environments as well as for data centers. Which option should you use? Here is a partial list of disk space consumers: • Operating system files • Operating system patches and service
packs • Operating system images • Driver and application updates • Log files • Data backups and archives You can imagine that a customer-transaction database for a large online retailer would consume an increasing amount of disk space, especially over time. Add a check mark to Domain Controller and click Enroll.
Command Description Get-Service -computername Server1, Server2 Some PowerShell cmdlets have a -computername parameter. This page intentionally left blank to match the printed book. A HIDS must be configured to look for abnormalities; sophisticated solutions can monitor host activity over time and generate a baseline of normal
activity. Data centers normally send cool air from the floor up to rack components. He is also a member of Clusterfunk, a Halifax, Nova Scotia-based cover band. 268 Hardware Problems and Solutions . Many backup agents actually use the snapshots as their backup source, which eliminates the problem of backing up open files. Servers need to be
kept clear of dust, with no obstructions near intake fans. Arranging physical servers requires knowledge of server racks with sliding rails for equipment, including, but not limited to, servers. PXE 10. Stratum 2 D. Choose Network Address Translation (NAT) and click Next. NTFS is a common Windows file system standard that supports features such
as file encryption, compression, auditing, and disk quotas. Windows and Linux servers let you work with compression in the GUI or at the command line. Which server role provides centralized IP configuration settings for clients? These devices have at least two network interfaces. A common strategy is to be a bit more liberal with share permissions
and then lock things down granularly with NTFS permissions. PCI-X and PCIe are newer card types. CPU computing power is a server planning consideration, not a rack planning consideration. Bare metal 10. We will create a new storage pool from these disks. KVM switches have a keyboard, video display, and mouse attached along with these cables
plugged into numerous servers; the servers can be managed locally without each needing a keyboard, video, and mouse. The route print command shows Windows routing table entries. Table C-5 Network Best Practices Security Not every reader will agree on what constitutes a secure computing environment. Newer solutions enable KVM over IP.
Domain name-to-IP address resolution is a function of a DNS server. Windows users can also benefit from restoring previous versions of files, or even undeleting files that have been removed from the Windows Recycle Bin. Direct-Attached Storage Direct-attached storage (DAS) is the traditional server storage model in which storage disks are housed
inside the server chassis and are locally available only to that server. Software Problems and Solutions Software troubleshooting includes the operating system, drivers, and applications. What should be done to ensure regulatory compliance? Lab Exercise Overview Figure A-1 shows the three virtual machine servers that you'll create and configure
through the exercises. Start the Server Manager GUI tool (second icon from the left in the taskbar). Enter groupadd sales. • Encrypt data at rest on all storage media. Test updates first in a controlled environment before deploying to production environments. The purpose was for many ISPs and major web sites to enable IPv6 support and leave it
running, which they did. Server patching and insufficient disk space would not cause this symptom. If your hardware supports RAID, you can configure it at the firmware level; alternatively, software RAID organizes disks to work as a logical unit within the supported operating system. Note Don't forget that Linux commands are case-sensitive! So
Chmod and chmod are not the same thing! Peripheral Devices Access control should also be considered for peripheral devices such as printers, data projectors, and USB devices. Static Random Access Memory (SRAM) A type of volatile memory. 307 Appendix A About the Hands-on Exercises and Lab Set-up. The reason L1 cache, for example, is
faster than normal system memory is because it uses static RAM (SRAM) as opposed to dynamic RAM (SRAM) or synchronous DRAM (SDRAM). Unicast C. 49 Server Form Factors . You will see a webpage not found error, since we removed the http binding. The Teredo standard allows IPv6 communication over the IPv4 Internet for IPv6 nodes
Properly configured servers will require a password before these settings can be viewed or changed. Health Insurance and Portability and Accountability Act (HIPAA) A piece of legislation passed in the United States in 1996. IPv6 uses a 128-bit address space compared to IPv4's 32-bit address space. When writing data to the RAID 0 array, the data
is broken into blocks (stripes), each of which is concurrently written to a physical disk in the array, thus resulting in improved performance. Chapter 4: Storage 129 You can provision (and deprovision) storage instantaneously and pay only for the space you use. User Account Control (UAC) A security feature in versions of Windows from Vista
onward. solid-state drive (SSD) A storage device that stores data in flash memory, as opposed to storing data on magnetic rotating disk platters. Currently, DFSR in Windows Server 2012 R2 supports only NTFS; FAT32 and Resilient File System (ReFS) are not supported. This is the most common type of copper-based network cable; we use it to plug
stations into network wall jacks, to connect patch panel connect network infrastructure equipment such as switches. Trinity is a member of the Executives group, which has been granted the read permission to a shared folder called Expenses. Choose Use The Following IPv6 Address. Network File System
Signatures are verified on the receiving end with the mathematically related public key. Link-local addresses are self-assigned by IPv6 nodes and enable LAN communications. Reverse Proxy Servers A reverse proxy server is a type of network-based firewall. Server room and data center construction must account for how much weight the floors can
safely support. Open the Shadow Copies tab. Note the space between the two entries within the double quotation marks. Storage administrators will have to configure three LUNs in this case: one to host the Windows Server 2012 R2 OS (boot from SAN), a second LUN for log files, and a third LUN for the database. cold spare • Array controller •
Memory • Battery-backed cache • Redundant controller 3.3 Summarize hardware and features of various storage technologies • DAS • NAS • iSCSI • FCoE CompTIA Server+ Certification All-in-One Exam Guide 368 • SAN • Fibre Channel • LUN and LUN masking • HBAs and fabric switches • JBOD • Tape • Drive • Libraries • Optical drive • Flash
CompactFlash, and USB drive 3.4 Given a scenario, calculate appropriate storage capacity and plan for future growth • Base10 vs. 125 Storage Tiers . There is no need to encrypt using HTTPS if IPSec is already in use. A specific server configuration may work well in one environment for a particular use, but it may fail spectacularly under different
circumstances—it's all about meeting business needs. Microsoft Active Directory uses domain controllers to house and replicate the directory service database. Start Notepad and type random text into the new file. Windows Image Files The standard file type for storing Windows Image File
by devices and users, and they could be compromised, and we don't want a hacked VPN appliance to provide malicious users with usernames and passwords. Figure 7-2 shows log files stored locally on a Linux host. Users report they are able to connect to Internet resources by name. The drive was initialized as MBR. Go to Local disk (C:) and double-
click it. Click Backup Schedule. Multiple servers (cluster nodes) use the same shared storage and have the software installed and configured identically, so that if one server fails, another one can take over. Configure a new VLAN for the accounting department computers. Log files should be stored as archives on slower disks, while database access
must be as fast as possible. L4 cache C. USB 1 B. When the DHCP tool is displayed, click it. Chapter 2: Server Hardware 49 Chapter Review In this chapter, you learned that servers consist of various hardware components that must be carefully selected to meet functionality needs. What happens is SCSI disk I/O commands generated by a host (the
iSCSI initiator) are placed inside of IP packets. Exercise 2-2: Create a Windows Server 2012 R2 Virtual Machine Configuration Make sure the lab setup instructions in Appendix A have been completed before attempting this exercise. Click the Tasks button on the right and choose New iSCSI Virtual Disk. 261 Identify the Problem
of steps must be followed to achieve a goal? The default gateway is used when a device is transmitting data to a remote network outside of the LAN, and it must be on the same subnet as the device; it is the IP address of a router. Use the netstat command in Windows operating systems to see which port you are connected to for a given network
service, as well as the local client port used. Greater disk storage capacity C. Right-click the Ethernet1 adapter and choose Rename. • Traffic on internal networks should also be encrypted (consider using IPSec). 366 3.1 Given a scenario, install and deploy primary storage devices based on given specifications and interfaces . Which troubleshooting
item focuses on how and why a problem occurred? Blade B. Non-ECC memory is cheaper than ECC memory. CompTIA Server+ Certification All-in-One Exam Guide 260 16. The IP address C. SLAs provide guaranteed uptime. On Srv2012-1, in the DHCP tool, expand IPv4 and then expand Scope [192.168.1.0] LabScope1. CompactFlash memory is used
for smaller devices such as cameras, audio recorders, and the like. CompTIA Server+ Certification All-in-One Exam Guide 46 Table 2-6 Classes of Fire Extinguishers Class Fire Source A Paper, wood, cloth B Solvents, propane, gasoline C Electrical equipment D Combustible metals E Cooking oils Table 2-6 lists common fire extinguisher classes and
when they should be used. Like Windows DFSR, only file changes are synchronized, and changes are synchronized, and changes are synchronized, and changes are synchronized. Communication on a network between a single receiver. PKI A, C. Only file block changes are synchronized, and thanges are synchronized.
numbers. Business apps, settings, and data must be kept separate from user personal apps, settings, and data if users will be using personal mobile devices. Most enterprises use managed switches that are assigned a valid IP configuration so that various remote management tools such as web browsers and SSH can be used by administrators to
connect remotely over the network. • Manually or automatic 3. What is the likely cause of the problem? PKI Public Key Infrastructure is a hierarchy of security certificates issued to users, devices, or services. In other cases, your NAS storage might be served up from a server configured solely for this purpose. For example, perhaps you must go
through a very specific series of steps on a server to request a PKI certificate that results in an error, but the problem occurs only when you choose a specific certificate template. If you want to follow along with the specific instructions for labs, make sure you download and install VMware Workstation 10 for Windows. Software RAID (see Figure 4-11)
is built into server operating systems, but, of course, if something goes CompTIA Server+ Certification All-in-One Exam Guide 138 Figure 4-11 Configuring software RAID using Windows Server 2012 R2 wrong with the RAID disk array. From the Windows start menu, enter cmd. How can you keep accounting
computer traffic more secure? Install the iSCSI target software from PowerShell 2. Instead, lunch-and-learn sessions presented by dynamic speakers will make these important issues much more memorable. A and C are incorrect. PXE D. CompTIA Server+ Certification All-in-One Exam Guide 292 5. There are various types of storage media, including
traditional magnetic hard disks and the much sought-after solid-state drives (SSDs). Using the same type of enterprise tools used for hardware inventory (Spiceworks, Altiris, and SCCM, to name a few) allows for automation. 35 NICs . Figure 3-9 VMware Workstation, a Type 2 hypervisor Chapter 3: Server Operating Systems 81 Resource
Considerations CPU • SMP or multicore CPUs are a must. CompTIA Server+ Certification All-in-One Exam Guide 122 23. distributed denial-of-service (DDoS) Very similar to a DoS, this attack prevents the legitimate use of a computing resource. IT service frameworks such as Information Technology Infrastructure Library (ITIL) are based on this attack prevents the legitimate use of a computing resource.
foundation. There are many RAID levels, and each uses a different disk configuration to achieve fault tolerance and optimal performance. If it takes four days to get a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO, so a cold site functional, for example, it will not fall within a two-day RTO.
locations is called synchronous replication and is often used between a primary and hot disaster recovery site. Tell technicians to use sudo. Figure 3-14 Connecting to a Windows host using RDP for remote management Server Core is a
Windows server option that does not include the GUI. Remote Server Administration Tool (RSAT) A Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the Windows Server feature that enables remote management of other computers running the windows server feature that enables remote management of other computers running the windows server feature that enables remote management of other computers running the windows server feature that enables remote management of other computers running the windows server feature that enables remote management of other computers running the windows server feature that enables remote management of other computers running the windows server feature that enables remote management of other computers running the windows server feature that enables remote management of other computers running the windows server feature that enables remote the server feature that enables running the windows server feature that enables running the windows server feature that en
One for the last name, and uone for the user logon name. CompTIA Server+ Certification All-in-One Exam Guide 316 Failure Response Power outage reveals that UPS batteries and replace if necessary Server completes POST but will not start operating system Boot from operating system installation media and
perform repair Old server is replaced with new hardware Perform bare-metal restore on new hardware Server operating system is not responsive over the network Connectivity is unavailable for server management Use KVM locally A
physical disk in a RAID 5 array fails Ensure hot spare is plugged in or configure RAID 6 Table 8-2 IT Failures and Solutions DR plans are effective only if the procedures are known and responsibilities are assigned. 44 Fire Suppression . CompTIA Server + Certification All-in-One Exam Guide 150 10. Tower B. Incorrect IP address C. A HIPS must be a suppression of the procedures are known and responsibilities are assigned.
tweaked for a specific environment and can be configured against a baseline of normal activity. Choose New Zone. Optimizing Performance Optimizing the performance of servers and their surrounding ecosystem can prevent negative incidents from occurring in the first place. With either card type, the primary benefit is convenience. Most racks
have a maximum of 42U (see Figure 2-3). The HOSTS file is checked before DNS servers. In Windows Explorer, right-click the Projects folder and choose Properties. The best people to ask questions of are the stakeholders affected by the problem, whether they are end users, other technicians, or management. We don't want thick bundles of cables
and cable trays hampering the effectiveness of fire suppression systems or airflow mechanisms. Local vs. It is a router that allows traffic into and out of a network. 5 Network Concepts . IOPS B. Notice the "New Changes text" is absent in the file; you have undeleted a version of the file that corresponds to when the snapshot was taken. RDP is
Microsoft's Remote Desktop Protocol. Configure a DHCP scope. Figure 2-1 Tower T620 server, courtesy of Dell Inc. For example, if your company uses Custom App 1 and Custom App 2, these should be selectable from a drop-down list when users are creating a help desk ticket. The Solution You will subnet. In other words, you must treat the root
cause and not just the symptoms. The great thing about PCIe is that you can, for example, plug an x8 card into an x16 slot. SANs are specialized high-speed networks designed to transmit disk I/O traffic using protocols designed for this use. For example, a mobile phone user may unknowingly mute a phone microphone during a conversation and
assume there is a transmission or phone problem. And that's essentially what the blade server form factor is—a circuit board containing its own processors, memory, and network capabilities, and, in some cases, a small amount of storage, but no power supply or cooling mechanisms. 385 Index . ESD B. Full backups take longer than other backup
options, but they take the least amount of time to restore, because all data is contained in a single backup set. The Trusted Platform Module (TPM) is a firmware standard built into most laptop, desktop, and server motherboards. diskstat 14. Hands-on Exercises Exercise 2-1: Calculate Rack Space A server room rack measures 42U. Which of the
following demonstrates an advantage of cloud computing? After a few minutes, your server will restart. Exercise 6-4: Use EFS to Encrypt Files in Windows 1. 343 Install VMware Workstation 10 . There are many such data protection requirements for different types of data throughout the world. The virtual machine begins booting from the Linux
installation media. The exam contains multiple-choice questions in which you will be asked to choose one or more correct answers. Grep is a line-filtering command. Clients do not need a PKI certificate for secured web server traffic. Which VPN authentication tool uses a changing numeric code synchronized with the VPN appliance? Understand that
you may be looking for multiple related root causes, not just one. Click Start Using Red Hat Enterprise Linux Server. Back in the 1990s, PCI was a big deal, since it really was plug-and-play (PnP). Type 1 B. Windows BitLocker Wi
Enterprise Edition of the OS). 1U equals 1 3/4 inch. Click OK and then Close. Windows logs are accessible using the GUI event viewer tool or PowerShell cmdlets such as get-eventlog. When discussing virtualization, the hypervisors require specific hardware
capabilities such as Intel Virtualization Technology (Intel VT) or AMD Virtualization (SNMP) to query management information bases (MIBs) on devices. Full and incremental backups do clear the archive bit when backing
up files. Start PowerShell (second icon to the left after the Start menu button). CompTIA Server+ Certification All-in-One Exam Guide 406 terabytes. On the Login screen, click Create A Local Account and enter the following: Full Name: User One
Username: uone Password: Pa$$w0rdLinux 19. Using web Single Sign-On (SSO) means using a single identity federation. 16 inches B. IP addresses can be configured manually, as shown in Figure 5-9. Click Next and select Performance Counter Alert. This is also true for virtual machines
although traditionally the term "bare metal" was used for physical servers. You can imagine how difficult that would be to manage on a large scale. I disagree, certainly for the purposes of the Server+ SK0-004 exam! It's like a carpenter stating that he or she doesn't have to understand trigonometry. These days, cloud storage is all the rage;
individuals and enterprises can provision storage as needed on provider equipment and pay only for the amount of disk space used. Chapter 3: Server Operating Systems 85 Figure 3-11 PXE boot screen PXE boot relies on DHCP to assign IP settings to PXE clients, and it also uses Trivial File Transfer Protocol (TFTP) to download a small boot image.
OS used for installation and imaging. Blades themselves are not rack-mounted, although blade enclosures are. synchronous replication — Data is written to a primary location and another location without delay. 293 Network Problems and Solutions — . Rack rows do not facilitate servicing, nor do they reduce fire impact or increase security. Microsoft
network environments tend to use Microsoft Active Directory Domain Services (AD DS), but there are many other options including OpenLDAP, Oracle Directory Services, and Novell (now a part of Micro Focus) eDirectory. Storage administrators configure LUNs and LUN masks to determine which servers can use which configured storage.
Download page for VirtualBox. If you plan on installing the hypervisor from a DVD or USB you may also have to change the boot order configuration on your machine. In the address bar at the top, click Local disk (C:). XFS D. IPSec Network security that works with IPv4 and IPv6; it allows encrypting and authentication of network packets without
application-specific configurations. With a local number, the first three numbers identify a specific telephone. PKI 2. Notice the source and destination port values. Note that this name applies only to VMware. Select Internet Protocol Version 4, and then click the Properties
button. Reading and comprehension is important, especially when it comes to end-of-chapter and master exam questions included with this book. Manage servers and their IT workloads. RJ-45 A standard connector for twisted-wire pairs that is used in Ethernet networks. Most modern mobile device management (MDM) tools support this. For
example, regardless of physical port, devices plugged into the switch with a network prefix of 172.16.0.0 would be considered to be on the same VLAN, so they can talk to each other without requiring a router. 183 IPv6 Transition Technologies . Not every business will benefit from cloud computing. 20. Which options can be used to boot and appl
images? But if the CPU gets too hot, it will run much slower than it normally does (faster CPU speeds means more heat), and it's not just CPUs you should be concerned with; it's all electronic equipment. Secure coding practices can prevent this from happening. The IPv6 local loopback address for testing is simply ::1. Throughout this book, the lab
exercises will have you working with Red Hat Enterprise Linux 7.1, mostly at the command line. 80 D. Groups can be nested. This is accomplished by increasing the number of twists per inch for each wire pair. Rather than have technicians apply the operating system images locally from disk media, network imaging is desired. This appends disk
volume info to the existing diskinfo.txt file. Users should not have to enter details for each and every app. Bare-metal image You need a quick and easy way to get at least the server won't start. Transmitting nodes do not know the MAC address of a target node on a remote network. About the Author Daniel Lachance
CompTIA Security+™, CompTIA A+®, CompTIA A+®, CompTIA Server+, CompTIA Se
biometric authentication integration with existing systems. The /Append-Image switch adds images to a single .WIM file. Storage area network devices, volume is mounted. Double-click the PMs group within the
ProjectManagers organizational unit. The address ranges follow: • 10.0.0.0-10.255.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255.255 • 172.16.0.0-172.31.255 • 172.16.0.0-172.31.255 • 172.16.0.0-172.31.255 • 172.16.0.0-172.31.255 • 172.16.0.0
192.168.1.200. When tickets are closed because solutions were found, this information is stored with metadata in a database that can be quickly searched in the future to avoid having to go through the entire troubleshooting process again if the same problem occurs. We know the server is not down because other stations can connect. 315 Business
Continuity Plan . Then once development ceases, you can deprovision these virtual machines so you no longer get charged for them—sounds like a great idea! File Server Despite the popularity of cloud storage, file servers are still very important in the enterprise. Duplexing Depending on your NIC and its operating system driver, you might also
have the option of configuring half-, full-, or automatic-duplex settings. • Identify skill requirements to recovery systems. Table C-4 addresses further storage considerations. Inventorying server backups! Some RAID
levels duplicate data, but this doesn't mean you shouldn't continue server backup procedures. Hot sites align with this requirement. Active Directory Federation Services (ADFS) Microsoft's Identify Federation solution used for web Single Sign-On (SSO). Chapter 7: Troubleshooting and Performance Optimization 285 A security audit can reveal this
problem, or you can proactively check into it, perhaps by using commands such as icacls or getfacl, or by using a third-party security auditing tool. Chapter 7: Troubleshooting and Performance Optimization 297 11. DISM is a Windows command line tool that can be used to service Windows image files. Double-click the Large Files HTML report and
review the data. Refer to the manufacturer's documentation to determine how to enter specific BIOS settings. RAID A. Disk space capacity 17. From the Start menu on Srv2012-1, enter network. For example, a UPS with a certain number of batteries might supply 900 W of power for 9 minutes, whereas with a draw of only 300 W, it might supply power
for 50 minutes. Table C-3 Cloud Computing Best Practices (Continued) CompTIA Server+ Certification All-in-One Exam Guide 354 Details to Consider Why It Is Relevant Read the service level agreement! The SLA is a contract between you (or your company) and the cloud provider, and it often cites details about expected service uptime, how
quickly tech support will respond to you, and so on. Then right-click Project A.txt and choose Properties. From the VMware VM menu, choose Send Ctrl+Alt+Del and enter the Administrator password, Pa$$w0rd. IPv4 and the newer IPv6 are collections of protocols that make things work on a network, but only if we've configured things correctly
such as the IP address, subnet mask, default gateway, and DNS server, among other settings. You can see BitLocker configuration options in Figure 6-17. Occasionally, software issues will appear to be disk-subsystem issues. CompTIA Server+ Certification All-in-One Exam Guide 106 Exercise 3-7: Configure Windows Server 2012 R2 to Use
Internet NTP Time To complete this exercise, your VMware computer running the lab virtual machines requires Internet access, specifically the externalNAT interface for Srv2012-1. Finally, the actual PKI certificates are issued by either the CA or a subordinate CA, as pictured in Figure 6-14. Disk Queue Length. Chapter 6: Security 259 13. Ensure
that C:\ is selected and click the Create Now button to manually create a disk volume snapshot of drive C:. If you are required to restore specific items, such as specific files, VM snapshots will not do the trick; reverting a VM snapshot reverts the VM settings and virtual hard disk contents. Each physical server motherboard supports SAS RAID and has
four SATA ports, one of which is currently used by a disk containing the server OS. Cloud virtual machines can offer services not only to other devices running in the cloud, but also to Internet consumers and on-premises devices. Optical drives are disabled in all server UEFI settings. TLS supersedes SSL. Some tools enable dynamic group
membership, for example, based on some kind of characteristic, such as whether an employee is full-time or part-time—but you're still managing a group. When it is displayed, click Command Prompt. Stakeholder questioning falls under problem identification and not the other troubleshooting steps. Common web server products include these:
Microsoft Internet Information Services (IIS), shown in Figure 3-7 • Apache • NGINX (engine X) Simply stated, a web server listens for HTTP connections and delivers data back to client web browsers. Let's say, for example, that you have a 24-port OSI Layer 3 Ethernet switch. Temperature control 4. Consider, for example, what happens when a
power failure occurs in the midst of applying server OS patches that modify the boot sector. DDoS attack D. NAS devices provide access to network storage using file-sharing protocols such as NFS and SMB; this is not required with FCoE. Northbridge C. network load balancing (NLB) A process that takes inbound traffic for a network service and
distributes it to the least busy and running back-end server hosting the service. Bouncing back quickly from catastrophic IT incidents results from proactive planning and from technicians who know their roles. PXE must be supported by the physical or virtual machine's BIOS or UEFI settings, the NIC itself, and we need a PXE boot server listening on
the network. HVAC means heating, ventilation, and air conditioning, which encompasses ventilation and temperature control. Check into regions if supported. DHCP vendor classes, as shown in Figure 3-3, let you apply specific IP settings to certain types of network devices. 178 IPv4
Addressing . 330 Data Backups . Cool air from the cold aisle is supplied to equipment intake fans. • Set a CMOS boot password to prevent changing the boot order. Which type of VLAN attack overloads switch MAC table memory? For the name, type LabScope1 and click Next. Subnet Mask Earlier in the section we stated that a single IP address
consists of both network and node (host) portions. On the Enter License Key screen, click the Skip button. Although recommended network cable lengths should not be exceeded, this is not as important as rack weight and airflow. tracert C. GPT allows more than four disk partitions. Always leave real-time monitoring turned on, unless it prevents the
proper installation of trusted software. All cables from the device (power, network, and so on) are fitted into the arm, which serves as a conduit or trench in which the cables are placed. PXE is a network boot standard. The Windows icacls command is designed to work with file system ACLS. iDRAC C. Port Address Translation enables multiple
internal IP nodes to access a public network, such as the Internet, using a single public IP address. Anything sent through the tunnel is encrypted. The longer temperature and humidity levels are out of range, the more likely equipment will fail. Usernames, passwords, and PINs constitute a single authentication category—something you know. There
 could be legal or regulatory restrictions that prevent the use of public cloud storage, and certainly cloud storage is not appropriate for every scenario—it's just another option. A specification that defines an interface between an OS and the platform's firmware. SAN-specific equipment includes FC HBAs in each server, FC switches, and storage arrays
Airflow 12. Other RAID variations use different forms of striping along with parity, or recovery information, to gain the additional benefit of fault tolerance; an example of this is RAID 5. On the right, notice the new drive letter (for example, E:). Network Infrastructure Services Network infrastructure is similar to a physical city infrastructure, which
include roads, bridges, and highways that enable the movement of people and goods. Choose Applications | Utilities. Speaking of server power-downs, servers should be plugged into uninterruptible power supplies (UPSs) to ensure the graceful shutdown of server power-downs, servers when the power goes out. EMI can be a concern if ceilings have fluorescent lighting
and cables are unshielded, neither of which is mentioned. The DNS domain for a company reflects its Internet presence, such as mheducation.com. You can configure a series of options depending on how you plan on using the cards. • Ensure that user permissions are set correctly. 377 7.4 Given a scenario, effectively diagnose network problems,
selecting the appropriate tools and methods . Keep the installation media for rescue purposes in case the server can't boot. Use the nslookup command in both Windows and Linux to test connectivity to DNS servers. Long were the days spent crouching under desks and behind server racks to inventory equipment physically and to document
configuration settings. Essentially, a cold site is a location with power and communications links in place. For servers this includes, but is not limited to, • Placing servers in locked rooms/racks • Disabling unnecessary services • Applying patches • Running antimalware software • Adhering to the principle of least privilege • Enabling multifactor
authenticating • Auditing the use of sensitive data • Encrypting data in motion (network) • Encrypting data at rest (storage) In a larger network, instead of hardening each server manually, we can apply security settings from a central configuration. Racks Full metal racks can be heavy. 383 Secured Book PDF . 196 IPv4 and IPv6 . . getfacl C. This
chapter will cover what you need to know when ordering and replacing server components. Prior to the change from DHCP to static configuration, Group Policy worked. CompTIA Server+ Certification All-in-One Exam Guide 104 7. Expand fakedomain.local in the left navigator, right-click ProjectManagers, and choose New, User. Blade baffle B. You
can run VMware Workstation 10 on any type of machine as long as certain requirements are met. • VMs can use virtual hard disk files that can be stored on a local hypervisor disk volume or on a SAN. 145 Exercise 4-1: Configure a Windows Server 2012 R2 iSCSI Target . Modern office phone systems use the Voice over Internet Protocol (VoIP),
where each phone is a node on the network with a unique IP address. DAS is local storage, and SAN is network storage. A DC is a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Ntds\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Ntds\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which by default lives on the DC under C:\Windows\Dt a server that is configured to hold a replica of the AD database, which is not a server that is configured to hold a replica of the AD database.
servers to provide high availability and service localization. In other words, how can you configure the BIOS? Cold spares are extra disks that you can swap out when used disks fail; they require the system to be shut down when you do this. CNA C. • All devices on all networks? Reinstalling Linux, updating motherboard firmware, and enabling UEFI
Secure Boot will not solve the problem. Different vendor solutions have different naming conventions for storage tiers. SMTP 18. Enter cat /projects2/project b decrypted.txt to view the file contents. For example, you might run mmc.exe and add the snap-in for Group Policy and certificate management. This is where PAT, NAT, and IPv6 come in. It's
the standard UNIX and Linux print server solution. Resolving software issues includes taking actions such as these: • Apply software patches. You can't just plug any CPU into any socket; they have to match! Taking the discussion a step further, each physical CPU chip can have multiple cores—essentially, multiple CPUs within the same chip plug into
a single motherboard socket. Once people have physical access to the facility, internal physical controls can further keep sensitive information safe. Note Experienced IT consultants will not begin troubleshooting in an unfamiliar computing environment without first taking time to first absorb implementation. Intelligent Platform
Management Interface (IPMI) A remote server management solution commonly used with various vendors' blade enclosures. VLAN spanning tree C. From the Guest Operating System list, ensure that Enterprise Linux 6 64-Bit is selected. I would recommend committing it
to memory, because it will help with this kind of stuff. Plenty of third-party replication solutions are available for Windows with varying capabilities. This will facilitate troubleshooting. Another primary reason for multiple VLANs is security; accounting devices might be placed on a separate VLAN from the rest of the network, for example. A DNS query
will be sent from ServerA destined for UDP port 53 on ServerA's configured DNS server. Exam Tip One way to ensure your success in passing the CompTIA SK0-004 exam is to know when to use a particular network troubleshooting tool or command. The SuperDLT (SDLT) standard supports larger capacities and transfer rates. CompTIA Server+
Certification All-in-One Exam Guide 4 Buses and Slots Then there are expansion slots. Selective wiping removes only company apps, settings, and data. By monitoring network traffic into and out of the host, operating system, and application logs, the ID engine can determine whether something is out of the ordinary. Notice that the network interface
(which may have a name such as eno16777736) is using the 192.168.1.210 IP address. IPv6 is different from IPv4 in many ways, including the fact that broadcasts are not used; instead, there is a heavy reliance on multicasting. Protect the true identify of servers Even public web sites should sit behind a reverse-proxy server. True negatives C.
hexadecimal A numerical system made up of 16 symbols (base 16) from 0 to 9, A to F, where A = 10 and F = 15. From the taskbar, start PowerShell. Table 3-1 shows common scope settings. Devices using FTP could be grouped together into their own VLAN. You must establish and follow a labeling standard. Switch to the Srv2012-1 virtual machine
and open a command prompt. Security 2. Which backup type takes the longest to restore? You will see that an IP address has been leased to Srv2012-2. CompTIA Server+ Certification All-in-One Exam Guide 52 6. In the Select Reports To Generate list, scroll down and choose Large Files. These organizations have large data centers located
throughout the world that offer cloud IT services to companies and individuals in different regions. Exercise 6-7: Enable Encrypted Communication on a Windows IIS Web Server 1. The server is a stand-alone piece of equipment. Storage Area Networks A SAN is a high-speed network used exclusively for connecting to network storage using specific
storage protocols such as FC, as opposed to general-use protocols such as TCP/IP. Blanking panels are used where there are empty slots in the enclosure for better cooling and airflow. Common UNIX Printing System (CUPS)

The standard UNIX print server software components. Edison plug

A type of electrical plug that is standard in American
households and is more rounded than NEMA (National Electrical Manufacturers Association) plugs—but like NEMA, it has three prongs. Cable Management arm is a metal or plastic folding component that is attached to the back of a rack-mounted device. RJ-11 B. This type of chip is not designed for energy efficiency but
rather for performance. Click Recover. TCP port 53 is used for zone transfer traffic between DNS servers. Click the Edit Parameters button, and in the Minimum File Size field type 25. This advanced functionality tracks TCP sessions instead of treating each packet inspection." DPI goes beyond the OSI Layer 4
type of packet inspection; it goes all the way up to OSI Layer 7, the application layer. Start VMware Workstation 10.x. Choose File | New Virtual Machine. Type 2 hypervisors go through an existing operating system for hardware access. 96 Hands-on Exercises . To allow all incoming network traffic from the Linux host, type netsh advirewall firewall
add rule name="Allow all traffic from Linux" dir=in action=allow protocol=any remoteip=192.168.1.210 8. ps lists processes and potentially their CPU utilization, but it is a static display (unchanging). The 32-bit machines have a maximum addressable memory limit of 4 GB, while 64-bit machines have a limit of 16 EB (exabytes). For the name, enter
LocalServers and click Next. 15. Figure 4-1 The internal components of a magnetic hard disk Chapter 4: Storage 125 Disk Characteristic Description Revolutions per minute (RPMs) The faster a disk spins, the quicker we can read or write to it. Even so, physical equipment still needs to be labeled or inscribed for tracking purposes. DHCP Vendor
Classes When communicating with a DHCP server, a network device sends information regarding what type of device it is. WMI filters use the WMI Query Language (WQL), as shown in the following example, where Microsoft Hyper-V and VMware virtual machines are being selected: SELECT * FROM SMS R System AS Sys INNER JOIN
SMS G System Computer System AS CompSys. Manufacturer = 'VMware, Inc.') Exam Tip Exam questions may imply that central configuration changes (Group Policy) have been made and that they have affected some or all users
or computers. VLANs A virtual local area network is similar conceptually to adding a new network infrastructure. heating, ventilation, air conditioning (HVAC) Provides comfort and acceptable air quality indoors and in vehicles including heat, ventilation, air conditioning as well as humidity control. This change
makes sense because of the close relationship servers have with storage, especially network storage, relationship servers have with storage, especially network storage, relationship servers have with storage, especially network storage, relationship servers have with storage, relationship servers have with storage, especially network storage, relationship servers have with storage, relationship servers have with storage, relationship servers have with storage area network (SAN) is network storage.
more quickly than an x4 or x8 PCIe card. Chapter 6: Security 221 Three sets of these three permissions (r, w, and x) apply to the following: • Owner of the file or directory • A group associated with the file or directory • A group associated with the file or directory • Everyone else That's why you'll sometimes see commands such as chmod 760 project b.txt (see Figure 6-8). NTP Tiers NTP is a
network service that listens on UDP port 123 for time requests, and there can certainly be more than one NTP server on a network! Different tiers, or stratum 0 device • Stratum 0 device • Stratum 0 device • Stratum 2 NTP server gets time over the network from a
Stratum 1 host These stratums imply the delays involved with getting time packets sent over the network in the first place. NIC teaming configuration on the Windows platform is shown in Figure 5-5. From the Type drop-down list, select IP Address. Exam questions may test you on this using different wording than presented here, but the concepts
are the same. Your network consists of Windows 10 computers and Android smartphones. There are plenty of ways to share folders in Windows (individual files cannot be shared), but here's how to do it using PowerShell: New-smbshare -name "Projects" -Path d:\projects -readaccess "fakedomain\authenticated users" On the client side, we could map a
drive letter to the Projects share as follows: Net use g: \server1\projects Although UNIX and Linux systems can participate in an SMB network using Samba, they can also use their native network file system (NFS). NIC teaming groups multiple NICs together for bandwidth aggregation or load balancing. You may need your switch administrator to
configure a monitoring port for this purpose so that your machine can see all network traffic. Name the clone Srv2012-2 and choose a location that has plenty of free disk space. The subnet mask determines which portion designates the host on that
network. Type top. One benefit of a HIDS is that it can read traffic that is encrypted over the network; once the host decrypts that traffic, it can be examined. Install VMware Workstation 10 The downloaded installation provides an executable (.exe) file that you can run on your Windows computer. Virtualization is a better use of hardware resources
where multiple virtual machines (VMs) are running simultaneously and sharing the underlying hardware, but each VM doesn't manage hardware access: that's the job of the hypervisor. Questions and Answers 1. In the New Host window, specify www for the name, and for the IP enter 192.168.1.200. Windows NTFS Permissions Windows servers tend
to use NTFS (New Technology File System). A newly installed NIC driver on your Windows server has rendered the system unstable. Click Add. Your company uses an image to repair failed servers. 802.3 C. Volts are a unit of measurement related to expressing the difference in electrical potential. Delete the copy of Program Files on C:. UDP 3389 D.
After the server reboots, click License Information. Another way to create a VLAN is by having the switch examine the IP addresses? 229 PKI . Gaining traction, it is a 128-bit address space where addresses are expressed in hexadecimal form, such
as 2000:1:234::1. The data centers are designed to withstand natural and manmade disasters—for example, large generators can provide power if the power goes out. For instance, a smartphone might be required to authenticate itself to a VPN before allowing user credentials. baseboard management controller (BMC) An interface between server
management tools and the physical server hardware being managed. Some equipment, or even adjacent wires within a cable, can emit electronic transmissions in close proximity. deep packet inspection Ability to access data beyond packet header fields for application-specific data. As you perform each
step in a lab exercise, always ask yourself, "Why am I doing this?" to make sure you're getting the most out of the exercise. electrostatic discharge (ESD) Differences in electrostatic discharge (ESD) Differences in electrostatic discharge (ESD).
disposed of in a secure manner, which might be required even if disk mirroring or data replication solutions are being used. You will need two pieces of ID at the testing center, including one bearing your picture. This can be used to prevent similar
future incidents. Unicast transmissions (from one sender to a group of devices registered with a multicast transmissions (from one sender to a group of devices registered with a multicast transmissions (from one sender to a group of devices registered with a multicast transmissions (from one sender to a group of devices registered with a multicast transmissions (from one sender to a group of devices registered with a multicast transmissions (from one sender to a group of devices registered with a multicast transmissions (from one sender to a group of devices registered with a multicast transmissions (from one sender to a group of devices registered with a multicast transmissions).
servers support PCIe cards. How can server be remotely managed when network connectivity is unavailable? domain controller (DC) A Windows server that holds a replication server be remotely managed when network connectivity is unavailable? domain controller (DC) A Windows server that holds a replication server would. In the middle of the
screen, you will see packet headers. Click OK on the Security Alert message. LT is not a valid type of connector. LUN Questions and Answers 1. Customers that depend on IT services from the unreachable data center can be redirected to another, alternate, data center, where IT systems are running and customer data has already been replicated
from the primary site. Wi-Fi D. • Cause: User personal USB devices were not blocked. Digital signatures are used to validate trusted code. Using things such as IP addresses or computer names for labeling isn't a great idea, because they are both easily changed. Figure 3-16 Software updates in SCCM CompTIA Server+ Certification All-in-One
Exam Guide 96 Reactive Maintenance Despite the best-laid proactive plans, sometimes we have to react quickly to certain events when managing servers. Click the Applications menu in the upper left, and then choose System Tools, Settings. Classless Inter-Domain Routing (CIDR) A shorthand way of referring to the number of bits in a network
mask. virtual network interface card (vNIC) A NIC used by a virtual machine as its network interface. IPv6 does not use software broadcasts. Close the Contracts window. Network Time Protocol (NTP) A protocol for clock synchronization between computers on a network over UDP port 123. Since each blade does not have its own cooling,
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networking, and power, this is supplied through the enclosure. unified extensible firmware interface (UEFI) A replacement for the BIOS. Note that Server 2016's Nano Server doesn't even provide a command prompt; it's designed to be managed remotely using tools such as PowerShell. CPUs use high-speed L1, L2, and L3 cache memory for data
and instructions to speed up processing. host intrusion prevention system (HIPS) A system that monitors a computer system and logs suspicious activity from continuing. that has web management built into its firmware. Click Done. The BMC also monitors the state of servers
and is often used with blade servers. C C. SCCM is an enterprise-class inventory and change management system. How should you initialize the disk? Desired State Configuration (DSC) A Microsoft PowerShell method of centrally configure VLAN membership by IP
address and by switch port. Security guards might notice somebody slipping into a secured facility behind you, but that is not their primary purpose as it is for a mantrap. Which disk interface standard is the most common in servers? Baffles are used to control the flow of cooler air into rack-mounted equipment intake fans and to make sure the
resulting warmer air is kept separate. Left-click Quotas in the left navigator, and then right-click Quotas and choose Create Quota. multi-mode fiber A type of optical fiber used to communicate over short distances. Synchronous 6. The lab exercises correspond to the topics covered in each chapter, and the interesting thing is that some labs are
written for the Windows Server operating system, while others are written for the Linux operating system. Close the VMware Workstation application. These days, the connection often uses HTTP or its secure counterpart, HTTPS. In some cases, you might even create a server image (if you don't already have one) in case the server OS becomes
inoperable. This numeric value must be entered within an acceptable timeframe, in addition to some other type of authentication, such as username and password, before access to the VPN is granted. direct current (DC)

As opposed to alternating current (AC) from power outlets, DC provides a consistent voltage and amperage to sensitive digital
components. It is both faster and more expensive than DRAM and is typically used for CPU cache. Voice over Internet Protocol (VoIP) A group of technologies used to deliver voice communications and multimedia sessions over IP networks. Of course, antimalware solutions can help with some infections, but not all of them. For example, you migh
have only read permissions to a file, or you might have read, write, and modify permissions to a file. IPv6 unicasts are one-to-one transmissions, multicasts are one-to-one transmissions, multicasts are one-to-one transmissions, multicasts are one-to-one transmissions.
malware, and either notifies administrators or takes some kind of corrective action. Chapter 5: Network Concepts 177 PAT Port Address (the one assigned to the public interface of the PAT router). Server Manager doesn't
even give you the option of initializing a disk using MBR. Network links between data centers must be able to accommodate large data transfers quickly, especially if a synchronous replication solution is employed; this is often referred to as active-active copies of data, and it can provide a near-zero RTO. UDP 80 D. Verify the mount succeeded by
entering mount | grep project. They allowed data to be written once to the device, with many reads. 26. Linux commands, unlike Windows commands, unlike Windows commands, are case-sensitive. On the right, notice the default SOA and NS DNS records. For example, for a client workstation unable to connect to a server on a remote subnet, you might verify that name
resolution and the default gateway (router) are configured correctly and reachable by the client. 95 Reactive Maintenance . An incorrect subnet mask has been specified. Stratum 2 devices are NTP servers that get their time from Stratum 1 servers, and so on. (For more on IP and default gateways, be sure to devour Chapter 5.) IP routing is used to
send network traffic between different subnets. SC connectors are square shaped and not spring-loaded. multicast A method of sending IP datagrams to all interested listeners in a single transmission. Viewing or graphing log files over time can demonstrate when a problem appears. In the Subnet Prefix Length field, enter 64. Let's say you need to
add a 10Gb Ethernet card in your physical server. Open Shortest Path First (OSPF) A router protocol that finds the best path for packets as they pass through a series of connected networks. MBR and GPT When servers can see disk space, whether storage is DAS, NAS, or over a SAN, the next step is to make the space usable. Configuring this
requires at least two interfaces in the host. 374 6.0 Disaster Recovery . Virtual machines and storage can be rapidly provisioned. • Change one thing at a time. Post Office Protocol (POP) A protocol used by e-mail clients to retrieve messages from a server over TCP port 110 or 995 if secured with SSL or TLS. Sometimes laws or regulations leave us
no choice; files must be stored on equipment owned and managed by the company and not a cloud provider. RAID 0, disk striping, groups multiple physical disks together for disk I/O. Perhaps only a single server is needed at a branch office to localize user access to server services, so it might make sense to ship a tower server to that location instead
of purchasing expensive server racks and a single-rack mounted device. Lost or stolen mobile devices can either be fully wiped or selectively wiped. As files are copied, you can specify the root user. 39. sample:target0. Choose File | Save, and enter the name C:\Projects\Project A.txt. More sophisticated HVAC systems will provide a way to configure
threshold and alert notifications when values are unacceptable, or they can automatically make adjustments. The bandwidth will vary depending upon the specific version of PCIe and how many lanes (channel of communication) are used. How many users will be connecting at once? Booting from a GPT-initialized disk requires UEFI (as opposed to
BIOS) and, in the case of Windows Server OSs, also requires a 64-bit operating system. The Health Insurance and Portability and Accountability Act (HIPAA) in the United States requires that private health information data be protected. Wireless MAC filtering Use defense in depth; a collection of hurdles will keep most of the bad guys out. Cold Site
Unlike hot sites, cold sites do not have IT equipment, software, data, and staff already in place. CPUs don't need as much power as is often fed from power supplies in the form of +5 or +12V, so the voltage regulator module (VRM) ensures that the CPU gets only the voltage it needs. And this is where cloud computing (specifically, Infrastructure as a
Service, or IaaS) can be very useful. This server form factor isn't screwed into any type of mounting device; it is a stand-alone computer that can be easily moved without removing screws or sliding it out of a rack. E 24. NTFS D. How things have changed over the decades! Cables and Connectors A solid understanding of computer networks includes
network hardware as well as network software. logical unit number (LUN) A number that identifies available storage on a storage area network (SAN). iSCSI does not require FC switches; standard Ethernet equipment works just fine. DDR3 memory is shown in Figure 2-7. kill D. With bring your own device (BYOD), where employees can use their
personal mobile devices for work, mobile device partitioning solutions enable the use of a single mail app for both personal and work e-mail. Payment methods include various debit or credit cards. Unlike BitLocker, EFS does not rely on TPM. This is the IP address of your Red Hat Linux server, which will consume this storage. Of course, these DS
servers need to be locatable on the network, normally via DNS. Although there are plenty of software-based remote management solutions, hardware-based solutions provide more security and reliability. Exam Tip Even though users can print directly to printers without a print server, remember that print servers provide centralized security and
management. UNIX A family of multitasking, multiuser operating systems derived from the original AT&T Unix. VPN client software on a device establishes an encrypted tunnel with a VPN host on the work network (must be reachable by clients over the Internet). Packet payload inspection applies to OSI Layer 7, the application layer. Some
operating systems cannot be used with the UEFI Secure Boot feature because they are not digitally signed. In the left navigator in the DNS Manager window, expand SRV2012-1. 250 Secure Media Disposal . reverse proxy A server that listens for client connections to a target network service such as a web server. OS X The current operating
system used on Macintosh computers. If you do not have permissions to run the following command, precede each command on the same line with sudo followed by a space. User Datagram Protocol (UDP) An alternate transport protocol to TCP that is used for establishing low-latency and loss-tolerant connections, such as online video gaming. The
disaster recovery (DR) plan and risk assessment do not happen until assets are prioritized. Ports and Protocols that allow direct interaction with users over the network, and they depend on lower layer transport protocols such as User Datagram Protocol (UDP) and Transmission Control
Protocol (TCP). Click Finish and OK. central processing unit (CPU) A microprocessor chip on a motherboard that carries out instructions within the system. • Check the obvious. Determine UPS kW or VA rating, calculate power draw average of devices. In some cases, if you work with the same equipment often, you should pore over this
documentation so that you're prepared—be proactive! Implementation documentation is especially important, because it is unique for each organization. Delete the original file by entering rm /projects2/project b.txt. Verified Strengths 91% of hiring managers indicate CompTIA certifications are valuable in validating IT expertise, making certification
the best way to demonstrate your competency and knowledge to employers. Clustering solutions use a periodic heartbeat transmission from each cluster node to ensure nodes have not failed. 383 Glossary. Redundant array of independent disks, or, depending on who you ask, redundant array of inexpensive disks (RAID) groups multiple physical disks
together for two potential purposes: better performance and fault tolerance. Choose Create Manually (Advanced). C. Other software problems can be much more difficult to troubleshoot—take random freezes, for example. 1 Server Hardware Basics . These drives cache frequently accessed data on the faster flash memory to improve performance. And the faster flash memory to improve performance and fault tolerance.
server running out of disk space will slow the system to a crawl and could cause services to freeze, yet this could be caused by a lack of memory (RAM). The buses we discuss here are for expansion slots and include the PCI, PCI-X, and PCIe standards. front side bus (FSB) A communications interface that carries data
between the CPU and the northbridge. A cold site is the least expensive type of alternate site. Boot sector corruption C. 249 Contents xiii VPNs . PCI extended (PCI-X) A 64-bit parallel transmission standard that runs at various frequencies (often the case with expansion slots and cards), which influences the data transmission speed. The
Southbridge chipset isn't directly connected to the CPU, but is indirectly connected via the Northbridge. Enter Contract A for the filename and press enter. Change the default administrative username and press enter. Change the default administrative username and press enter.
CA, a template is used that contains details on what should be stored in the certificate. Technicians often ask users questions (check your IP address, make sure you've clicked on this and that), and this can make problem for cable
transmissions? Invoke-Command B. SAN refers to cloud storage. Reserved Internal IP Address Ranges The address designed for internal use on enterprise networks. PKI certificates contain numerous items such as the subject name, a serial
number, and a unique public and private key pair. Perimeter fencing B. Samba B. You plan to use extra DDR3 memory chips for your server, which currently supports DDR4. Vendor class identifiers can determine which type of device is connecting to DHCP and can assign IP settings for that type of device. OSI Layers 2, 3, and 4 cannot read packet
payload data. Virtual NICs You can control MAC addresses if required as well as VLAN tagging options for virtual machine VLAN membership. These are easy to identify; the cable is flat and is normally light blue in color. Not all layers need to be involved in the transmission and receipt of data between two devices. The transfer rate is a measurement
of how quickly data can move into and out of a storage device. cache A small amount of high-speed memory used to fetch recent instructions or data. We want our server to have three hard disks in total so that we can configure software RAID later. Other brands and company names mentioned herein may be trademarks or service marks of
CompTIA Properties, LLC or of their respective owners. Click ExternalNAT for the public interface. 186 DHCP . 359 Appendix E About the CD-ROM.. The exam may not count toward your score. 1 Chapter 2 Server Hardware.. They also need an easy way to bring these
devices into compliance. The station can communicate with other local and remote hosts. cloud Pooled computing resources that can be self-provisioned rapidly, usually over the Internet. U measure 3. Roll back the driver. For the Network ID, type 192.168.1. Accept the defaults for the rest of the wizard and click Finish. On the Confirm Selections
screen, take note of the drive letter for the new disk volume. NTP uses UDP port 123. Determine whether alternate sites (hot, warm, cold) will be used. default gateway IP address of a router interface on the LAN; used by nodes to transmit data to remote networks. Common solutions include Dell's iDRAC and HP's iLO; the server hardware must
support this type of remote administration and it must be configured with IP settings. The /27 is a valid subnet mask, 200.1.1.0 is not a reserved IP range, and SSH uses TCP (not UDP) port 22. 311 Business Impact Analysis. View the results by typing w32tm /query /status. Types A and B are not used to refer to hypervisors. HyperText Transfer
Protocol (HTTP) is an application protocol that listens for client requests on TCP port 80. If you don't already have an account, you'll need to register before you can download the ISO file for a free 180-day evaluation. Linux Like Windows, Linux is widely used around the world in numerous industries for a variety of network services. A default
Windows Server 2012 R2 installation is a Server Core installation (no GUI). Server Memory Scaling a database server to support larger datasets means adding memory (RAM). As a rule of thumb, relative humidity levels should fall somewhere within 40 to 60 percent. Simple Mail Transfer Protocol (SMTP) An Internet standard for e-mail
transmission between servers; uses TCP port 25 or 465 if secured with SSL or TLS. These days, many organizations such as legal firms have turned to document management systems such as Microsoft SharePoint Server or Hummingbird DOCS Open, where it is easy to work with multiple file versions, metadata, and many other document actions. At
the same time, preventative measures are effective because they are focused. Dism /Append-Image /File:Z:\win10 images.wim /CaptureDir:C:\ /Name:win10 sales B. Chapter Review This chapter provided insight into what the rest of this book offers. Wake-on-LAN is used to wake up powered-down systems and should be used for desktops and not
servers. Configure RAID 1. Plenty of UNIX and Linux solutions provide RRAS services, including the following: • IP routing using the ip command • OpenVPN Virtualization using the ip command • OpenVPN Virtualization servers Virtualization servers.
visitors. Server virtualization reduces power consumption by consolidating multiple physical servers into virtual machines must run on physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simply group physical server hardware, and it needs to be powered. -48v • 208v vs. A VLAN might simp
addresses and dates of birth. UEFI D. Therefore, a 1 terabyte (TB) drive is 1,099,511,627,776 bytes (that's 1 trillion and change), not just 1 trillion. Resource allocation to protect critical IT systems is related to the amount of tolerable downtime. You should see a list of IP addresses that service google.com. 23 Server Form Factors . Secured Book
PDF The entire contents of the book are provided in secured PDF format on the CD-ROM. What type of disk system must you use? Figure 5-9 Manual configuring of IPv4 settings in Windows CompTIA Server+ Certification All-in-One Exam Guide 180 Mathematically, 232 equals 4 billion and change. Biometric authentication might also be configured.
to enable access to more sensitive data than would be available with only username and password authentication. It just is. You'll find SANs used in larger enterprises, data centers, and service providers, and the cost can range from tens of thousands of dollars into the millions! FC speeds currently fall in the range of 1 to 32 Gbps; there is less
overhead than with higher level protocols such as IP. • What's a data center anyway? Memory is either static (SRAM) or dynamic (DRAM). The network addresses on the NAT router to internal private IP addresses are generally more stable and can handle more traffic
than their software counterparts. When performing a bare metal recovery, we normally have a choice of snapshots, or recovery points. Modern motherboards have many components built-in or integrated, such as NICs, RAID controllers, and video. On a corporate network, one important consideration is strictly controlling access to your networks in
the first place. When prompted, restart Srv2012-2. And they must be kept cool; overheating server power-downs. Type ifconfig. Figure 3-6 Viewing NTP status on Windows Server 2012 R2 Chapter 3: Server Operating Systems 73
Directory Services A directory service (DS) is a centralized network database containing objects such as the following: • Users • Software licenses In the enterprise, this normally means replicating the DS data among servers for redundancy and performance
benefits. In our example, here's where the nomenclature comes in: • Son Daily backup cycle • Father Weekly backup cycle • Grandfather Monthly backup cycle •
contact information in the event of a problem. A router is needed for devices on different VLANs to communicate. Notice that the group permissions are now rwx. For instance, change only Chapter 1: Introduction to CompTIA Server+ Essentials 13 one thing at a time and observe the results of that change. Choose I Will Install The Operating System
Later, then click Next. How can you ensure device power needs will be met? But if you calculate 22 - 2, you end up with only two—not enough; you need three subnet addresses. Environmental Controls Properly designed HVAC systems provide the correct temperature and humidity for the optimal operations of electronic equipment. Special
permissions provide a further degree of granularity; for instance, you may want to allow the creation of folders but not new files (both are possible if a user is allowed to write). Instead, you start at 33. Each server NIC has a unique MAC address. Large data centers replicate data to other data centers to ensure high availability of IT services and data
Start Server Manager (second icon from the left on the taskbar). Keep in mind that site-to-site synchronous replication won't solve all of your headaches. 343 VMware Workstation 10 . Microsoft Azure public cloud solutions. Note
For important data, always have three backups: one stored on-premises on backup tapes, another set of tapes stored in a different physical location, and a third set in the public cloud if acceptable. Smartcard, PIN B. Remove the existing RAID configuration and enable RAID 0. Developers can also use server- or client-side scripting languages such as
Python (server-side) or JavaScript (client-side) that can dynamically generate page content or take specific actions based on conditions. multicore • Socket type • Cache levels: L1, L2, L3 • Speeds • Core • Bus • Multiplier • CPU stepping • Architecture • x86 • x64 • ARM • RAM • ECC vs. • Revert ineffective changes. An SLA guarantees that user
data will be available in at least one data center. In the left navigator, right-click fakedomain.local and choose New, Organizational Unit. runaway process Protocol (IMAP) An e-mail
protocol that stores e-mails while also enabling the end user to view and change the e-mails from multiple devices. Click OK. Layer 7 D. Make a mount directory: mkdir /cust trans 14. This is the theme in Chapter 8. Forward, or "normal," proxy servers fetch items from the Internet, such as web pages, on behalf of an internal client. Basic A. Start
Internet Explorer and enter in the address bar. A switch has its own memory where it tracks which device MAC addresses are plugged into its ports. Which technician • Server administrator • Network technician • Help desk technician Remember that
an understanding of the body of knowledge presented in this book is crucial for IT server and network technicians working for companies in any industry. We can use these to link equipment together such as switches. 14. Security Considerations Servers can run
on networks that are completely isolated from the Internet (air-gapped), or they can in some way be connected. Remember that Layer 3 of the OSI model is the network layer. Why does this matter? VLAN membership. Once a user authenticates to the VPN
ideally using multifactor authentication, the encrypted tunnel is established and any network traffic between the client and VPN appliance is secured. The mere presence of a security camera can serve as a deterrent to bad behavior, as can signage stating that the area is being watched. HTTP web servers use TCP port 80 for unencrypted connections
and port 443 for HTTPS encrypted connections (the port numbers may vary, but these are normally used). Today's server administrators are responsible for remote administrators.
device need some kind of unique identifier. Centimeters D. A router is needed to allow communication between VLANs, and a Layer 3 switch does not have routing capabilities. 24 Rack-mounted Equipment . The two most common items found in SLAs are • Uptime • This specifies expected availability for IT services.
Newer versions of WinRM use TCP port 5985/5986 for unencrypted and encrypted connections, respectively. Synchronous replication writes to the primary and alternate write completes. Disable UEFI Secure Boot. Many people confuse web, database,
and application servers. TDRs and OTDRs are used to test copper and fiber cable continuity. Linux File Systems, i ncluding ReiserFS, Ext4, and XFS, to name a few. If the DNS server is down or the client can't connect to it for some reason, it's fair to say that
everything grinds to a halt—and we can remember server and web site names easily but not their IP addresses. 370 4.4 Implement logical access control methods based on company policy . Having an enterprise-class SAN means having SAN-based backup solutions, which are far more efficient than having a backup solution for each server and its
local disks. Contrary to popular belief, IPSec is not used solely for VPNs. Unlike SSL and TLS, IPSec is not configured for each application. Note Many organizations use specific internal IP ranges for certain types of devices. It is an old Microsoft standard for resolving NetBIOS computer names (such as computer) to an IP address. WINS and DNS
are used for name resolution. iLO and iDRAC The Hewlett-Packard-specific out-of-band solution is Integrated Lights Out (iLO) management. Common application, the cloud comes in quite nicely. DHCP TCP/IP
v4 is the standard software communication protocol suite used by modern network devices, although IPv6 is gaining traction. Create a software RAID 1 (mirroring) configuration: mdm --create /dev/md1 -level=1 --raid-devices=2 /dev/sdb1 /dev/sdc1 10. Limit the use of USB removable media This can prevent data leakage and malware infections.
Battery-backed write caching D. Packet-filtering firewalls examine packet headers, looking at characteristics such as source and destination IP address, and protocol type. The CompTIA SK0-004 exam will test your knowledge on the best hardware configuration given a specific server scenario. Direct users to enter their e-mail address
and date of birth when connecting to each web app. Power, communications, equipment, software, data, and staff are ready to go. Routers on both ends must support IPv6 and must have an IPv6 address configured on their internal interface. It does this by distributing incoming traffic to the least busy back-end server hosting the web site. Subnetting
must the storage administrator configure for your server? A symmetric key is used to encrypt and decrypt. For instance, servers might be in the 220 to 230 host range, and network printers might be in the 220 to 230 host range.
cloud networks together. On the Srv2012-2 virtual machine, go to a command prompt and type ipconfig /release, then ipconfig /r
which type of environment is 1-phase power most often used? British thermal units (BTUs) BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? British thermal units (BTUs) BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? British thermal units (BTUs) BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? British thermal units (BTUs) BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? British thermal units (BTUs) BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? British thermal units (BTUs) BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? British thermal units (BTUs) BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? BTUs provide a standard way to measure the heat output of computing equipment, which can be then used? BTUs provide a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat output of computing equipment is a standard way to measure the heat of the heat output of compu
Fibre Channel (used in SANs) Local and Network Storage DAS storage is available locally to a server without using a network. • Remote monitoring and management is possible using protocols such as Simple Network Management Protocol (SNMP). SMTP uses port 25, POP3 uses 110, and HTTPS uses 443. Chapter 2: Server Hardware 45
Temperature and humidity sensors are a must in server rooms and data centers. RFID cards, such as toll bridge pass cards, use radio frequencies to transmit data wirelessly. 280 Security Problems and Solutions . The Windows Server 2012 R2 operating system includes bare metal backup options (Figure 8-8). You want to ensure that your RAID
controller caches disk writes. Restart-enabled write caching D. It can also be used between an on-premises network and a pubic cloud provider's network. RADIUS authenticator D. Double-click the Contract folder. fiber-optic cable A type of cable that transmits pulses of light rather than electrical signals through tiny glass or plastic tubes. BISC and
DISC are fictitious terms. Users complain that a database server has slowed down over the last hour despite the fact that no more users have connected. Select the http binding from the left, click Add, choose Computer Account, and then click Next, then Finish,
and then OK. Ideally, encryption should be used everywhere (networks, servers, backup tapes, desktops), but encryption must be enforced on removable media and mobile devices. This means DDR3 chip sockets on a motherboard will accept only DDR3 memory chips. 365 2.6 Explain the purpose and operation of virtualization components. Some
equipment will sometimes specify the power draw in volt-amps (VA) instead of watts. anycast Similar to multicasting, this IPv6 transmission method attempts to find the nearest receiver of a multicast group. Dan has recorded numerous tech support videos for products such as Microsoft Azure, Amazon Web Services, Microsoft System Center
Configuration Manager, various cybersecurity and mobility topics, and Linux. Modern mobile devices use Advanced RISC Machine (ARM) processors. Crossover cables are often red, or they have red connector covers. CompTIA Server+ Certification All-in-One Exam Guide 302 10. Synchronous D. There is no lack of privileges; the user is a domain
administrator. Preparing for the Exam People learn in different ways. SMTP D. Table 5-2 shows the differences between copper cable types. For example, physical network cables can sometimes have problems. blades than towers in a fixed amount of space, but towers are cheaper and easier to expand if you need expansion cards or additional
storage. Backups are helpful in recovering from failure. CNAs and FCoE switches are required, but fiber-optic cabling is not; copper-based cables will also work. From a command prompt on Srv2012-1, ping the Linux server again. You can download free trials of these software titles so you won't have to buy them to experiment with them. IOPS is the
number of disk I/O functions that can be performed within 1 second. Whether or not the network printer is managed by a centralized print server, access to manage the printer must be secure. Table 5-4 describes IPv6 transition technologies. Then there are the software components that provide network infrastructure services, and this is where our
discussion becomes more in-depth. Roman is the server administrator for an international insurance company. USB 3 is backward-compatible, so you can plug a USB 3 device into a non-USB 3 port. EMI C. • Communications link speeds determine how much data can be replicated within a given timeframe. Other devices take on this nomenclature,
too, as in fabric switches. VLAN hopping occurs when a malicious user spoofs packet data so that their station can become a member of multiple VLANs. Big MAC attack is a phrase coined by a well-known fast-food chain in the 1970s. Base 10 . IP address C. RAID 3 14. In some cases, disk or file encryption might be needed to secure data further. On
PCs, UEFI has become common over the last few years, but Apple Mac computers have used UEFI for a long time. Which common Linux tool synchronizes file systems between remote hosts? The server has 2TB of free disk space and overall CPU and memory utilization is hovering at 40 percent. Encrypt network communications using HTTPS. The
answer to all is "yes." Subnetting is implemented in the IP addressing and subnet mask configured on all affected devices. The following list contains common items addressed when hardening servers: • Apply firmware updates to BIOS/UEFI RAID controllers. This book is chock-full of technical goodies, but credit must be given to S. Chapter 5:
Network Concepts 179 Note Many wireless routers have their internal WLAN IP address set to 192.168.1.1. In this case, either start using addresses from 192.168.1.2 onward or reconfigure the IP address of the wireless router. Windows file and print sharing uses the SMB protocol. SCSI and IDE are disk interfaces that are not organized into
storage tiers. A, B, and D are incorrect. As a result, full backups are commonly performed only periodically, such as once a week on weekends. But for servers and infrastructure equipment in the enterprise, data center, and server room, wired networking is required and ubiquitous. Click OK twice. This could be a problem, because a standard PCIe
card won't fit within most rack-mounted servers, which are are much thinner and smaller than tower servers. In the rightmost panel, right-click Local disk (C:) and choose Properties. After the host connection is established, we then specify the logical unit number (LUN) using an iSCSI qualified name (IQN) such as iqn.2012-06.com. But where do you
configure this? Other factors, including network card and switch port configuration, as well as distance covered, greatly influence network speeds. Chapter 5: Network Concepts 189 TCP Port Number Protocol Description Domain Name Service (DNS) • Hierarchical name lookup service • DNS server-server replication uses TCP port 53 53 File
Transfer Protocol (FTP) • A standard way of transferring files over the Internet • Allows the uploading and downloading of files regardless of operating system 20, 21 File Transfer Protocol Secure (FTPS) • Adds cryptographic support to FTP by way of Secure Sockets Layer (SSL) or the newer Transport Layer Security (TLS) 21 Hyper Text Transfer
Protocol (HTTP) • Web server protocol • Web browsers connect over HTTP 80 • Web pages written in HTML Hyper Text Transfer Protocol Secure (HTTPS) • HTTP protocol over a secure connection using SSL or TLS • Widely used on the Internet 443 Internet Message Access Protocol (IMAP) • Client mail retrieval protocol • Allows mail sync from
multiple devices 143 Lightweight Directory Access Protocol (LDAP) • Provides access to a networked database such as Microsoft Active Directory 389 Post Office Protocol (RDP) • Used to administer Windows computers remotely 3389 Secure Copy (SCP) • Transfers files
over SSH • Options must be specified at the command line 22 • Not interactive like SFTP Secure File Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer Protocol (SMTP) • Transfers files over SSH with file system management capabilities 22 Simple Mail Transfers files over SSH with file system management capabilities 22 Simple Mail Transfer files over SSH with file system 
encrypted connection 22 Telnet • Insecure remote device command line administration • Usernames and passwords sent in clear text 23 Table 5-5 Common TCP-based Network Services CompTIA Server+ Certification All-in-One Exam Guide 190 Figure 5-11 A Wireshark HTTPS packet capture showing the fields within a TCP header Figure 5-12
A Wireshark DNS packet capture showing UDP header fields Protocol (NTP) • Synchronizes device clocks on a network 123 Domain Name Service (DNS) • Hierarchical name lookup service (DNS) • Hierarchical n
(DHCP) • Delivers centrally configured TCP/IP settings to clients over the network 67, 68 Simple Network Management Protocol (SNMP) • Monitors and manages network device or service 5-1: Manually Configure IPv6 on
Windows Server 2012 R2 1. Domain Name Service (DNS) A network service that listens on UDP port 53 for client queries. Well, it is, sort of, but it's not the source of the problem. This means you could have six unique subnet addresses, yet you need only three. HTTP web servers normally listen for client connections on TCP port 80. 80 Virtual
Machine Guest Configuration . data center A facility dedicated to housing computing equipment. Add User One as a member of the PMs group. BIOS D. Enter Is /asia contracts to verify that the files have been created. 32 inches 2. Keep in mind that different tape media enable different numbers of writes to be performed. Planning servers before
jumping into the fun stuff is paramount. 221 Network Security . Shielded twisted pair (STP) and unshielded twisted pair (UTP) cables contain eight copper wires grouped into four pairs. The first HTTP packet containing mheducation is selected. CompTIA Server+ Certification All-in-One Exam Guide 16 6. 255 Chapter 7 Troubleshooting and
Performance Optimization . IIS C. Any application server resulting in data is a potential item to consider. Blade servers take the least amount of space because they are essentially circuit boards. The Microsoft Failover Clustering feature does support Cluster Shared Volumes (CSVs), which allow the live migration of Hyper-V virtual machines
between clustered Hyper-V hosts with zero downtime. Remote security log entries are displayed from Srv2012-1. Just like a Windows print server, CUPS manages printers and queues. Choose your time zone, and then click Next. You need to have a strong knowledge of the application before locking it down so that you can keep it functional. Single
Sign-On (SSO) An authentication process that enables a user to enter a single username/password combination to access multiple applications. CPU processing can be sped up using L1-L3 caches, where L1 is the fastest (and most expensive). For example, suppose a data center experiences region-wide communications link failures. Blades get their
additional capabilities such as storage and networking from other components plugged into the blade enclosure; you won't find a blade server with PCI network cards plugged in. Period penetration testing Taking a vulnerability scan a step further, pen tests actively exploit weaknesses. You have manually configured a route to a remote network on
your Windows server. 345 Lab Exercise Miscellany . RISC D. This enables us to control LUN visibility to all nodes in the same zone. The GFS rotation method uses three backup sets, such as daily, weekly, and monthly—where each tape gets rotated on a schedule. CAT6a and CAT7 would work but are more costly than CAT6. Server operating system
images can be hardened so that newly installed servers are reasonably safe right from the start. This is done so that, instead of broadcasting transmissions to every port (like a hub does) to find a specific MAC address, it simply consults its MAC address table in memory. Hardware components are pretty resilient and generally tend to work well
together. Consult the documentation for your specific variant of Linux. ECC chips should be paired together in the correct motherboard slots. The BIA enables easier prioritization of assets that require protection from threats. Chapter 1: Introduction to CompTIA Server+ Essentials 21 10. All exams provide an overall grade and a grade broken down
by domain. Southbridge 5. Different types of VPNs require different ports to be open in firewalls—SSL VPNs are firewall friendly since they use TCP port 443, which is also used by HTTPS. You will be prompted to specify the administrator password. The USB 1 maximum speed is 12 Mbps, USB 3 is 5 Gbps, and as of this writing the USB 4 standard
does not exist. The OSI Model Telephony and network communications involve both hardware and software components. This creates a PKI certificate for your server that can be used to secure the IIS web site. Figure 4-12 show how h ardware RAID storage shows up in Windows Server 2012 R2. Reducing the server attack surface includes disabling
unused components. For instance, Network File System (NFS) is a UNIX and Linux print server. Packet payloads can be examined, often for the purposes of security or performance. 151 Storage Capacity
             . This way, if needed, you can switch to a different provider or even use an on-premises solution with data generated in the cloud. Check out Chapter 4 for details on RAID levels. Although distance is a concern, because cables have a maximum effective distance, this is much less relevant than fire suppression. Notice the emphasis on server
administration and troubleshooting. Enter touch /asia_contracts/file {1,2,3,4}.txt to create four empty text files (file1.txt, file2.txt, and so on). Click Finish to close the Certificate Enrollment window. Repair-volume CompTIA Server+ Certificate Enrollment window. Repair-volume CompTIA Server+ Certificate Enrollment window. Repair-volume CompTIA Server+ Certificate Enrollment window.
server role. 34 Buses . 220v vs. Storage Device Installation Installing storage devices begins with knowing what you have, and then progresses to knowing what you need. Network Security Everything would be so much more secure if computers didn't connect to a network, but this is not reality. cold aisle . Used in data centers to manage airflow
for equipment and cost optimization. Choose Wait For Reports To Be Generated And Then Display Them and click OK. As with any crucial system, testing, monitoring, and periodic drills can make all the difference when a fire incident actually occurs. Who or what is affected by the issue? WQL can query any hardware or software attribute related to
users or computers. RAID 1 C. iostat D. Notice there is an X in the box, which implies that the software has indeed been installed. 10 Network Security . In the case of a stolen physical storage device, if encryption has been implemented properly, you needn't worry—the device could serve as a lovely paperweight. In Chapter 2 we will explore how to
determine that you have sufficient heating/ventilation/air conditioning (HVAC) for your hardware. Interface 0 is public-facing with a connection to the Internet. After a few moments, the software is installed. Troubleshooting over the phone requires the person reporting the issue to be clear in stating the problem. If you check out IT job listings on your
favorite job-hunting site or ask people working at IT academic institutions, you'll learn that many jobs require CompTIA certification in one form factor (LFF) hard drives are common. Assuming things are working, the BIOS then checks the
master boot record (MBR) to hand control over to an installed operating system. The CompTIA Server + SK0-004 practice exam is one of the key steps of your exam preparation, and get familiar with the actual exam environment. Bare metal indicates that you have
only the server (physical or virtual) and must install the OS, application server: it serves a specific business need. NTFS B. Solid-
state drives (SSDs) have no moving parts and thus consume less power and generally provide quicker file access than magnetic hard disks. Server administrators can connect to IPMI management systems locally or over a network. You can use tools to encrypt specific files and folders, or you might choose to encrypt entire disk volumes. Exercise 8-4:
Use the Linux tar Command for Data Backup 1 .Make sure you are logged into the RHEL7-1 virtual machine with the rost account, with a password of Pa$$w0rdLinux. You need to document the result as well as the steps taken along the way. Firewalls Fi
network device. Layer 7 17. Unlike TCP, there is no session establishment or acknowledgment of sent packets. ADFS can be configured with user and device claim types that are consumed by trusting applications. Proceed through the wizard and select the Certification Authority check box on the Select Role Services To Configure screen. 86 Contents
ix Out-of-band Remote Administration . 292 Storage Problems and Solutions . Enter fdisk /dev/sdb and press enter. On the Select Backup Date screen, accept the default and click Next. For the Provisioning Type, choose Thin and click Next. access control list (ACL) List of entities such as users and groups that are granted or denied permissions
to a resource such as a file. Password, PIN A. Verify Functionality Don't be tempted to declare victory too quickly! Thorough testing is required to ensure that the problem is indeed at a point in a network to monitor traffic on the network for
attacks. Overheating 6. Malware infections are scary and can infect your server depending on what you plug into USB ports—not just into servers themselves, but also into any device that in some way can contact your servers. • Install a HIDS/HIPS component. The only way to get a decryption key is to pay a ransom in Bitcoins, assuming you'd get the
key anyway. In other words, there are around 4 billion unique IPv4 addresses possible. It takes very little time to spin up a bunch of virtual machines, some of which are HTTP or database servers. The bandwidth will vary depending upon the specific version of PCIe and how many lanes (channels of communication) are used. Where a business
continuity plan takes a high-level approach to ensuring that the organization keeps running, disaster recovery plans are more specific to a technological solution. Staff D. • Operating system • Drivers • Applications • Reset the user password. • Why was file server response time brought to a crawl? These chunks of disk space are called logical unit
numbers, because traditional storage protocols such as SCSI used a unique numeric value to refer to disk storage. Reduced Instruction Set Computing (RISC) processors are often used by mobile devices because of their low power requirements. Subnetting can be useful for addressing on VLANs. One way a switch administrator creates a VLAN is to
group physical switch ports into their own network (a VLAN). This is true even with some command parameters, so that -c and -C, for example, might not mean the same thing (it depends on the command). Which Windows command can be used to view and troubleshoot file system ACLs? Naturally, a 4 GHz processor gets things done more quickly
than a 2 GHz processor. secure boot A technology that checks the system boot loader's cryptographic key against a list of authorized keys that are stored in firmware. It can be configured to be used where both parties communicating over a network use IPSec to secure network traffic, regardless of the protocol being used. UEFI 14. A rack-mounted
server with an integrated SAS RAID controller may or may not accept SATA disks; it depends on the specific RAID controller. Copper cables contain copper wires that transmit electrical signals. ESD is electrostatic discharge; this occurs when two devices in close proximity have varying electrical charges. You might use a wall-jack
labeling scheme, or a location-based scheme (Floor 9, Room 2, Jack 1 might become f9r2j1). These commands do not exist in Linux. TCP 53 C. Click the Custom Properties button. To plan future disk space requirements, you would like to track user disk space consumption. 184 DNS Servers . Differential backups are the next quickest to restore
following full. Although it can be used without the Trusted Platform Module (TPM), it is designed to use TPM functionality. To the operating system, it might see what it thinks is one disk when in reality the RAID array might consist of five disks working together. Temperature Some CPUs will throttle their throughput if the temperature is too high
Prioritize assets B. Press w to write the changes to disk. Consider the following PowerShell example (not case-sensitive), which allows Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group: Enable-NetFirewallRule -DisplayGroup "Active Directory-related communications by using a supplied firewall rule group in the supplied firewall rule group in 
Blade D. Installation Details When you are actually installing a server OS, if it's not an automated installation you may be asked for the following: • Disk layout, including disk partitioning, file system formats, swap file/partition • Server name • IP configuration settings • Administrative user credentials • Product key or subscription details used to
activate the installation and receive updates • Additional software that should be installed Server Administration Methods According to Microsoft, these days, servers shouldn't have a GUI. We don't format local disk volumes as NFS or SMB. fe80::883b:ced4:63f3:f297 is a valid IPv6 link-local address. If, for instance, you wanted to host your own
public web site on your own network, you would need a unique public IP address (and DNS name, too). Whether we work with Bluetooth or Wi-Fi wireless NICs or a wired Ethernet or token ring NIC, they all have a MAC address, which looks something like this: 90-48-9A-11-BD-6F. Even the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows to check the Recycle Bin for the casual Windows user knows the casual Wind
files that have been mistakenly deleted. As the manufacturer releases the same CPU with improvements, the step value increases—for example, from 0 to 1. MultiNICed D. What hard disk dimension is considered the standard? Chapter 3: Server Operating Systems 95 Windows Server Update Services (WSUS) is a free Microsoft patch management
tool that has been available for years. This can succeed only with up-front planning and ensuring that technicians know their roles when it comes to incident response handling. RAID controllers can group multiple physical disks together for fault tolerance and/or performance reasons, but this is not FCoE-specific equipment. Chapter 8: Preparing for
the Worst 329 A cold site consists only of a location, power, and communication links. Service level agreement (SLA) is a contract outlining expected service from a service provider to a service provider to a service consumer. NTFS B, D. Glossary 403 RJ-11 A standard connector for twisted-wire pairs that is commonly used in telephony. On
the Clone Type screen, choose Create A Full Clone. Click Cancel twice. Expand fakedomain.local, and then click _tcp. Your backup solution may also support the backup of storage arrays and databases. • Visit online forums, like LinkedIn, to see what other IT professionals say about CompTIA exams. Read-write caching C. Nothing is perfect, though; and then click _tcp. Your backup solution may also support the backup of storage arrays and databases.
fingerprint scan could be defeated by forcing somebody to press their finger on a scanner—or, in a gruesome scenario, by an attacker taking a finger with them to place on a scanner and data cohabitation with other organizations, however.
Devices that attempt to acquire TCP/IP settings using DHCP execute a four-packet exchange as follows: 1. PKI certificates contain related public key, only the related private key can decrypt the data. 4. For example, if CPU utilization goes beyond 80 percent for a period of
time, administrators can be notified in a variety of ways (Figure 7-8). Linux ACLs The Linux getfacl and setfacl command recursively gets file system ACLs from the saved
file. More RAM would be needed to run multiple virtual machines than just one, and some IT workloads such as large database servers will require more resources such as RAM. After identifying assets in a BIA, what should be done next? terminate B. A second thing to watch out for is using the correct subnet mask. Many on-premises and cloud
environments use VM images to create new VMs, but there are CompTIA Server+ Certification All-in-One Exam Guide 84 many legitimate cases for which you'll be installing the OS on physical hardware. On the left, expand Monitoring Tools and click Performance Monitor. Ideally, you'll have an automated way to periodically inventory both hardware.
and software in use on servers; this is especially useful in a data center. Should the primary disk fails, the mirrored copy kicks in without missing a beat. 351 Appendix D CompTIA Server+ Certification Exam Objectives (SK0-004). When ordering rack-mountable servers, the specs will detail how many Us the enclosure is so you can plan placement
within the rack. USB thumb drives do not provide anything related to authentication; they are used for storage. Configuring IPSec requires some kind of key for authentication. Multi-mode fiber should be used over shorter distances, such as on a university campus. CompTIA Server+ Certification All-in-One Exam Guide 70 DNS Domains DNS is a
hierarchy that begins at the top with the root domain. Click Add, and from the Type drop-down list, choose https. 66 Other Server Roles . Distance A. Heat sinks are placed over the CPU chip to dissipate heat away from the chip, and this can be accelerated with a fan to suck the warm air away from the chip. Although each OS has its own remote
management solutions, you can also use the cross-platform VNC remote control tool. Cataloging-in-Publication Data is on file with the Library of Congress McGraw-Hill Education books are available at special quantity discounts to use as premiums and sales promotions, or for use in corporate training programs. Exercise 4-7: Retrieve Disk
 Information Using PowerShell 1. Asynchronous Chapter 8: Preparing for the Worst 335 18. These are useful before making a critical change to a virtual machine, because they should never replace backups. Choose two. Group membership changes take effect while
affected users are logged in. Choose I Will Install The Operating System Later, and then click Next. 225 Firewalls . SSDs have no moving parts, and CompTIA Server+ Certification All-in-One Exam Guide 6 as such are quieter, consume less power, and are pretty quick; the downside is price. When DHCP clients can't reach a DHCP server, they
autoconfigure themselves with an Automatic Private IP Address (APIPA). Bear in mind that L3 and L4 cache memory is used by all CPU cores for CPU chips in a socket. To connect to each application, a user e-mail address and date of birth are required. This way you can easily revert back to the original configuration if something goes wrong in a
future lab. Which items are affected by server form factors? This is how a single phone number can have multiple extensions internally. The BIOS has the capabilities, and the CMOS retains your configuration of those capabilities, and TLS
Secure Sockets Layer was developed in the 1990s by Netscape, and the version most widely used is SSL 3.0. Like its successor, Transport Layer Security (TLS), SSL provides encryption and authentication between communicating devices over a network.
SANs use IP and NAS does not. Enable the option Create Associated Pointer (PTR) Record. Press t to change the partition type, and then enter fd to set the type to Linux raid autodetect. ABS B. Which type of backup takes the longest? Type ipconfig and press enter. Warm Site Warm sites not only comprise a location with power and communication
links, but they also have equipment in place and deploy patches using the SSCM infrastructure (see Figure 3-16). Why is the server having communication problems? Cloud backup is basically an extension of your
office or data center network hosted on provider equipment and accessed over the Internet. Factors influencing memory row • How long it takes to select a memory row is selected ECC Most server motherboards can accommodate error
correcting code (ECC) memory, small form factor (SFF) A computer form factor designed to reduce the size of a desktop computer; also a smaller hard disk size than a large form factor (SFF) A computer form factor designed to reduce the size of a desktop computer; also a smaller hard disk size than a large form factor (SFF) A computer form factor designed to reduce the size of a desktop computer; also a smaller hard disk size than a large form factor designed to reduce the size of a desktop computer; also a smaller hard disk size than a large form factor designed to reduce the size of a desktop computer; also a smaller hard disk size than a large form factor designed to reduce the size of a desktop computer; also a smaller hard disk size than a large form factor designed to reduce the size of a desktop computer.
and understanding each chapter including the questions, completing the included lab exercises, and taking the included master exams, you will greatly increase your likelihood of passing the CompTIA SK0-004 exam. • Amazon Web Services public cloud solutions. osi-model-overview-543 OSI model reference. Select the Contract A file. Whether
the older BIOS or newer UEFI firmware standard is used has no impact on the NIC selection, as long as the selection as long as the selection as long as the selection are incorrect. Issue PKI certificates to users, and configure the web apps to trust user PKI certificates. The first step in protecting a network is being very selective about
which users and devices connect to the network. Which command will show this newly added route? Move the existing operating system file to the newly created file system. More disk space will not speed up programs that are mathematically intensive, and L4 cache is not accessed as quickly by the CPU as L1 cache is. Full-duplex allows receiving
and transmitting at the same time, while half-duplex allows either transmitting or receiving at one time, but not both. Card-based Access Radio-frequency identification (RFID) chips are embedded in many types of cards, including building access cards and toll cards for roads and bridges. This technique writes a zero byte to all storage locations on a
disk. Always remember that most network services allow the port number to be changed, and that using an encrypted connection means using a different port number to be changed, and that using an encrypted connection means using a different port number.
the network switch. So in other words, AD needs DNS. On the security side, a mobile device app that can access sensitive information might be usable only within certain physical boundaries. When determining whether the UPS can support devices, the total power draw of those devices must be compared to the UPS rating. Which Linux command is
used to set file system permissions? PCI and PCIe are expansion card standards that have their own buses for moving data into and out of card slots. As we do with groups, we assign resource permissions to roles and we then assign a role occupant. The preceding IPv6 address is a link-local address because of the fe80 prefix. Click the Start menu and
type cmd, and at the command prompt, press enter. 99 Exercise 3-3: Configure the DNS Server in Windows Server 2012 R2 . Remember that encryption requires keys; proper key management is crucial in order to decrypt data when needed. • Your second subnet address is 200.200.1.64/27. CompTIA Server+ Certification All-in-One Exam Guide
400 NIC balancing See NIC teaming. 7 Server Roles . What should be configured to ensure that servers in each city test VLAN can communicate over the Internet? 3 Server CPUs . Rotational latency Before data is transferred, the disk platter must spin to the correct position to read or write. Ransomware encrypts files that infected computers
have write access to and demand payment before supposedly supplying a decryption key. Choose %Processor Time, click Add, and then click OK. You can use this value to calculate HVAC requirements to accommodate the heat generated by equipment. 234 Intrusion Detection and Prevention Systems . NAS device B. VLANs are covered it more
detail in Chapter 5. IPSec Even though it's built into IPv6, Internet Protocol Security (IPSec) also works with IPv4. It is most often used to look up an IP address when given a fully qualified domain name (FQDN). If you get a Network message about finding PCs, devices, and so on, click Yes. 341 Lab Exercise Overview . DHCP reservation C. To
contact a representative, please visit the Contact Us pages at www.mhprofessional.com. Force an immediate time sync with the NTP servers by typing w32tm /resync. I would like to say a special thank you to my family for enduring the many hours I spent preparing for and creating this book, as well as the endless techno-rambling I tend to fall prey to
—love you guys! xviii Introduction The CompTIA Server+ certification exam is becoming increasingly popular and showing up in IT job listings as a desired certification. Preparing for the Worst 319 The archive bit is not normally cleared with this
type of backup, because when the next differential backup runs, we want to copy all changed files since the last full backup (where the archive bit is normally cleared). Port addresses are also referred to as Layer 4 addresses, whether TCP or UDP. Application servers can consist of multiple components such as a front-end web server and a back-end
database that serve a specific business purpose. What should you consider? Note that "virtual disk" in this context has nothing to do with virtualization. CompTIA properties, LLC in the U.S. and internationally. Maintenance tasks, such as applying patches and firmware updates and ensuring that the server
complies with organizational configuration settings and security policy, require continual attention, so just because the server is installed and configured, it doesn't mean our work is complete. If the New Host window pops up, click its close box. Backup testing If you don't test, how can you be sure data can be restored when it is needed? 243
Exercise 6-2: Set Shared Folder Permissions . Overheating D. A large company might use dozens of routers to interconnect its internal networks. Crossover cables reverse the receive and transmit wires on each end of the cable. • ESD mat Stand on this while servicing hardware. Here's how thin provisioning works: 1. Configuring and using the
disk in the server operating system is the same regardless of drive type. The archive bit is not modified with this type of backup. Payment Card Industry Data Security Standard (PCI DSS) A proprietary security Standard (PCI DSS) A proprietary security Standard (PCI DSS).
DSS) requires (since 2006) merchants handling customer payment card information to encrypt not only data transmission on a network, but also data at rest; otherwise, they face steep fines. Kilowatts (kW), or thousands of watts, are usually used for UPS power ratings, although sometimes the rating is in volt-amperes (VA). Imagine trying to
accommodate hundreds or thousands of these servers in a server room or data center; the cost of real estate alone would be tremendous! Suffice it to say that tower servers don't scale well. To format the new partition, enter mkfs /dev/sdd1. Exam Tip

Some Linux distributions do not support Secure Boot. One benefit of using a print server to
manage printers is centralized management and security control. Sample Scenario 2 Your company is using a Fibre Channel SAN with multiple FC switches connected to SSD and hard disk storage arrays. An SNMP agent must be running on network devices. Type ping 200.1.1.1. This is the External NAT IP address of Srv2012-1, and you should not
get a reply at this point. Implement a solution or escalate. Inventory solutions may or may not have a software agent running within the OS; more detail is available when an agent is used, since it knows everything about that specific server. A directory service is a centralized and replicated database that stores network objects such as users, groups,
and computers. Users' devices on the network happen to be issuing DNS queries at the same time. Type 1 This type of hypervisor is used for more serious virtualization environments. Small form factor (SFF) disks are 2.5 inches. Instead of each of those 1000 systems downloading the same updates, we can configure centralized update management
and then run reports on update compliance. Windows A line of client operating systems developed and supported by Microsoft. If, for example, 10 Gb network switching is required, you would have to use a specific midplane with this support. What is a KVM switch used for? Dedicated leased connection D. Items found within the DR plan include the
following: • Table of contents • DR scope • Contact information • Recovery procedures CompTIA Server + Certification All-in-One Exam Guide 330 • Document revision history • Glossary Business Continuity Plan Where DR plans are specific to a system, a business continuity plan (BCP) is more comprehensive and is not as specific as a DR plan.
Multiple FC HBAs allow multiple paths from the server to network storage and provide fault tolerance. Because smaller networks—maybe a VLAN for deploying images to new computers (which slows down the network), and a separate VLAN for accounting computers.
Username, password, PIN C. The r, w, and x should be self-explanatory. • Malware infections weren't nearly as ubiquitous. Special equipment is required. This is especially critical in data centers that house hundreds or thousands of computing devices. Compressed air A. This involves restoration from a chosen backup solution, whether it is on-
premises, restoration from the cloud, or a hybrid of both. The Human Element People are the biggest security threat of all. 268 Storage Problems and Solutions . Android devices do not have Ethernet ports for network cables. Increased file integrity C. Click Add Host and then click OK. All hardware eventually fails, in some cases prematurely due to
excessive heat or perhaps ESD. Terminal Access Controller Access-Control System (TACACS) A protocol that enables a remote access server to forward a user password to an authentication server. It is not possible to study one morning and pass the SK0-004 exam the next day. Of course, the safe evacuation of personnel always takes priority over
replaceable equipment. When assigned to a drive or folder, the permissions are inherited by subordinate file system objects. Bear in mind that network switch ports where the server NICs are plugged in must be configured so that inbound server traffic can take advantage of NIC teaming. The symptom does not indicate in any way that the server
needs a private IPv4 address, DNS server, or subnet mask configuration. Chapter 6: Security 251 Questions 1. Grandfather-Father-Son (GFS) Backup rotation method that uses three backup sets such as daily, weekly, and monthly, where each tape gets rotated on a schedule. DNS DNS is a lookup service, and, much like DHCP, without it, most
network communication grinds to a halt. SAS supersedes older SCSI standards that use parallel transmission. Individual servers as well as server room racks have locking mechanisms to prevent equipment tampering. nslookup is a DNS diagnostic tool. The time interval differs between different versions of operating systems, but generally it's at 50
percent of the lease. On the Confirmation screen, click Finish and then Close. Click the Start button and type DNS. Auditing D. Cable management arm C. The Contract A file is restored. Chapter 1: Introduction to CompTIA Server+ Essentials 11 Exam Tip Knowing how to harden a handful of servers is very important. Physical Security Restricted
access to facilities is possible using fencing, lighting, security guards, guard dogs, gates, mantraps, door locking mechanisms, and security solutions such as motion detection systems, 267 Document the Solution . Modern solutions aim to remove heat or oxygen from the fire. Scary USB devices include • Smartphones • Tablets • Storage media •
Halloween skeletons (these do exist—search it up) Ransomware sends a chill of fear down the backs of all server geeks. Chapter 5: Network Concepts 187 4. Other times, servers have local disks available; yet another possibility is reaching out over a network to use disk space. HVAC (heating, ventilation, air conditioning) is a big deal for server
rooms and data centers. Click Next multiple times to accept the wizard defaults. Secure File Transfer Protocol (SFTP) FTP over SSH, which provides file access, transfer, and management over a secured connection. Remove the Network Adapter configured with NAT. File encryption C. In other words, you can interact with UNIX and Linux GUI apps
on your Windows client station. Periodic vulnerability scans should be conducted to detect weakness in hardware, operating systems, and applications. Usually measured in Mbps or Gbps. Which security standard controls port-level access to a network? SNMP C. Press n (for new partition) and then press enter, and keep pressing enter to accept the
defaults to use the entire disk for this primary partition. For this to work, the NIDS must be able to see all of the traffic. TCP and UDP TCP is one type of transport available in the TCP/IP suite; User Datagram Protocol (UDP) is the other. For the router (default gateway), enter 192.168.1.200 and click Add. Figure 6-13 shows an example of a firewall
layout in a DMZ network. Your virtual machine screen may be blank for a few seconds as the change is put into effect. 138 Storage Device Installation . Note For more information on Adobe Reader and to check for the most recent version of the software, visit Adobe's web site at www.adobe.com and search for the free Adobe Reader or look for
Adobe Reader on the product page. Sometimes the simplest physical issues can make a big difference with IT computing. Full, copy, and data to different servers. In the Terminal window, type mkdir /asia contracts. rsync UNIX and Linux admins often use the rsync
tool to replicate data between hosts. Communication links, network equipment and software, staff, as well as up-to-date data are ready to go so that business operations can continue well within the RTO. The same holds true with servers that must trust each other before transmitting sensitive information. 23 Chapter 3 Server Operating Systems. Host
B. Those 24 little bytes can really add up when you're calculating server storage needs, especially in a data center or service provider environment! We humans normally express numbers using base 10. Winrs C. route print D. It is more resistant to interference than CAT5 and has more twists per foot in the cable. Let's take a look at planning physical
hardware for a Type 1 hypervisor in Table 3-4. Depending on the specific DDoS attack, router ACLs could block some traffic as well, but doing this could require hundreds of ACL rules. SNMP management tools can access MIBs on devices over UDP port 161. The hypervisor is referred to as the host. Type back and wait for Windows Server Backup to
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appear; then click it. Many organizations use bare-metal server restoration solutions to get server operating systems up and running quickly without requiring manual installations and configurations. 299 Chapter 8 Preparing for the Worst . 142 Sample Scenario 1 . From the patch panel, we use shorter network cables that get plugged into
network equipment such as Ethernet switch ports. Cable management extender B. Chapter 2: Server Hardware 37 PCI-X PCI eXtended supersedes PCI by improving transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to and from slots with bit transfer rates up to four times to an advance of the first times to advance of the first times times to advance of the first times times to advance of the first times 
one; this tells us that something has changed. Server room doors should never be left open, even for ventilation reasons; HVAC should be taking care of that! A data center can contain thousands of physical servers (and tens or hundreds of thousands of virtual machines). 251 Questions and Answers . DHCP scopes contain address ranges and
settings such as DNS server and default gateway. Servers at each site should point to their local default gateway, not the same default gateway overall. EFS data recovery agents can be configured to grant administrators the ability to decrypt user EFS-encrypted files. Think of an expired PKI certificate on a laptop that prevents that laptop from
connecting to a VPN—sounds like a network issue, right? Rack fillers are also measured using the U system and are available with venting holes. RAID fault tolerance C. The dimensions of these pieces determine which ones fit together properly. 211 Authentication . Transfer rate The per-second rate at which data is moved into and out of disks
indicates speed of data transfer; for example, a 6 Gbps transfer rate is superior to a 2 Gbps rate. MBR-initialized disks have a maximum partition size of 2TB. 152 Questions and Answers . 37. Storing hardware components in plastic bags C. 163 Cable Installation and Management . RDP, as seen in Figure 3-14, gives admins the ability to access a
Windows server remotely to run GUI management tools, but what if the server is installed as Server Core? Enter mkdir /projects2. Ensure you are logged into RHEL7-1 with the root account with a password of Pa$$w0rdLinux. Enter get-eventlog system -newest 5. Platform as a Service (PaaS) A cloud computing service that allows subscribers to run
and manage applications without dealing with the difficulties of creating and maintaining the underlying infrastructure; often used by developers to quickly deploy database platforms used by applications. Do the same for Local disk (C:). Most switches are manageable over the network using Telnet, SSH, HTTP, or HTTPS. Besides the standard
username and password authentication, SSH can also use public-key authentication. On the left, click This PC. In fact, a large percentage of security breaches actually occur from within the network issues include the following: • Incorrect IP address, subnet mask • Incorrect default gateway, DNS server • DHCP/DNS server
unreachable • Firewalls (network ACLs) blocking legitimate traffic • Incorrect VLAN membership • Mismatched NIC speed settings Security Problems and Solutions Documentation regarding the implementation of security controls reduces time spent troubleshooting. Press ctrl-c to exit the viewing. The monitoring of server components such as CPU
use, temperature, OS health, and so on, falls under the umbrella of lights-out management (LOM) and is supported by most vendor management solutions. RAID 0 D. On the Installation Summary screen, click Installation Destination. Network load balancing (NLB) distributes incoming traffic for network services such as a web site to multiple back-end
servers running the same service and holding the same content. On the right, change Automatic (DHCP) to Manual. VLANs organize network nodes into virtual machines might be running concurrently on a single physical host. Consider
the following when choosing a backup solution: • What will be backed up? Note that you don't need to be concerned with form factors when it comes to external USB drives.) 123 4 CompTIA Server+ Certification All-in-One Exam Guide 124 Regardless of the type of storage in use, two of your main concerns will be the storage capacity and how
quickly you can read and write to storage. CAT5e Category 5 copper-wire network cabling that is designed to support up to 1000 Mbps (1 Gbps); also called 1000Base-T or Gigabit Ethernet. 123 Magnetic Hard Disks . Server Installations.
Using blade enclosures and server virtualization are two ways to reduce power consumption and heat. Other Best Practices Many simple tasks such as the following can help contribute to a dependable backup solution: • Clear and concise backup media labeling • Data retention policy Chapter 8: Preparing for the Worst 325 • Integrity verification
(often referred to as read-after-write verification) • Backup media encryption • Backup media en
not designed specifically for inventory gathering. The default gateway 18. You will see the PMs group with Read access. But really, you can't solve problems with silo thinking—in other words, you need to know about surrounding configurations (hardware, software, and network) and business processes to solve security problems effectively. Think of
the various network edge devices that enable connections to the network: • Network switches • Wireless routers • VPN appliances CompTIA Server+ Certification All-in-One Exam Guide 224 These edge devices should never perform authentication for connecting devices and users. For example, leaving a database virtual machine running in the cloud
could cost hundreds or even thousands of dollars per month. Routing and Remote Access Service (RRAS) A Microsoft Server service that enables the configuration of routing protocols, NAT, and VPNs. Routing Information Protocol (RIP) A protocol that uses hop counts as a routing metric. Because it is neither connection-oriented nor reliable
there is much less overhead at the cost of reliability. The most common types of VPN protocols are • Point-to-Point Tunneling Protocol (PPTP) • Layer 2 Tunneling Protocol (PPTP) • Layer 2 Tunneling Protocol with IPSec (L2TP/IPSec) • Secure Sockets Layer (SSL) tunnel If the VPN appliance is using an L2TP/IPSec VPN, the VPN client software must be configured accordingly.
method normally uses multiple passes to write useless random data to the hard disk. NFC B. Caution You can destroy sensitive components without even knowing it. Configure RAID 6. Asset Life Cycle On-premises servers, and even cloud servers running critical IT systems, are assets in the sense that we must apply a risk-management framework to
them to protect them throughout their useful life. The Southbridge firmware connects slower hardware such as hard disk controllers, the USB bus, PCI slots, and so on. 12 Preparing for the Worst

Many tools can accomplish this for Windows, UNIX, and Linux servers, such as Microsoft PowerShell Desired State Configuration (DSC) and System
Center Configuration Manager (SCCM). Server CPUs While a single CPU chip may suffice for a desktop, servers often have multiple physical CPU chips plugged into CPU sockets on the server motherboard. 367 3.4 Given a scenario, calculate appropriate storage capacity and plan for future growth . Windows monitoring tools include the following:
Task Manager • Resource Monitor • Reliability history • Log files Linux monitoring tools include these: • ps • top • iostat • df Network optimizations include NIC teaming, VLAN traffic isolation, and network load balancing.
and devices from different vendors. Linux A UNIX-like operating system that was created and is maintained under the free and open-source software development and distribution model. Redundant Array of Inexpensive Disks (RAID) Combines multiple physical disks into a single unit for redundancy and/or performance purposes. Only after
successful centralized authentication via the RADIUS server will the device or users be allowed to access the network. In the IPv6 Address field, enter 1:2:3:4::abcd. 376 7.1 Explain troubleshooting theory and methodologies . Hardware Optimization Naturally, getting the fastest and most reliable hardware is always desired. SSD D. Windows
machines can be configured with event subscription to forward certain type of log message to other hosts. CPU Architecture Although most modern CPUs have a 64-bit data path, you might also come across 32-bit. Cluster virtualization servers. NAS uses standard file-sharing protocols such as SMB and NFS. The machine was unable to reach a DHCI
server. This is normally built into the server motherboard. CompTIA Server+ Certification All-in-One Exam Guide 22 13. TCP 53 is used for zone transfers between DNS servers. Dynamic Access Control (DAC) offer alternatives (see Figure 6-5). disk scrubbing A
method of removing data from a disk to ensure that data remnants cannot be resurrected and data reconstructed. Nowadays that has shifted to running servers in the public cloud on somebody else's equipment. UPS systems are not designed to keep servers running other than for very short periods, nor do they increase wattage or protect from
attacks. TCP 3389 Chapter 3: Server Operating Systems 111 9. Determine the source of symptoms. Linear Tape-Open (LTO) Magnetic storage media that uses the Linear Tape File System (LTFS). There are ways to reduce the possibility of ESD—basically, taking steps to ensure that objects coming into contact with each other are equally
charged. The CompTIA Server+ exam could include questions related to users being unable to access some type of network resource because of misconfigured permissions. In the event of a disaster, equipment, software, data, and people need to be provided at the cold site. Bluetooth B. Close and save the configuration file. Read has an internal value
of 4, write is 2, and execute is 1. It's similar to a boxer doing push-ups or skipping rope; those exercises will never be used in the ring during a boxing match, but they help condition the body (and, by extension, the mind) for the real thing. IPv4 Addressing The swinging 1960s led to the development of a communications protocol in the early 1970s by
the US government, which we still use today over the Internet. U measure D. 323 Backup and Restore Best Practices . chapter Preparing for the Worst In this chapter, you will • Learn about disaster recovery • Identify threat impacts on business operations • Understand business continuity • Distinguish various replication types • Implement
appropriate backup techniques This chapter will help you proactively plan for negative incidents that can affect business operations. What type of address applies to Layer 2 switches? There are no forwarders or stub zones by default, and adding DNS server root hints will not resolve the issue. There is no Linux terminate, remove, or taskkill
command, although taskkill is a valid Windows command. DMZ A demilitarized zone (DMZ) is an external public-facing network in which we place services that should be reachable from the Internet, such as the following: • VPN appliances • SMTP mail servers • FTP servers Normally, a reverse proxy exists in the DMZ, which listens for
client requests for these services, and the services themselves exist on a different internal network that is protected by a firewall. 186 TCP and UDP . Press esc, and enter :wq to write and quit out of the new file. A DR plan document should contains items such as these: • Table of contents • Scope of the DR document • Contact information for
escalation and outsourcing • Recovery procedures • Document revision history • Glossary The mean time to repair (MTTR) is a measure of time that expresses, on average, how long it takes to get failed components back up and running. When you work with storage on-premises, you have to order storage, wait for it to be shipped, plug it in, configure
it, and then it can be used. Frequently accessed data is often stored on faster media. Have CompTIA Server toom or wiring closet? Trinity is also a member of the Site A group, which has been granted the NTFS read and
write permissions to the Expenses folder. Here are some examples: Windows Server • Tier 1 (SSD) • Tier 2 (HDD) Chapter 4: Storage (HDD) is used for frequently accessed and important data; Tier 2 storage (HDD) is used
for less frequently accessed data. • VM virtual NICs are assigned to a virtual switch. Transformers are used to supply the correct voltage. Type of NICs D. The port identifies the services running on the host, and in this case it's TCP port 3260. 163 Chapter 6 Security.. CompTIA Server+ candidates should be comfortable performing basic
administrative tasks in the Linux environment. But sometimes oldschool methods can be overlooked. XFS is a file system used by SGI IRIX operating system and some flavors of Linux. Hypertext Transfer Protocol Secure (HTTPS) HTTP communication that is encrypted with Transport Later Security (TLS) or Secure Sockets Layer (SSL), which
requires the web server to be configured with a PKI certificate. The following list includes common items you might configure on a switch: • Port duplex mode and speed • VLANs • Disabled (unused) switch ports • TCP/IP settings (for managed switches) • Port aggregation (for NIC teaming) • Port multicast support Routers Routers have at least two
interfaces that interconnect networks. Click Network Adapter, and on the right select Custom: Specific Virtual Network scans to see what kind of traffic is flying around the network. 248 Authentication . Take note that the 0.0.0.0 route is the default route;
notice the IP address of the default gateway on the same line. IPv4 clients that cannot reach DHCP will be auto-configured with an APIPA address with a prefix of 169.254. 249 IPSec . Stratum 0 NTP devices are a trusted time source. The only issue here is that we are introducing more processing work for the server OS that really should be focusing
on other tasks. 151 Disk Interfaces . IPv6 improves upon IPv4 with a larger 128-bit address space, security using IPSec, and more efficient network traffic management. The image should be pulled down over the network traffic management. The image should be pulled down over the network traffic management. The image should be pulled down over the network traffic management. The image should be pulled down over the network traffic management. The image should be pulled down over the network traffic management. The image should be pulled down over the network traffic management.
For Evaluating VMware Workstation! screen, click Close. The asterisks are wildcard symbols that will show any features containing the text dns. Microsoft Active Directory is LDAP-compliant. You may not be the network infrastructure expert in your organization, but your servers will interface with the network infrastructure in various ways. None of
these items should be a surprise, especially since most organizational security policies will insist on the creation of a DC also creates DNS service level agreements specify details such as guaranteed uptime. RFID cards, on the other hand, are not encrypted. 802.3
is the Ethernet standard, 802.5 is the token ring standard, and 802.11 defines the Wi-Fi standard. Companies often have four back-end web
servers configured the same that replicate web site content to one another. The amount or RAM or disk space is not affected by server form factors. 3. BCPs include preventative measures such as backup policies. The wipe can reset the entire device to factory settings (a full wipe), or it can wipe only corporate apps and data (a selective wipe). RAID 3
stripes bytes of data but still uses a dedicated parity disk for error recovery. Windows systems can use the diskpart.exe command line tool or the GUI Disk Management (shown next) and Server Manager tools to work with disks. Server Manager tools to work with disks.
server room and data center environmental controls are in place, plugging servers into UPS systems, and making sure that a recovery procedure exists in the event of server failure. Blade servers take the least amount of space. Your approach to these tasks will differ in a small company with a handful of servers compared to a large data center with
thousands of servers. The same is true for other higher level protocols such as SMTP, POP3, and so on. You can capture and apply server OS images using tools such as these: • Symantec Ghost Solution Suite • Microsoft DISM.exe command line tool For example, we
can capture a server OS image by booting from alternative media and using DISM: dism /Capture-Image /ImageFile:e:\Images\win 2012 R2" In this example, we are capturing an image of c:\ and storing it on drive e: (presumably an external USB drive). Mailing is used to send messages. One of your
locations is using iSCSI for server network storage. When rack equipment is slid out on rack rails, the arm extends to provide longer cable lengths. NIC teaming D. (Imagine being the head of IT for a medical practice that repartitioned hard disks from old PCs before giving the PCs to schools and charities. Does the NIC link indicator light show an
active connection? Periodic network and host vulnerability scans IT changes quickly and so do new threats; run scans frequently to identify weaknesses. CompTIA Server+ Certification All-in-One Exam Guide 404 Security as a Service (SECaaS) A business model in which a large service provider integrates its security services with a corporate
infrastructure on a subscription basis. This is often a virtual machines that mimic the production environment where possible (sometimes easier said CompTIA Server+ Certification All-in-One Exam Guide 266 than done). Dynamic Random Access Memory (DRAM) A classification for memory that requires constant
electricity to retain data stored in memory cells. File Allocation Table 32 (FAT32) A Microsoft file system stemming from the 1990s. Generally speaking, server rooms and data centers should fall somewhere in the 65° to 80°F range; for metric system people, that's 18° to 27°C. The other blade terms are fictitious. Read B. Social engineering 4.
Figure 4-9 shows thin provisioning being configured within the Windows Server 2012 R2 operating system. One way to mitigate USB threats is to disable USB ports for storage media, while allowing peripherals such as printers, keyboards, and mice. Nevertheless, a username/password combination is still the number one authentication system in use
today—go figure! Something You Have Some authentication mechanisms require that you have physical possession of something—a smartcard, for example, or a hardware token (also called security tokens or key fobs). So, 32, 64, 96, and so on (keep adding 32). 78 Hypervisor Types . Which Linux tool should you use to troubleshoot CPU resource
utilization in real-time? 14 Chapter Review . Northbridge B. This includes hands-on exercises and troubleshooting tips as well. Ensure that you are logged into Srv2012-1 with the domain Administrator account. Chances are the boot sector will be corrupt and the server will no longer boot. PKI certificate 17. DLT cartridges should be placed in
protective cases to ensure long-term data storage. Notice the version of the file in the snapshot from a minute ago. Essentially, this flag means "I have been changed and I need to be backed up!" Not every Figure 8-5 Windows file
backup solution uses the archive bit, but most do (and this can be configured in a GUI such as the Windows dialog shown in Figure 8-6), in addition to file date and time stamps. Then click Install, and then Close. Disaster Recovery IT problems could be as small as a failed drive in a RAID 5 array or as large as an entire office or data center being
unavailable. RAID 5 needs at least three disks; RAID 6 needs four, which is not an option here. Title II of this legislation deals with how digital information. What term is used to describe a virtualized operating system? • Some hypervisors
enable the replication of virtual network switch configuration among hypervisor cluster nodes. xvii Acknowledgments With each book project, I am always amazed at the collection of talented people required to make it all happen. The machine on which you plan to run VMware Workstation 10.x must have access to the ISO file. Chapter 3: Server
Operating Systems 101 5. Chapter 7: Troubleshooting and Performance Optimization 303 13. A hardware token, such as an RSA token used for VPN authentication, is synchronized with the VPN device and has a small display showing a numeric value that changes periodically—every 90 seconds, for instance. The cheapest, least functional switches
are not manageable. Drive-swappable D. But it has drawbacks: for example, ReFS doesn't support data deduplication or user disk quotas. After the DHCP server role is installed on a server, it must be configured to support the needs of the network, as discussed in the following sections. This is the most expensive type of alternate site to maintain.
Start PowerShell from the taskbar and type install-windowsfeature dns -includemanagementtools (Note that there should be no space between the - symbol and the includemanagementtools parameter.) CompTIA Server+ Certification All-in-One Exam Guide 100 3. Which port should your ACL allow? If you use a Windows print server or a Linux CUPS
print server, you can determine what printing privileges are granted to different groups of users. BitLocker encrypts entire disk volumes and removable USB thumb drives. We can't always predict how or when, but we can plan in advance for potential future negative incidents. If it's a single user or station, we know our infrastructure is good, so that
allows us to focus our attention on the most likely problem sources. This type of address is always present on IPv6 nodes. 368 CompTIA Server+ Certification All-in-One Exam Guide xvi 4.0 Security . The question states that a malware scan was performed and there was no infection. NTP assures that network devices agree on the time. 108 Server
Documentation . 27 vii CompTIA Server+ Certification All-in-One Exam Guide viii Server Components . Then click OK twice. Airflow can be controlled around racks using baffles, shrouds, and vented filler panels. Which term identifies the flow of electrons between two differently charged endpoints in a circuit? LTFS can also be used as additional
storage media for copying purposes, apart from backup purposes. Click Finish and then close the dialog box when completed. The Linux host is now consuming the disk space over the network. Configure BIOS disk fault tolerance. Hypervisor Types There are a few types of hypervisors, and each has its place in certain computing environments. Notice
that the address bar at the top indicates how old the currently viewed folder contents are. If you calculate 23 - 2, you end up with 6. Generally speaking, modern tape media has the ability to store about 2TB of compressed data with transfer rates ranging from 10 to 80 MBps. Make sure your Srv2012-1 virtual machine is running in VMware
Workstation and that you are logged on using the Domain Administrator account (Fakedomain\Administrator) with a password of Pa$$w0rd, or if you changed the password, use it. DHCP, much like DNS, is a standard network service that runs on a server or some network device such as a router (including Wi-Fi routers). Wednesday evening's backup
will include only those files changed since Tuesday evening's backup. You might consider disabling IPv6 in your network interface settings if you are sure it's not needed in your environment. Click the Windows Start menu and enter powershell. The configuration of a DFSR replication group is shown in Figure 8-3. Layer 7 A. BitLocker encrypts disk
volumes, not network communications. Secure Shell (SSH) A network protocol that provides administrators a secure way to access remote systems; uses TCP port 22. iSCSI CHAP is indeed used for authenticating initiators to targets, but it is not related to improving network performance. Like TCP, UDP-based network services are also uniquely
identified with a port number. They are placed on the network where network where network where network where network where network are common with CAT6 cables. NLA improves on older versions of RDP in the following ways: • Entering the username and password
uses client resources, not server resources. Industry regulations require multifactor authentication to be used for sensitive server systems. Printers are another story. Application hardening dialog, choose Custom:Install
Windows Only (Advanced). single data rate (SDR) memory A computer bus that transfers data only once every clock cycle. Which term is used to refer to a running virtual machine on a hypervisor? The Redundant Array of Independent Disks (RAID) takes a much more structured approach and is widely used in enterprise computing ecosystems—and
it has been for years. This is why the auto-configuration option is recommended for this setting. On the Setup Type screen, choose Typical. 218 File System Permissions . 106 Chapter Review . full-duplex Transmission of data in two directions; information can be sent and received simultaneously. A colleague, Courtney, discusses the newly
installed Layer 3 switches in the wiring closet, 177 IP . You need to know the variations on how disk subsystems can be configured and provisioned. Host Intrusion Detection System A host intrusion detection system (HIDS) detects suspicious activity related to a specific host, such as an HTTP web server running multiple web apps. Your boss is after
you to get the best possible performance for virtual machines while allowing for the possible failure of one disk. Decommission servers. Halon systems were used in the past but are no longer the norm because of their negative environmental effects. So, for example, an RPO of 12 hours means backup must never be more than 12 hours old. CompTIA
backups must occur at least every 10 hours. • "Fiber" meant nothing more than bread and cereal. Teredo D. On the installation type screen, in the Which Type Of Installation Do You Want? When infections are detected, the server or subnet must be isolated immediately; this can be done manually or automated through your antimalware solution
Wattage Server components draw power from the power supply unit (PSU), and most server-class hardware has redundant PSUs in case one fails. Chapter 5: Network Concepts 167 Several questions need to be addressed to determine cable selection criteria, including the following: • What type of connectors does our equipment support? In the case
of public cloud computing, failover and load balancing is often enabled with minimal effort, and in some cases it is automatically enabled! Server Management Long gone are the days of logging in directly at the physical space
inside a tower server. Security Problems and Solutions Plenty of problems arise from security compromises, from loss of critical business data, to reputation loss and potential lawsuits—the list goes on and on. PTR Pointer record Used in DNS reverse lookup zones. You may have to install and enable additional services such as file sharing and web
servers. The power draw for all devices that will be plugged into the UPS system should be totaled to ensure that enough power will be supplied in the event of a power failure. Incorrect default gateway C. Open the Security tab, click Add, and enter PMs. Click OK. comptia-server-(sk0-004)-objectives.pdf?sfvrsn=2 CompTIA SK0-004
Server+ exam objectives. Printed in the U.S. 02190-Nov2015. MAC addresses can also be used to control connections. Numerous factors influence disk speeds, as listed in Table 4-1. Problems are usually reported through a help desk ticketing system, which should be customized to fit your environment. Memory chips might also have to be added in
pairs for efficient use by server motherboards with multiple CPU sockets. In the address bar, enter (notice the https). Which RAID level offers the best performance? The timing interval for the Worst 309 Figure 8-1 Configuring DHCP
failover for high availability DR sites are commonly used by public cloud providers. 49 Server Components . The HOSTS file is checked before DNS servers for name resolution. This grants only read access to members of the PMs group. In the navigator on the left, click File And Storage Services, and then click Disks. The smartcard is something you
have, and the PIN is something you know—this is multifactor authentication. On-premises Backup Many organizations continue to use on-premises tape backup solutions. Your network consists of multiple web applications. Chapter 3: Server Operating Systems 99 28. Round-robin B. 243 Exercise 6-
1: Set NTFS File System Permissions . IP routing For servers with two or more NICs, determine whether routing should be enabled. Mantraps are used at building entrances where high security is a must. FCoE Fibre Channel (FC) is a high-speed transmission method often used to connect servers to network storage. RFID chips have a longer
wireless range than smartcards, which introduces more security vulnerabilities. Microsoft Active Directory-integrated zones replicate with Active Directory and do not use zone transfers. Which PowerShell cmdlet opens an interactive session with a remote host? When compared against an IP address, it separates the network portion of the IP address
from the host portion. disk striping Also called RAID 0, this distributes written data across multiple disks with the result being improved performance. There are two versions: WPA and WPA2. routetr 19. 250 Intrusion Detection and Prevention . Which of the following solutions should you use? Windows servers cannot use system restore points
Grant the Manager group modify permission to the budgets folder. These patch cables also must be correctly labeled. Magnetic Hard Disks Old-school hard disks use magnetism to store data on metal platters. IPv4 versus IPv6 D. chperm D. 291 CompTIA Server+ Certification All-in-One Exam Guide xiv Hardware Problems and Solutions . Pairing,
along with other memory requirements, can differ from one motherboard to the next, so be sure to read the motherboard documentation. Asynchronous replication 4. A change control policy dictates steps that must be taken to make configuration changes. Administrators can connect to remote servers at the hardware level, even using a friendly web
browser interface. PXE 19. After creating a storage pool from the physical disks and upon creating a virtual disk in the pool, you'll get the option to create storage tiers on the virtual disk. 368 4.1 Compare and contrast physical security methods and concepts 368 4.2 Given a scenario, apply server hardening techniques . Random Access Memory
(RAM) Computer memory; it retains information only when connected to a power source and thus is considered volatile. Presumably, if the server is that important, it has been made highly available through failover clustering—nonetheless, the failed server still needs to be corrected. For an onpremises network, you need to determine whether
server storage will be local to the server or accessed over the network. VLAN spanning tree 16. Remove the DNS server root hints. On the restart prompt, click OK, and then click Close. Create a snapshot of the installation after the computer has restarted, in case you need to revert to this configuration in the future 30. Add disks to the server.
Username B. To eliminate a single point of failure, redundant PDUs should be plugged into separate circuits. Log in to Srv2012-2 and change the following: • Configure IPv4 to obtain the IP address automatically. Key fobs, also called hardware or software tokens, depending on what is being used, have a changing numeric
code that must be entered in addition to other credentials for authentication to succeed. Hardware Inventory We can't troubleshoot or optimize something if we don't know what we have no reference point! Even virtual machines have "virtual hardware." This can be very useful when optimizing and troubleshooting, both of
which are covered later in the book. For example, Windows Server 2012 R2 has IPv6 enabled by default. What should you do? The enclosure provides • Temperature control mechanisms, including fans • Power • Network connectivity • Storage connectivity • Server remote management connections Within the enclosure, the backplane connects
server and I/O blades. 209 CompTIA Server+ Certification All-in-One Exam Guide xii The Human Element . Chapter 2 will dive into proper ESD and fire suppression practices. Which of the following are valid methods of configuring VLANs? Which spring-loaded fiber-optic cable connector is commonly used with multi-mode fiber cables? Although
switching can apply to Layers 2 and 3, it is not solely related to Layer 3. RAID organizes multiple physical disks to work together for fault tolerance and/or performance reasons. Windows ACLs The first command displays ACL entries for user DLachance in and under E:\Projects. kilobyte (KB) A unit of digital information equivalent to about 1000
bytes. This means you supply power to the switch ports, and that's it—you can't configure 5-6 A UTP cable plugged into an Ethernet switch port it any further, and you certainly can't connect to it over the network for management purposes. Disk fault tolerance will not improve
application performance. 6 Ports and Protocols . Network Interface Cards Network interface cards can be integrated on server motherboards or are available as expansion cards. That's why memory chips from a desktop, even though they might physically fit on a server motherboard, may not work correctly; they're usually non-ECC chips.
Arguably, overall server support was simpler because the software wasn't doing as many things. Optical time-domain reflectometers (OTDRs) result in traces that are used to show where fiber-optic cables are terminated and can show locations of cable breaks. So there is a 1:1 correlation between external and internal IP addresses. Blade enclosure
C. Click Next four times. A shared network folder contains Linux shell scripts. On the Linux virtual machine, in a terminal window, type ping 200.1.1.1. You should now see a reply, since NAT allows routing of IP packets; all outbound traffic from internal hosts will assume the address of 200.1.1.1. Note Network devices can use NAT only if the
internal IP address of the NAT router is set as their default gateway. fd75::883b:ced4:63g3 CompTIA Server+ Certification All-in-One Exam Guide 200 12. Some printers store queued jobs for a period of time, which could conceivably be retrieved by a determined malicious user. Volts and watts are not used to rate power supplied from a UPS system
This makes the file system less susceptible to corruption, which can occur with a power loss, for example. The maximum tolerable amount of lost data B. DHCP reservations tie an IP address to a MAC address of a device on the network. Click Begin Installation. Devices that want to communicate on a TCP/IP network must have a valid IP address
(among other things), but IP is also responsible for routing packets to different networks all over the planet. Figure 8-2 Configuring the AWS Storage Gateway Chapter 8: Preparing for the Worst 311 Exam Tip Make sure you know what distinguishes one type of alternate site from another. Tip Don't plug nonessential devices into the UPS. Base
2 is more specific (binary) and more closely reflects actual required disk space. Disk interfaces such as universal serial bus (USB), serial-attached SCSI (SAS), and fiber channel are an important consideration when working with servers, as are disk characteristics such as input/output operations per second (IOPS) and storage capacity. Special designs
enforce security; control HVAC; improve resistance to floods, fire, and earthquakes; and have backup power and communications solutions. Disk arrays normally have hot spares, disk drives plugged in and ready to take over if disks currently active in the array fail. In some cases, you might even wipe and repartition a problematic disk—just make sure
you've made a backup of the disk contents beforehand. Roman should configure an IPv6 tunneling solution that will enable the IPv6 packets to traverse the Internet (an IPv4 network). Preparing for the Worst Bad things happen. The certificate authority (CA) is at the top of the hierarchy, and it can have s ubordinate CAs, such as in a large
organization where each region may want its own CA. Add Stacey as an EFS data recovery agent. LUN masking and zoning are used to control host access to network storage. When the same key is used for encryption, it is called asymmetric
encryption. Table 2-4 PCI Express Speed Examples Number of Channels Data Transfer Rate PCIe 1.0 x1 x2 x16 250 MBps 4 GBps PCIe 2.0 x1 x16 500 MBps 8 GBps PCIe 3.0 x8 x16 8 GBps PCIe 3
physical server, you need to know which type of unused expansion slots your motherboard has (PCI, PCI-X, or PCIe). On the User Experience Improvement Program page, uncheck Help Improve VMware Workstation, and then click Next. MBR and GPT are a function of the server's firmware (BIOS/UEFI) and the operating system, not the disk itself.
 Glossary 389 cold site An alternate site used for disaster recovery. Rack-mounted and blade servers can get expensive and are not the best choices for a small operating system image gets pulled across the network from a PXE
boot server to local RAM. The body of knowledge covered for the CompTIA Server+ certification exam is valuable for any IT-related job. Hardware documentation for RAID controllers, network printers, hardware firewall appliances, and the like should be easily accessible. You can monitor resource use in Windows using a variety of tools: • Task
Manager • Resource Monitor • Performance Monitor • Data Collector Sets The Windows Resource Monitor (Figure 7-7) gives you further insight as to which processes are consuming the most disk I/O time; the other tools do not provide this detail. CompTIA Server+ Certification All-in-One Exam Guide 8 Chapter 3 will address these questions and
more: • Will the server operating system be installed onto physical hardware or in a virtual machine? Congratulations on your CompTIA certification! • Make sure to add your certification! or others, McGraw-Hill Education does
not guarantee the accuracy, adequacy, or completeness of any information and is not responsible for any errors or omissions or the results obtained from the use of such information. When starting up, the server BIOS checks critical hardware components such as power, CPU, RAM, and video to make sure they are in place and functional. TCP 3389 is
the default RDP port on Windows hosts. Most authentication today still relies on a username and password combination. Network resource unreachable • Name resolution problems • IP misconfiguration • Use nbtstat (Windows) to troubleshoot NetBIOS name resolution issues; nslookup for DNS • Make sure computer is a part of the correct VLAN •
View routing table using route print (Windows) or ip route show (Linux) • VLAN membership • Incorrect subnet mask • Incorrect route table entry Unable to connect to network • Faulty network Issues and
Solutions • Replace faulty cables • Configure switch ports to enable device access • Set NIC speed and duplex settings to autodetect • Ensure that proper authentication credentials and methods are used • Add your device MAC address to the filter list to gain network access CompTIA Server + Certification All-in-One Exam Guide 280 command to use access • Set NIC speed and duplex settings to autodetect • Ensure that proper authentication credentials and methods are used • Add your device MAC address to the filter list to gain network access CompTIA Server + Certification All-in-One Exam Guide 280 command to use access • Set NIC speed and duplex settings to autodetect • Ensure that proper authentication credentials and methods are used • Add your device MAC address to the filter list to gain network access CompTIA Server + Certification All-in-One Exam Guide 280 command to use access • Set NIC speed and duplex settings to autodetect • Ensure that proper authentication credentials are used • Add your device MAC address to the filter list to gain network access to the f
IPv6, such as when pinging a hostname; Linux systems uses the ping6 command.) Exam Tip The ping, tracert, and traceroute commands use ICMP as their transport mechanism. CUPS is the UNIX- and Linux-based print server standard. This warrants very careful attention, but it can solve the problem of a regular user not being able to run a script
or program. It was designed to support simultaneous read/write activity by cluster nodes where virtual machine hard disk files and snapshots (checkpoints) are concerned. 🍪 Download page for Windows Server 2012 R2. For example, if the problem is related to Internet connectivity, does it affect • Only a single server? You may need to scroll down
a bit to see the source and destination IP addresses. Exam Tip Remember that snapshots do not replace backups. Hardware Problems and Solutions These days, when hardware is properly maintained, it is pretty resilient to problems. Let's say, for example, that ServerA needs to download updates from windowsupdate.microsoft.com. For example and solutions These days, when hardware is properly maintained, it is pretty resilient to problems.
the Amazon Web Services (AWS) Storage Gateway is a virtual machine that runs on a customer network and can present cloud storage as virtual tapes for on-premises backup software. 180 Configuring IPv6 . CompTIA Server+ Certification All-in-One Exam Guide 390 daughter card . An expansion circuit board that gets plugged into a
motherboard. • Keep a record during all troubleshooting phases. Institute of Electronics Engineers. kill C. Full Backup As the name implies, a full backup As the name implies, a full backup set. Soft quotas 12. Windows server administrators use Routing and Remote Access Service (RRAS) to configure the following: • IPv4 and
IPv6 routing • Network address translation (NAT) • Virtual private networks as seen in Figure 3-8 Mail Protocol (POP) 110 Enables clients to download e-mail messages from the POP server Internet Message
Access Protocol (IMAP) 143 Enables clients to use different e-mail clients running on different devices to access their mail; the mail is synchronized between devices Table 3-3 Common Mail Protocols CompTIA Server+ Certification All-in-One Exam Guide 78 Figure 3-8 RRAS configuration wizard Say, for example, that you want to configure a NAT
router to enable multiple internal stations to access the Internal stations and Internal stations to access the Internal stations and Internal stations are access to access the Internal stat
written for VMware Workstation 10 running on a Windows computer. Ethernet switch A network device with multiple physical ports where network nodes such as servers, desktops, and routers can be plugged in. As if that isn't scary enough, pooling and running water can spread fires throughout a facility. Network Interface Cards Network cables
have connectors that are supposed to plug into something, and one of those items is a network interface card (NIC). 185 WINS Servers . • Web site • Database • Files/folders • Categories of data 3. DDR memory chips are not interchangeable with other DDR version standards. On the final wizard page, click Finish. 51 Questions and Answers
establishes a session with the receiving host before transmitting data, so the session layer (5) is used here. Click This PC on the left, and then right-click Local disk (C:) and choose Properties. 341 Windows . Chapter Review This chapter focused on how to install, configure, manage, and maintain server operating systems, whether they run on
physical hardware or within virtual machines. DDR3 chips cannot be plugged into DDR4 sockets. hardware RAID • Performance considerations • Consider Why It Is Relevant Hardware
RAID If you have the choice, use hardware RAID every time over software RAID. Windows DFSR is considered asynchronous replication. • Windows event viewer logs • UNIX/Linux logs • VPN appliance logs • Audit logs • File system • Privilege
use • Account management • Account logon • Client operating system logs • Group Policy • CUPS • DNS (Figure 7-1) • DHCP Figure 7-1 Windows Server DNS log CompTIA Server + Certification All-in-One Exam Guide 264 Log files should not only be stored on the device, but in a larger enterprise (especially a data center), log
forwarding or a central log viewing tool is critical. Enter install-windowsfeature fs-iscsitarget-server. Integrated Lights Out (ILO) management capabilities as well as server monitoring and alerting capabilities. Figure 7-20 Windows Performance Monitor CompTIA Server+ Certification All-in-One Exam Guide
288 Less is more. (See Chapter 4.) A 50GB primary partition is created, formatted as NTFS, and assigned drive letter E. Exam Tip Rest assured that successful CompTIA Server+ candidates are expected to know when to apply specific RAID configurations given a particular scenario. DHCP request • The client broadcasts its acceptance of the offer
which is received by the DHCP server. 1 CompTIA Server+ Certification All-in-One Exam Guide 2 • Arguably, overall server support was harder because we didn't have great Internet search engines and video tutorials. Water sprinkler systems should be avoided, unless they are a secondary system when primary fire suppression systems fail. The
existing RAID 1 mirror does not provide a performance benefit, and it should be left alone for operating system on a port address for client connections; the port must be unique on a given IP address. • Hard disks • Cloud storage •
Magnetic tape • Must data be archived for the long term? Dynamic Access Control (DAC) Permissions are granted to a resource if conditions are met. Still used by the majority of networks, most modern network equipment uses twisted pair cabling to
plug devices into wall jacks, which in turn use short patch cables to plug into switch ports back in a wiring closet or server room. Enter gedit /etc/sysconfig/network-scripts/ifcfgeno16777736 (the suffix interface name on your system may differ; enter ls /etc/sysconfig/network-scripts to find out) and press enter. Over the last hour, file reads from FS2
have been very slow. As an example, reconfiguring a host-based firewall on a server to resolve a network service communication issue might break other network services, or it might violate corporate security policy. 373 5.3 Given a scenario, install cables and implement proper cable management procedures . You can use the Deployment Image
Servicing and Management (DISM.exe) tool to work with Windows DFSR Windows DFSR Windows Server operating systems provide Distributed File System Replication (DFSR) as a role service that can synchronize folder contents between servers. Type set type=ptr and press enter after each typed command. But how do storage solutions
determine whether one piece of data is more important than another? Layer 2 B. The first clue here is redundant SAN connectivity—this means you need a dual-port FC HBA for multiple paths to different FC switches. RAID 1 Chapter 4: Storage 155 13. Smartcards and PKI certificates can be used for authentication, but they do not have a changing
numeric code. Exams can be taken in Practice Mode, or Custom Mode. Notice the new 60 GB hard disk that is now listed. Ensure that you are logged into Srv2012-1 with the Domain Administrator account (Fakedomain\Administrator) with a password of Pa$$word. This time you should not get a response. • Think high availability: What
happens if your single DHCP host crashes? This can also refer to disk volume snapshots, which copy only disk blocks changed since the previous snapshot. But this also means the bad guys (and gals) have an infrastructure in place to ply their despicable trade. Chapter 3: Server Operating Systems 103 13. This is especially true for data center
administrators, because consumers expect storage to be available when they decide to provision more space. diskpart select disk 2 clean convert gpt create partition primary size=500000 format quick fs=ntfs label="Website Content" assign letter="E" Using Microsoft PowerShell, you could initialize, partition, and format a disk, as shown in the
following example: Initialize-Disk -Number 2 New-Partition -DiskNumber 2 -AssignDriveLetter E -OfflineScanAndFix Linux Tools Like Windows, some UNIX and Linux variants provide a bootable rescuested 
mode to troubleshoot disk boot problems, often from OS installation media. One great example of this is MAC address filtering at the switch port level or with a wireless router; if your MAC address is not on the "allowed" list, you can't connect. For a more detailed packet analysis, you can capture network traffic using tools such as Wireshark, as
shown in Figure 5-11. SCSI is a decades-old standard used primarily for disk storage. CompTIA Server+ Certification and File Systems . Each chapter in this book contains not only text and practice questions that will help you achieve your
CompTIA Server+ certification, but also hands-on exercises to reinforce what was covered in each chapter. USB C. hot site A duplicate of the original network operations in case of a disaster. Compressed air 8. Thick provisioning allocates disk volume space immediately
and therefore cannot share that space simultaneously with other disk volumes. master boot record (MBR) A type of boot sector at the beginning of PC partitioned storage devices. scale out To add more nodes to a system. IP, TCP, and UDP In the TCP/IP suite, IP is responsible for routing. Chapter 2: Server Hardware 41 Figure 2-10 NEMA three
prong socket and plug Voltage When two points in a circuit have differing potential electrical charges, they are said to differ in voltage. • Solution: Ensure that hot spare disks are always available in the RAID array so that data can be rebuilt on disk and served quickly to users. You might even enable alerts based on CompTIA Server+ Certification All
in-One Exam Guide 10 configured thresholds ("We're almost out of RAM—do something!"). DAC looks at user and device Active Directory (AD) attributes to determine what level of access, if any, is granted to files and folders (resources). To prevent ESD, which can ruin electronics, ESD straps or mats should be used. Secure Media Disposal Deleting
files (soft wiping) from storage media doesn't remove it permanently. In the left hand navigator, click Volumes. A host with at least two NICs is said to be multihomed. But what if the system crashes? You want data center technicians to be able to scan equipment physically to facilitate hardware inventory gathering. Edge devices such as VPN
appliances and wireless access points can be configured to forward authentication requests to a central RADIUS server. The keys are used to authenticate the admin to the SSH host. Systems will assign themselves an APIPA address beginning with 169,254 when a DHCP server cannot be configured to forward authenticate the admin to the SSH host. Systems will assign themselves an APIPA address beginning with 169,254 when a DHCP server cannot be configured to forward authenticate the admin to the SSH host.
42U server rack can contain various pieces of equipment Network Storage Array Rack-mounted Server Blade Enclosure 42U Ethernet Switch Network Router UPS Batteries You would also normally use cable zip ties to bundle together cables from a device. This allows the virtual machine to communicate on your
network (and potentially the Internet if you have an Internet connection) while using its own unique IP addressing scheme. VLANs Chapter 5: Network Concepts 201 16. Cold sites provide a facility with power and communications links only. Simple problem resolution is much less formal and may be entirely in the control of a single technician who
can solve the problem in seconds, such as simply adding a user to a group so that the user can access a file. RDP Chapter 3: Server Operating Systems 115 Questions and Answers 1. One hypervisor might work well on a developer's laptop, while a different type of hypervisor is best for mission-critical applications. Configure a DHCP vendor class
 identifier. DNS B. Configure user claims with identify federation, and configure the web apps to trust the identity provider. The maximum tolerable amount of failed services 2. • Why were newly hired users unable to access required files? battery-backed write caching
                                                                                                                                                                                                                                                                                                                    Used with disk array controllers upon restart for data not yet written to disk
Examples include • Microsoft Hyper-V Server • VMware ESXi CompTIA Server+ Certification All-in-One Exam Guide 80 Type 2 This type of hypervisor is an application that runs on top of an existing operating s ystem. Type exit and press enter to close the PowerShell window. IPv6 requires IPSec; it is optional for IPv4. Multimeter B. You can think of
electronic memory being organized into rows and columns. Storage administrators can configure RAID disk fault tolerance. MAC addresses do not apply to OSI Layers 3, 4, or 7. Examples include the sshd daemon for remote management
or the syslogd daemon for logging. Each certificate contains many items, including a unique public and private key pair as well as an expiry date. Expansion cards need a bus to move data into and out of the card; servers use a variety of buses to move data around the system. RJ-45 D. Chapter 7 deals with both performance and troubleshooting, since
often they are related. Load balancers distribute incoming a server reduces its attack surface. On each device? If IT budgets are stretched, towers might be an attractive option, because even a standard desktop PC could be
configured with a server operating system—but, of course, this isn't designed for large-scale use. Base 10 Imagine one of your users asking you to explain a kilobyte. These days, some apps can act as software tokens. Distance B. Authentication is the process of proving one's identity, set-perm 11. Stratum 0 B. DNS servers provide a
lookup service, most often for names-to-IP addresses. HTTPS traffic uses TCP as a transport mechanism. Chapter 3: Server Operating Systems 97 11. In the Properties window, shown next, click Internet Protocol Version 6 (TCP/IPv6), and then click Properties. Test the Theory Your organization should have a sandbox testing environment used for a
variety of reasons, including troubleshooting. Disaster Recovery Sites A hot site is a facility that includes power, communications, hardware, software, data, and staff. Differential backup must capture all changes since the last full backup and thus does not clear the archive bit for backed-up files. Ransomware D. symmetric multiprocessing (SMP)
Where two or more identical physical processors with centralized memory operate under a single operating system. fe80::883b:ced4:63f3:fh97 D. If you don't do this, memory error correction will be disabled. Many mobile device users save files that they want to print to a cloud storage account that they then access from a laptop or desktop that
supports printing. Web servers normally listen on TCP port 80 and SMTP mail servers normally listen on TCP port 25, although administers can set the listening ports for most services. denial-of-service (DoS) attack —An attack that prevents the legitimate use of a computing resource—for example, flooding a host with specially crafted packets could
cause the host to crash. Switching C. Remember the old saying, "If you build it, they will come"? Where possible, verify that what you are told on the phone or through a help desk ticket is, in fact, correct. Click Add Roles And Features. Think of the dreaded "Operating system not found" message on a server, server core. A minimal server installation
of a Windows Server OS that does not include GUI components. One part of this is trying to anticipate server storage needs. Mailing C. RDP listens on UDP and TCP port 3389 by default. Choose I Will Set Up Name And Address Services Later. You'll find more in Table C-6. Make sure the server PKI certificates allow domain controller replication.
Back up existing settings first, and follow proper change management procedures. The DR plan must be updated periodically to reflect changing threats. 375 7.0 Troubleshooting . In addition, fe80::883b:ced4:63f3:fh97 and fd75::883b:ced4:63f3:fh97 and fd75::885b:ced4:63f3:fh97 and fd75::885b:ced4:fh97 and fd75::885b:ced4:fh97 and fd75::885b:ced4:fh97 and fd75::885b:
network cables, the bend radius is four times the diameter of the cable—this works out to be about 1 inch. A trailing 0 is normally used to identify a network address. The other aspect of the human security element is user awareness and training. Simultaneous journaling is not a valid feature. Enter fdisk -l /dev/sdb /dev/sdc to verify that the Linux
RAID autodetect partition flag has been set on both disk partitions. Service level agreement (SLA) A contract between the end user and the service provider that dictates what is expected of both parties. Which type of replication provides a near-zero RTO? file integrity See hashing. Right-click the Ethernet0 adapter and choose Rename. Right-click
ProjectManagers and choose New, Group; name it PMs. Accept all other defaults. Start PowerShell from the taskbar and type install-windowsfeature dhop -includemanagementtools 3. RADIUS supplicant C. Too few permissions can also mean applications won't launch. Switch back to Performance Monitor and notice the graph spikes. iSCSI traffic
should be kept separate from other TCP/IP traffic by configuring a dedicated iSCSI VLAN. We need an example. The server is discovered in DNS through service location records and performs authentication and replication with other domain controllers, and it provides Group Policy settings. Figure 7-18 Viewing Telnet captured network traffic in
Wireshark Figure 7-19 Hashing files in Linux using md5sum Chapter 7: Troubleshooting and Performance Optimization 287 Performance Op
the TCP or UDP port numbers for the service. BIOS versus UEFI CompTIA Server+ Certification All-in-One Exam Guide 58 A. What might the problem be? For example, adding more RAM to a hypervisor server makes sense, because it will host multiple virtual machines, but at the software level, each virtual machine might be configured with dynamic
memory, cipher A. Some companies have policy-driven software that automatically archives data not accessed frequently to slower, cheaper storage media (a different storage tier), or even to the cloud, 126 Disk Interfaces. TCP is a transport layer (4) protocol. Trivial File Transfer Protocol (TFTP). A protocol that is a simple version of FTP used
when user authentication is not required, such as with PXE boot. Hard disk drives (HDDs) are vacuum-sealed and contain multiple platters, each having read and write heads on an actuator arm to read and write data as the platter spins. Add DNS server root hints. It does this by using an extra bit of information (the parity bit) for each group of
memory bits. Encrypting Data at Rest Encryption of data at rest prevents unauthorized access to stored sensitive data. If SSL or TLS will be used, a Public Key Infrastructure (PKI) certificate is required for the web server (not clients). It should also include preventative measures that show stakeholders that the organization is committed to being
prepared for the worst. MAC addresses are 48 bits long. DHCP A. You need to understand RAID levels so that you can configure disks to best suit a particular server need. 372 5.1 Given a scenario, configure servers to use IP addressing and network infrastructure services ... Heuristic analysis does not use signature comparisons for malware and
network attacks; instead, it tracks what appears to be abnormal or suspicious activity. Points to an A record that has the IP address of an SMTP mail server. Chapter 2: Server Hardware 25 Another possibility is a central IT office that preconfigures servers to be used in branch offices. NIC homing B. Special cases and rails are used so that rack-
mounted equipment can be easily inserted and removed from racks. Of course, grouping disks together provides vastly greater storage capacity. On the left side of the screen, notice that the Network Adapter is configured for NAT. Mainframes have long decoupled applications and user environments from the underlying hardware to enable multiple
concurrent isolated computing sessions. Configure a PIN requirement in addition to current authentication settings. Some specific services, such as DHCP, can be specifically configure 8-1, 145 Exercise 4-2: Use the Red Hat Enterprise Linux 7 iSCSI Initiator to Connect to an iSCSI Target ... • Some Type 1 hypervisors
require a dedicated NIC for management purposes. Remote Wipe Mobile devices. Technicians in the it admins group are unable to run scripts from the /scripts folder. These are Layer 2 addresses, getfacl -R /budgets >/budget acls setfacl -restore=/budget acls Too
Many Permissions When someone needs permissions quickly to do something in Windows, it's tempting to add the user to the Administrators (local) or Domain Admins (Active Directory) group to expedite the request—but this is blatant disregard for the principle of least privilege! Users must be granted only those permissions required to complete a
job task and nothing more. Glossary 395 hardware compatibility list (HCL) A list of hardware that is compatible with a specific operating system. Plus, you need to be sure you're applying the correct version of the update. Bear in mind that a single fiber-optic cable could consist of more than one singlemode fiber core. User Account Control D.
rollover cable A cable used to connect a computer directly to a router's console port. Dism /Add-Image /ImageFile:Z:\win10 images.wim /CaptureDir:C:\ /Name:win10 sales C. zero-day A vulnerability in a program that is unknown to the vendor. rsync is often used in Linux to synchronize file systems between hosts. Fiber-optic offers benefits such
as the following: • Multiple channels carried in a single fiber rather than requiring many copper network cables • Not susceptible to EMI • Lightweight, so it works well in places such as aircraft • No possibility of sparks, so it's good in explosive environments • Difficult to eavesdrop (wiretap) Fiber-optic cabling is rarely used for desktop computing
environments because of its cost, but it is used for server networks and internetwork connections. CMOS Complementary metal oxide semiconductor; battery-powered firmware used to retain hardware settings available in the BIOS. Ensure that Wired is selected on the left, and then click the configure icon (cog icon) at the bottom right. SANs use
specific block I/O protocols and NAS uses standard file-sharing protocols. It can become more involved than that, however. For the Quota Path, enter any local drive letter other than C:, followed by Projects, for example, E:\Projects, for example, E:\Projects. This means your data transfer rate is effectively doubled. Chapter 6: Security 219 Figure 6-6 NTFS standard
permissions NTFS permissions can be assigned to a drive, a folder, or a file. RAID disk striping D. One way to allow only digitally signed scripts from a trusted signer, as shown in Figure 6-16. World Wide Name (WWN) A unique identifier used in Fibre Channel,
ATA, and SAS as well as other storage technologies. It supersedes the insecure Telnet protocol, which sends credentials in clear text. A separate network switches, should be dedicated for iSCSI use; there's enough overhead involved already by stuffing disk
commands into IP packets that need to be addressed and transmitted. Click Finish Configuration at the bottom right. IP addresses would still be involved even on the same network, and IP addresses are Layer 3 addresses would still be involved even on the same network, and IP addresses are Layer 3 addresses are Layer 3 addresses. How Many Bits? Use the formula 2 number of borrowed host bits - 2. 307 Alternate Sites . MultiNICed and NIC homing are
made-up words. TDRs are used to identify where cable faults exist, while tone and probe generators are used to identify specific cables in large cable bunches, by sending a tone through wires in a wall jack and identifying that signal at the other end of the cable in a wiring closet. For example, in some cases, there just isn't enough time to perform a
nightly full backup of all data on an enterprise storage area network (SAN). A plan is needed to get the server up and running again as quickly as possible. There is no such thing as IPv6 replication. Power required for all internal
components and to make sure the PSU form factor matches the server chassis form factor matches the server chassis form factor matches the server chassis form factor. In the left navigator expand Certificates. Server-to-Server Also called host-to-host replication, this solution uses software within the server operating system to replicate data between two or more servers. CompTIA Server+ Certification All-in-One Exam Guide
290 Exercise 7-2: Explore Linux Performance Monitoring Tools 1. RJ-45 connectors are shown in Figure 5-3. By default, all 24 ports are grouped into the same VLAN. Revert the server using a system restore point. The RPO relates to the amount of tolerable data loss and is normally associated with backup frequency, scale up — To add more resources
to a single node. This can be used once in an IPv6 address—it represents a series of 0's, which is really the absence of a value. 156 Chapter 5 Network Concepts . Because the amount of available tape backup media is finite, media reuse in inevitable. Differential C. It's similar conceptually to a separate channel of communication. 1 2 3 4 5 6 7 8 9
LCR 21 20 19 18 17 16 ISBN: Book p/n 978-1-25-983800-2 and CD p/n 978-1-25-983801-3 of set 1-25-983801-3 of set 1-25-983803-X Sponsoring Editor Hilary Flood Technical Editor S. Your network servers point to NTP time servers connected to reference clocks. Preparation is the key.
Which Linux command can be used to terminate a roque process? Click the check mark under the Allow column for Modify, and then click OK twice. Services that must be reached from the Internet such as VPNs and public web sites should be placed in the DMZ. multihoming A host with two or more network interfaces. If, for instance, you are
responsible for maintaining SUSE Linux Enterprise Server 11 computers, you should have OS documentation readily available, perhaps through an organized list of bookmarks in your web browser. Your virtual machine settings will then list four virtual hard disks as shown in the following illustration. Click the Configure Active Directory Certificate
Services On This Server link to complete the Certification Authority configuration. CompTIA Server+ Certification All-in-One Exam Guide 176 Interface 2 Ethernet switch 2 Figure 5-7 A simple network infrastructure Because it deals with IP addresses and transferring network traffic to
remote networks, a router is said to be a Layer 3 device. SRAM uses transistors to retain data, which speeds up data access. RAID controllers 22. full backup A backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 22. full backup in which all selected files and folders are backed up. Close the Controllers 23. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. full backup in which all selected files are backed up. Close the Controllers 24. f
radio-frequency identification (RFID) A way of using radio frequencies to identify and track tags attached to objects. Stronger encryption B. How critical is it that the server stay up and running? NAT • Virtual NICs • Virtual switches • Video 3.0 Storage 3.1 Given a scenario, install and deploy primary storage devices based on given specifications
and interfaces • Disk specifications • RPM • Dimensions/form factor • Capacity • Bus width Appendix D: CompTIA Server+ Certification Exam Objectives (SK0-004) 367 • IOPS • Seek time and latency • Hotswap vs. Create a second virtual machine by cloning the one we just created 32. In the field to the right, type mheducation. top 15. A UTP cable
is shown in Figure 5-2. Establish a plan of action. Cloud providers charge a subscription fee in addition to usage charges. Hypervisor D. IPv6 leased connection C. The Windows ipconfig command includes a /flushdns parameter that clears out the client DNS records have changed recently. Technicians might use external
bootable USB drives to apply the bare-metal images, or a network PXE boot environment might be first configured to enable multiple simultaneous bare-metal deployments over the network. CompTIA Server+ Certification All-in-One Exam Guide 282 Servers should never be used as desktop computers. Rules must be configured to ensure that IDS and
IPS solutions are effective in a specific network environment. Port numbers are 16-bit values tied either to TCP or UDP. • Enable multifactor authentication. Incremental D. CompTIA Server+ Certification All-in-One Exam Guide 148 5. Aaron is a network technician linking two older Ethernet switches together with a straight-through network cable.
101 Exercise 3-5: Install an Active Directory Server in Windows Server 2012 R2 . Be careful with this in production environments because systems can be disrupted and sensitive data disclosed. 110 C. This prevents service accounts from either having no password or keeping the same password for extended periods of time. It's 224 because in
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binary, the last octet is 11100000. MX records are mail exchange records used to locate SMTP mail servers. Interested listeners must be registered with the multicast group address to receive transmissions. Suffice it to say the standard firewalls are not designed to mitigate DDoS attacks. Plastic cable ties and hook-and-loop fasteners can be used to keep bundles of network cables together. TCP is the Transmission Control Protocol; it is a reliable connect-oriented transport protocol within the TCP/IP suite. Which of the following are considered out-of-band server management solutions? Add a check mark to the Web Server (IIS) option if prompted to install tools accept. Type Internal and then press enter. Those using Linux systems can use the old fdisk command to work with MBR; the gdisk command is used for GPT. B, C, and D are incorrect. Type B A. There are different DDR standards, or versions, and they are not compatible with one another. Differential backups capture all changes since the last full backup. L1 cache D. Make sure you are logged into the Srv2012-1 virtual machine with the Administrator account (Fakedomain\Administrator) with a password of Pa\$\$w0rd (or whatever you have indicated as the password). Disks can be grouped together to increase disk read and write performance, to increase fault tolerance when disks fail, or both. The column access strobe (CAS) latency defines how long it takes for requested memory contents to leave the actual memory conte tokens issued from a trusted identity store. To cut to the chase, DHCP is nothing more than TCP/IP settings configured centrally and delivered to clients over the network. Despite "fibre" being in the name, it does not require fiber-optic cabling; standard twisted pair copper cables will work just fine. You'll need the appropriate access to install software on the computer and it will have to meet hardware requirements listed in the following sections. Notice the version of the Contracts folder from when the snapshot was manually created earlier in this exercise. • Use a test environment. getfacl and setfacl are Linux commands, and cipher is a Windows command for working with the Encrypting File System (EFS). Storage Tiers All storage and data are not equal: SSDs offer better performance than hard disks, and valuable data should be quickly accessible. CUPS Chapter 3: Server Operating Systems 113 17. Learn more about what the exam covers by reviewing the following: Purchase a voucher at a Pearson VUE testing center or at CompTIAstore.com. Accounting department computers do not need to communicate with other computers. Open source Single Sign-On identify provider solution. Using PowerShell scripts for automating Windows Server administrative tasks is becoming more and more popular. Chapter 8: Preparing for the Worst 339 14. The fakedomain.local AD domain now exists. iSCSI Internet Small Computer Systems Interface; SCSI disk commands are placed into IP packets, which enables servers to connect to network storage using standard network equipment. Windows servers typically use NTFS, where Linux servers vary: Ext3, Ext4, and ReiserFS are common. 361 2.1 Install and configure server operating systems . 4G 3. Common Copper Cable Uses . When the eight copper wires in a network cable are in the same position at both ends (the pin 1 wire on one end corresponds to pin 1 on the other end of the cable), we have a straight-through cable. gigabyte (GB) . A unit of digital information equivalent to about 1 billion bytes, or 1000 megabytes. Upon restart, cached data is actually committed to disk. This is done by using host bits so that you can address your subnets. You need to understand storage options at both hardware and software levels, because when the data storage is seen by the server operating system, it needs to be c onfigured—initialized, partitioned, and formatted. A much more exhaustive list will be presented in Chapter 5. IPv6 also includes built-in mechanisms that improve network quality of service (QoS) as well as security. Server authentication to protected web sites is often performed by an underlying DS, whether the web site is on-premises or in the cloud. cipher An algorithm used for encryption, decryption, decryption, or hashing mathematical operations. Chapter 4: Storage 151 Chapter end switches will use fiber-optic cabling to link together, or trunk, switches. UDP port 22 is blocked on Server2. APIPA addresses are the result of a device not being able to contact a DHCP server. Click OK three times to return to Windows Explorer. The root, or top-level, CA should be kept offline, because if it is compromised, so, too, are all certificates issued within that hierarchy. Bus C. TX D. Some folks learn best by doing; that's why you'll find hands-on exercises using both Windows and Linux at the end of each chapter. The goal is to keep equipment cool and energy costs down. Figure 6-15 shows key options when configuring Windows Firewall, including using the Kerberos protocol, certificates, and preshared keys. Open PowerShell icon (third icon from the bottom left on the taskbar). Type ifup eno16777736 and press enter (your interface name may be different; you can type ifconfig to see its name). Assigning permissions to groups, not users Managing permissions for individual users doesn't scale well and can present a security risk for forgotten user permissions. The c means create, v means create, v means compress with gzip utility, and f means file. Incorrect subnet mask B. NICs have a unique 48-bit hardware address and support enhanced features such as Wake-on-LAN, PXE boot, and NIC teaming. The 7 applies to the file or directory owner; it is the sum of 4 + 2 + 1 (r + w + x), so it means the owner has read, write, and execute permissions. Enter get-windows/eature \*isci\*. Windows Visit the TechNet Evaluation Center at microsoft.com/en-us/evalcenter/evaluatewindows-server-2012-r2, as shown in Figure A-3, to download the Windows Server 2012 R2 installation ISO file. The answer Since the server room rack totals 42U, and 31U are currently used, that leaves us with 11U (42-31). Which setting is incorrect? On the Backup Schedule Wizard screen, click Next. southbridge The second chip of the chipset on a computer mother board. network intrusion prevention (NIP) A system used to detect and prevent exploits or attacks. In-band Remote Administration This type of remote management relies on software running within the OS. Acquire the installation media for your chosen server operating system. Glossary 401 Point-to-Point Tunneling Protocol (PPTP) Microsoft's standard VPN solution that uses Microsoft Point-to-Point Encryption (MPPE) for encryption. Virtual machine snapshots are a point-in-time picture of virtual machine settings and data. They do not support OS booting from SAN. Russ holds a bachelor's degree in business administration from the University of Memphis. Another consideration was the card height, and this is an issue affecting more than just PCI cards. Click Add at the bottom of the screen choose Network Adapter, and then click Next. We want our server to have four hard disks in total so that we can configure software RAID later. What is the primary difference between the categories of copper-based network cables? 4 Environmental Factors . Blade Servers Blade servers make me think of Star Trek: a technician inserts a highly sophisticated card into a slot to prevent the destruction of the USS Enterprise. This is more useful than the ping command, which would simply report that the host is unreachable. WINS uses a flat naming structure; DNS uses a flat naming structure; DNS uses a flat naming structure. partitions, each being 256TB in size. Hardening Hardening is an all-encompassing term used to describe how we lock down or tighten security. PXE boot works best with Dynamic Host Configuration Protocol (DHCP) to assign IP settings dynamically to PXE boot clients, and this is common as a server network imaging solution. 30. 200.1.1.0 is a reserved IP range. Fiber-optic Connectors Just as copper cables have their specific connectors, so, too, do fiber-optic cables. PKI certificate A. The recovery time objective (RTO) is the maximum amount of time that can be tolerated for an IT service to be down before it has a negative impact on the business. If you want to get passing marks on the first attempt, prepare for the CompTIA SK0-004 exam daily. Type 1 hypervisors have direct access to hardware without going through an operating system. Make your life easier! UEFI Unified extensible firmware interface (UEFI) is the new BIOS: BIOS is old, and UEFI is new. Protects server from malicious attacks CompTIA Server+ Certification Allin-One Exam Guide 54 16. 86 In-band Remote Administration . You can interrupt this if it takes too long by pressing ctrl-c. • Determine any hardware incompatibilities. Node C. MBR is the old 1980s 32-bit standard for disk initialization that supports a maximum of four primary disk partitions, each being no larger than 2TB in size. Under How Do You Want To Configure Quota Properties?, choose Define Custom Quota Properties. You should see the Address (192.168.1.200) returned for the host. For example, we might perform a full backup each Saturday and an incremental backup each weeknight. A server can have multiple identical physical CPUs working together via symmetric multiprocessing (SMP), but of course the server motherboard must have sockets to accommodate the CPUs. So by distributing work among a group of CPUs, we reduce the amount of time it takes to complete the work. Figure 8-9 shows the Microsoft Azure cloud service. Double-click DataCollector01. Switch administrators can also control VLAN membership by MAC address, by protocol used on the client device, and by higher level applications in use. C and D are incorrect. UDP 161 B. Remote Desktop Protocol (RDP) A Microsoft protocol used to provide a GUI to connect to another computer over a network; uses TCP port 3389. Which of the following statements regarding Active Directory groups is false? 372 5.2 Compare and contrast various ports and protocols . Computers contain multiple buses that transmit data throughout the system. • Applying patches didn't occupy nearly as much of our time. Table 7-1 lists common hardware problems and solutions. Note . Most servers and related equipment have hardware sensors that detect environmental conditions such as temperature. 109 Questions . Therefore, a smaller MTTR value is desirable. Which spring-loaded fiber-optic cable connector is commonly used with multimode fiber cables? • Follow OS and application best practices. Figure 7-4 Windows Server 2012 R2 failed software RAID 5 array CompTIA Server+ Certification All-in-One Exam Guide 268 Document the Solution Throughout the troubleshooting process, your structured approach will eventually reveal a root cause and related remedies to prevent future occurrences. Disaster recovery plans must take the RTO into account. Ensure that New iSCSI Target is selected and click Next. Server Administration Methods Server administration methods include the following: • Locally at the console • Remotely using Telnet or SSH • Remotely using Telnet tar Command You can also use the Linux tar (tape archiver) command to create a primary partition, and then press enter four times to create a primary partition that consumes the entire disk. Appendix Real-World Best Practices Certified CompTIA Server+ technicians are expected to understand not only concepts, but how they are applicable in real network, it makes sense to place tiered storage capabilities in front of SAN storage. Table C-2 Virtualization Best Practices Details to Consider Why It is Relevant Is cloud computing the right choice for your company? PowerShell DSC can even be used to manage cloud virtual machines. 241 Hands-on Exercises . • Solution: Create new users from a template that includes required groups. During the preparation, you can be confused about CompTIA exam question types, exam pattern, and allocated time to attempt questions of the CompTIA Server+ certification exam. Chapter 2: Server Hardware 63 25. ACK Sent by the initiator, this acknowledges receipt of the target's ISN. WinRM and PowerShell Windows admins can also use PowerShell to manage Windows servers remotely at the command line. A new blade server has arrived 343 Acquiring Windows and Linux Installation Media . In this case, a DNS server controlling the data for only mheducation.local is said to be authoritative over the mheducation Media . In this case, a DNS server controlling the data for only mheducation under lock and key, and encrypt any files containing this stuff. 291 Troubleshooting Methodology . IPv6 does something similar, but not exactly the same. This will run the commands with elevated privileges. Your Windows or Linux server can easily be made into a RADIUS server by installing the appropriate software and configuring a RADIUS server by installing the appropriate software and configuring a RADIUS server (see Figure 6-10). CAT6 Category 6 copper-wire network cabling that is designed to support up to 10 Gbps. Add members to the group, input/output operations per second (IOPS) A unit of measurement for the maximum number of reads and writes a storage device can perform per second. A service level agreement (SLA) is a contract between a provider and consumer stating expected levels of service, including details such as uptime and response time. If you are not logged in with the root user account, you will need to precede Linux commands with sudo for elevated privileges. • VMs can be configured with dynamic memory; VMs needing RAM can get it from other VMs not needing it at the time. Determine UPS kW or VA rating, calculate power draw sum of devices. widgets.local, even though other stations do not have this problem; the error messages states "Unknown Host." The technician successfully pings the default gateway to verify a valid IP configuration from Charlie's station. In Server Manager, click the flag notification icon in the upper right. Backup and Restore Best Practices After you select a backup solution, you need to use and maintain it properly. 802.5 D. Configure a DHCP reservation. All rights reserved. Each AIT data cartridge contains a chip with metadata, which means that the backup catalog can be accessed quickly, regardless of what part of the tape is currently being accessed. Maintaining Servers With inventory in place, server maintenance becomes easier through automated inventory and documentation. • Our financial systems do it this way. In the left-hand navigator, expand Quota Management by clicking the triangle icon. Asynchronous B. Enter the name of the new virtual disk, Vdisk1, and click Next. As such, Server+ candidates are required to have a solid understanding of both IPv4 and IPv6. Click Apply. For example, to create a compressed archive called UserFiles tar.gz /UserFiles tar.gz /UserFiles tar.gz /UserFiles folder, you would use the following: tar -cvzf /Backup/UserFiles tar.gz /UserFiles tar.gz /UserFiles tar.gz /UserFiles tar.gz /UserFiles folder, you would use the following: tar -cvzf /Backup/UserFiles tar.gz /UserFiles v Display verbose output -z Compress the archive with gzip -f Specify the path and filename of the archive CompTIA Server + Certification All-in-One Exam Guide 312 To decompress the same archive and re-create the folder on /, you would use the following: tar zxvf /Backup/UserFiles.tar.gz -C / The Linux dd (disk dump) command can also be used to back up specific disk blocks or even entire partitions. Should the machine be plugged into a wall outlet? principle of least privilege A policy that every user, process, or program is granted access only to resources that are necessary to complete a specific task, and nothing more. The reverse proxy forwards these requests to a different host where the network service actually resides. In addition, Chapter 3: Server Operating Systems 77 cloud printing devices, which do not offer great printing support—certainly not for a large variety of printing devices. Now you have only 5 bits to address devices on each subnet! Subnet Addresses Next you have to come up with valid subnet IDs. One way to do this is to map the last octet (in our specific case) manually to a binary conversion table. NIC teaming is used to group together server NICs to increase bandwidth or redundancy. Keep in mind that even if multiple scans do not detect an infection, this doesn't mean the system is not infected; a zero-day attack may be the culprit, for example, which will not be detected by a virus scan that isn't looking for it. UEFI is a firmware standard that succeeds BIOS. Backup Media Now that you understand the types of backups and the reasons for doing so, let's consider where the backup data can be stored. For the computer name, type Srv2012-1 and click OK. Stratum 3 CompTIA Server+ Certification All-in-One Exam Guide 112 13. You can't use 64 because it identifies the second subnet, so 63 is valid, right? The malicious user can provide instructions for the group of computers, much like an army general ordering soldiers to perform a task. intrusion detection (ID) A device or program that monitors a network or system for security. Some offer more advanced features such as encryption and local file system security. Some offer more advanced features such as encryption and local file system security. Permissions in Linux 1. Name Resolution DNS servers are queried by clients on UDP port 53 primarily for name resolution, where an FQDN is supplied and a corresponding IP address is returned. Both flash storage types are shown in Figure 4-2. asynchronous replication DNS servers are queried by clients on UDP port 53 primarily for name resolution, where an FQDN is supplied and a corresponding IP address is returned. Both flash storage types are shown in Figure 4-2. before the secondary write takes place. This is also true when new files are created; the OS sets the archive bit on. Click the Find button on the far right. 209 Chapter 7 Troubleshooting and Performance Optimization. Legacy software might still require this on modern networks, but let's face it, that would be the exception and not the rule! WINS is a centralized and replicated database of NetBIOS computer names and their IP addresses; there is no naming hierarchy as there is with DNS. Which port does a DNS server listen on for client queries? 30 CPUs . A baseboard management controller (BMC) is the interface between server management tools and the physical server hardware being managed. 124 Solid-State Drives . icacls E:\Projects /T | find "DLachance" icacls E:\Projects ACLs Server1} /T icacls E:\Projects ACLs Server1} If users were once able to open files and now cannot, ACLs might have been changed, so you can use icacls in this case. Exercise 3-3: Configure the DNS Server in Windows Server 2012 R2 1. Chapter 3: Server Operating Systems 121 20. UNIX and Linux server OSs generally support the following file system (UFS) • Zettabyte File System (UFS) • Zettabyt today's Linux environments, although development support for ReiserFS appears to be waning. Intrusion prevention systems (IPSs) take this a step further by taking action to stop the activity from continuing. For example, VoIP traffic is normally given a higher priority than SMTP traffic on a network. Use the ipconfig /all Windows command to view DHCP server and lease information, as shown in the next illustration. The Windows route command (ip route show in Linux) can be used to display or modify routing table entries on a Windows server. Capacity C. In the left-hand navigator, click File And Storage Services, and then click Storage Pools. Instead of an internal CA, you can also pay a fee and acquire PKI certificates issued to third-party trusted CAs on the Internet, such as Google, DigiCert, and Symantec (formerly Verisign), to name a few. UPS systems enable servers to shut down properly instead of abruptly, which can corrupt open files. You can use SDLT in older DLT systems, but only with read access. 40 Voltage . What term is used to describe the smartphone? One problem with groups is that you might need hundreds of groups to manage resources access, and that's a lot of additional items to manage. human interface device (HID) A computer device that interfaces directly and takes input from people, such as a stylus, mouse, or keyboard. Smartcards, such as debit and credit cards, are designed to be used for payment systems, and they have more security built in. 100 Exercise 3-4: Install the DHCP Server in Windows Server 2012 R2 . Driver rollback reverts only the change to the driver. Companies and individuals can register a unique DNS domain name through a DNS authority such as FreeDNS, GoDaddy, and others. This can improve airflow, which can also save money by saving energy in the long run. 96 Exercise 3-2: Install the DNS Server Role in Windows Server 2012 R2 . 371 5.0 Networking . Start PowerShell from the taskbar and type install-windowsfeature ad-domain-services - includemanagementtools 3. The Linux disk free (df) command (Figure 7-12) has a -h (human readable) switch to show file systems and their disk space usage statistics in terms of megabytes, and so on, instead of in units of 1KB blocks: df -h Figure 7-11 Repairing an XFS file system using xfs repair in Linux Figure 7-12. Viewing disk free space in Linux using the df command CompTIA Server+ Certification All-in-One Exam Guide 278 Figure 7-13 Viewing disk I/O statistics using the iostat Linux command To determine which Linux disk device has the most I/O activity, use the iostat command, as shown in Figure 7-13. Choose Custom and click Next. Chapter 6: Security 257 7. To look up the best way to send packets to a remote network, routers consult their routing tables, which include information about other IP networks and characteristics (routing metrics) such as the route cost, how many hops (routers) the packet would have to go through before arriving at its destination, and so on. Common VPN types include PPTP, L2TP/IPSec, and SSL. • How will we secure the server? GPT B. When admins RDP into Server Core, they simply get a command prompt. Configure device claims with identify federation, and configure the web apps to trust the devices. Hot B. Enter the name of the storage pool, SwRaid, and click Next. Server needs to be patched C. With base 2, we would say 210 = 1024 (2 × 2 = 4, 4 × 2 = 8, and so on). Tower server motherboards will most likely accommodate PCI. shielded twisted pair (STP) A type of twisted-pair cable that has an additional outer covering to protect against outside interference. 108 Server Maintenance . Hot D. You can download and configure the free PuTTY tool to make SSH connections to network devices including UNIX and Linux hosts from within a Windows environment, as shown in Figure 3-13. CompTIA Server+ Certification All-in-One Exam Guide 192 10. On the License Agreement screen, select I Accept The Terms In The License Agreement, and then click Next. Type service network restart and press enter to put the settings into effect. The more CPUs and RAM in a system, the greater the power draw. Some hardware appliances and software configurations require the use of certain ciphers. Encrypt data at rest Protect storage arrays, cloud storage, and smartphones. For example, to configure a network ACL on a Cisco router, we would type the following: interface ethernet0 ip access-group 102 in ac destination port is equal (eq) to www (TCP 80). Press enter after each command you issue in this exercise. Windows Tools You can manage and troubleshoot disks on Windows servers in a number of ways. PXE A, B. The standard two-prong (or three-prong with ground) plug used in North America, the NEMA connector (National Electronic Manufacturers Association), is shown in Figure 2-10. 44 Temperature . Most blades have a USB connector on the front in case you want to connect external components such as a DVD drive. Chapter 1: Introduction to CompTIA Server+ Essentials 5 The more equipment you have, the greater the power draw, which means more heat is generated which means more cooling is required. 10. Which disk speed factor does not apply to SSDs? 1 chapter Introduction to CompTIA Server+ Essentials In this chapter, you will • Learn about server hardware components • Review the basics of monitoring and maintaining server operating systems • Review basic security concepts • Learn about troubleshooting and optimizing performance • Learn about troubleshooting a performance • Learn about troubleshooting and optimizing pe example, flooding a host with specially crafted packets could cause the host to crash, but what makes this different from a DoS attack is that multiple hosts under malicious user control are involved in executing the attack against the victim host or network. They're gone; you lose IP addresses when you subnet because you have less host bits to work with. A logical unit number is a unit of disk space with a unique ID that is prepared by a storage administrator for use by a specific server. For example, cables plugged into infrastructure equipment such as switches and routers might all be colored orange. For instance, tower servers take up more space than their slimmer cousins, blade and rackmount servers. This can be reduced with wire shielding and by twisting wire pairs together a specific amount of times per foot. Other security issues include the following: • Malware infections • Inadequate authentication as required by server • Untrusted or expired PKI certificate CompTIA Server+ Certification All-in-One Exam Guide 294 • Insufficient permissions to access a network resource • Too many permissions granted beyond what is required • Incorrectly assigned share, NTFS, or Linux users not using the sudo command prefix to run elevated commands • Unnecessary installed software • Unneeded running services • Incorrect configured network firewall ACLs • Mismatched cryptography ciphers • Inability to decrypt transmissions or files Performance Optimization Performan required for varying file storage uses. Glossary 407 Universal Serial Bus (USB) A standard serial bus that is used as a connector between computer peripherals and computers. Geofencing is another great way to control where mobile device apps can be used. Actually, it is used even if you manually configure IPv6 on a host. CompTIA Server+ Certification All-in-One Exam Guide 310 Then there's the issue of data. Aside from OEM hardware and software service manuals, we need to know how these technological solutions have been put in place in a specific environment. Often, patching and following secure configuration guidelines reduces vulnerabilities. This category of authentication, called biometric authentication, uses unique identifying characteristics, including the following: • Fingerprint • Voice recognition • Behavioral recognition • Speech or gesture recognition • Facial recognition • Facial recognition • Speech or gesture recognition • Speech or gesture recognition • Facial recognition • Facial recognition • Speech or gesture recognition • Facial recognit fingerprint scanners; of course, you can use an external fingerprint scanner connected via USB. Even though the NIC is specific to the server, you should consider what it is plugging into. 328 Data Replication . It prevents multicasts from reaching other subnets. Scroll down the list and notice the individual permissions allowed (green check mark). RJ-45 connectors are used for UTP and STP cables. A few examples include Apple iPod, iPad, and iPhone products; Raspberry Pi devices; and Microsoft Surface tablets. Disk Interfaces Over the years, some disk interface standards have evolved, while others have been replaced by newer technologies. For instance, a VPN server should have at least two interfaces. Industrial environments using specialized equipment such as 208, 440, 460, or even 480 volts. Copy C:\Windows\Fonts to the Projects folder. Click Local Backup on the left. 238 Encrypting Data at Rest PKI certificate B, C. Winrs is a Windows command line remote management tool. 290 Exercise 7-4: View Linux Log File Entries . Of course, OS X has plenty of APIs beyond BSD. Plenty of enterprise-class network and server monitoring tools are available, such as Spiceworks and Microsoft System Center Operations Manager, to name a few. Chapter 6: Security 231 Figure 6-14 PKI hierarchy Certificates Subordinate CA 1 Issued PKI certificates Subordinate CA 1 Issued continuously evaluated. 440v/460v/480v • Wattage • Consumption • Redundancy • 1-phase vs. Total amount of CPU computing power C. TCP 80 B. 3G Third-generation wireless telecommunications network cabling that is designed to support up to 10 Mbps. • Run antimalware scans. Even though this consists of two items, they both fall under a single category (something you know), so we call this single-factor authentication. Thinner servers such as rack-mount and blades won't accommodate standard height expansion cards, but some rack-mount models will allow a daughter card to plug in, which in turn has slots oriented in such a way that standard-size cards can be used. Not only is time an issue, but version incompatibilities can slow things down even more. Demilitarized zones (DMZs) enable the safe placement of publicly visible servers while protecting systems on internal networks. Right-click C:\Program Files, choose Copy, and then press ctrl-v to paste. The icacls command works well for this on Windows servers; getfacl and setfacl work well in Linux. This refers to a management solution for multiple tape devices and backup purposes. Clients simply point to the internal NAT router interface as their default gateway. SSH needs a server-side listener for clients to be able to connect; the standard listening port is TCP 22. VLAN Attacks Even though traffic from one VLAN without a router, as with everything in IT, there are vulnerabilities that actually let this happen—including, but not limited to, the following: • MAC flooding attacks Fills MAC table limited memory on switches, which causes otherwise isolated traffic to be visible on other VLANs • VLAN hopping Attacker spoofs the identity of another switch, and the attacker station then becomes a member of multiple VLANs CompTIA Server+ Certification All-in-One Exam Guide 226 It's one thing to identify weaknesses, but what can we do about it? chapter Network Concepts In this chapter, you will • Learn about the OSI model • Identify proper cable installation and management techniques • Recognize the role of network interface cards, switches, and routers • Identify network infrastructure services including DHCP, DNS, and WINS Every server technician is exposed to network services, firewalls, and proxy servers must be placed in the correct network security zone. Go beyond minimum requirements to get the best performance. Note Only a small subset of Group Policy options are used by certain Linux distributions. VLAN hopping B. On the Specify Disk Capacity wizard page, accept the defaults and click Next. The most Chapter 3: Server Operating Systems 107 common type of DNS resource record managed by administrators is an A record (IPv4) that is used for resolving names to IP addresses; the equivalent for IPv6 is an AAAA record. VPNs allow clients to connect securely to a private destination network over an untrusted network such as the Internet. Hard quotas B. DNS admins create CNAME (alias) resource records that point to DNS A records. 23. Verify DNS functionality by typing nslookup followed by www.google Ceiling cable channels have no bearing on security. nslookup D. This can be done by MAC or IP address, by grouping physical switch ports together, and so on. Devices on a TCP/IP network must be configured with at least one DNS server IP address, by grouping physical switch ports together, and so on. Devices on a TCP/IP network must be configured with at least one DNS server IP address, by grouping physical switch ports together, and so on. Devices on a TCP/IP network must be configured with at least two). A bare-metal environment is a system or network in which a virtual machine is installed directly on hardware rather than within the host operating system (OS). Hardware and Software Troubleshooting One area you must be able to troubleshoot is hardware. • Enable network encryption for all traffic if possible. IPv4 is used everywhere on the Internet, but IPv6 is not ubiquitous yet, so currently we can use tunneling technologies to get IPv6 traffic routed through the Internet. CompTIA Server+ Certification All-in-One Exam Guide 304 16. You should get a response; this is the IP address of the Linux server. Which USB standard supports transmission rates up to 480 Mbps? Authentication Authentication is the proving of one's identity. Accept the license terms and click Next. GTP also stores partitioning information in multiple places on the disk, which makes it much more resilient to corruption compared to MBR. The first version of a CPU is referred to as step 0. WINS is used for resolving computer names to IP addresses, but unlike DNS it is not a hierarchy, but rather a flat list of NetBIOS computer names. 36. To assign a unique Snort ID (sid) and to generate an alert for ICMP traffic from any host, our Snort rule is configured as follows: alert icmp any any -> any any (msg:"ICMP traffic from any host, our Snort rule is configured as follows: alert icmp any any -> any any (msg:"ICMP traffic from any host to any host, our Snort rule is configured as follows: alert icmp any any -> any any (msg:"ICMP traffic from any host to any host, our Snort rule is configured as follows: alert icmp any any -> any any (msg:"ICMP traffic from any host to a to prevent further damage when malicious activity is detected. It's been proven that doing something related to a discussed topic helps our brains to understand how the topic is relevant and thus aids in retention. SMTP mail between SMTP mail between SMTP mail between SMTP mail hosts; POP and IMAP are message retrieval protocols used by mail client software. Warm C. So in this case, the recipient exports only the public key portion of the certificate and provides it to the sender. Twists per inch B. This is a good thing when we (humans) come into contact with components. Windows Internet Name Service (WINS) An implementation of the NetBIOS Name Service by Microsoft that enables computers to map hostnames to IP addresses using a centralized service. This relies on data replication from the original site to the hot site. After disk initialization and partitioning, file systems are created. Microsoft Active Directory Federation Services (ADFS) does this nicely, as do other solutions such as the open-source Shibboleth product. Security Troubleshooting This topic is interweaved with some form of hardware, software, or network troubleshooting the appropriate tools and methods. SYN ACK. Sent back from the target, this is an acknowledgment of receipt of the initiator's ISN and also includes the target's ISN. Remember that "some" computers or users could be very specific, as shown in the preceding WQL example. 342 Hardware Requirements . Yet another method is to group devices into a VLAN (regardless of physical CompTIA Server+ Certification All-in-One Exam Guide 182 switch port) based on their IP address. Remove the DNS server default stub zones. By definition, cloud services available on demand from anywhere using any device • Rapid elasticity (I need more disk space right now!) • User (not services available on demand from anywhere using any device) • Rapid elasticity (I need more disk space right now!) provider) provisioning and deprovisioning and deprovisioning • Metered services (pay only for the storage you've allocated) Base 2 vs. Remote Installation Service (RIS) A service that enables computers with PXE to install Microsoft operating systems remotely; superseded by Windows Deployment Services (WDS, or WinDS). Water will certainly damage electronic equipment, and it can increase the possibility of electrocution (water conducts electricity). PXE The Preboot Execution Environment (PXE) NIC feature works, servers, and applications, and it includes activities such as disabling unused ports and services, applying patches, encrypting data in transit and at rest, and so on. IPv6 • Default gateway • CIDR notation and subnetting • Public and private IP addressing • Static IP assignment vs. Note Network cables alone do not determine how quickly data is transmitted. A server admin adds 500GB of new storage to a server. SSHD B. This means initializing disks, partitioning them, and formatting those partitions with a particular file system. In the Notify Of CPU Spikes Properties dialog box, click the Schedule tab, click Add, and set the beginning date to today's date. Converted to decimal, this is 224. Enter a volume label of iSCSI Virtual Disks and click Next. The following ports are normally used on a web server: • TCP 80 Not encrypted • TCP 443 Encrypted with Secure Sockets Layer (SSL) or the newer Transport Layer Security (TLS) Administrators can choose a different port if they want. This works well to get a bunch of internal devices on the Internal devic the standard is 110-120 volts (V), but in Jamaica and most of Europe, 220-240 volts is the norm. Compression is enabled. Chapter 5: Network Concepts 185 DNS Servers It's probably fair to say that nobody remembers the IP addresses for all of the Internet services (including web sites) that they use. Each of the eight parts of an IPv6 address is 16 bits long (a hextet), and of course 8 × 16 = 128. It is a router that performs domain name-to-IP address resolution. It's best to use a dedicated network adapter for cluster hearbeats. Click the Start menu and type dns. Choose Applications can prevent some aspects of IT systems or data from residing in the cloud. The higher frequencies), the greater the number of twists per inch. But how can you configure CMOS settings? When choosing a new NIC, what factor should be considered? NTP NTP is used to synchronize time for network devices from a time source. Glossary 387 blade enclosure Blade enclosure blade enclosure, which is mounted into a blade enclosure, which is mounted into a blade enclosure, which is mounted into a rack. Normally, secured web sites require a PKI certificate only server-side, but for very sensitive sites, clients might need a certificate, too. A LUN uniquely identifies disk space on the storage array. DAS can be used by physical or virtual servers. Chapter 6: Security 235 In a network-switched environment, switch administrators will have to configure the switch to copy all packets to the port to which the NIDS is connected. Replace the straight-through cable with a null modem cable. When prompted that the selected disk will be brought online and initialized as a GPT disk, click OK. Because of economies of scale, cloud providers have the resources to secure IT infrastructure properly at a level that often exceeds what we can do in our organizations. Chapter 8 provides details, but there are few everyday things you should keep in mind: • LED indicators on equipment such as servers, UPS systems, and storage arrays • Indicates problems as well as normal status messages • Failing disk arrays, RAM errors, problems with batteries or backplanes, and so on • Error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error and beep codes • Vendor equipment has specific error equip Microsoft Windows Server 2012 R2 Operating System 1. Solid-state hybrid drives combine flash memory with disk platters. Type ifconfig and press enter. Verify functionality. Establish a Theory of Probable Cause As server technicians, we don't want to troubleshoot issues by first testing complex solutions; we check the obvious stuff first. Power connections (plugs and sockets) come in a variety of standards. Protects server from malicious attacks A. Encryption and auditing are available with NTFS file systems. Click the flag notification icon in the upper right; you will see a message stating that you must "Promote this server to a domain controller." Click the link. Chapter 8: Preparing for the Worst 317 4. DDR2 supersedes DDR1, DDR3 supersedes DDR2, and so on. NTFS 7. (BetCRIS is an online sports betting site.) Attackers would launch a DDoS against BetCRIS before Chapter 6: Security 229 Figure 6-12 A Microsoft Azure Network Security Group rule major live sporting events. Site-to-site VPN connection B. PSD is not a valid acronym in this context. IPv6 Addressing Here's the biggest change: where the IPv4 address space consists of 32 bits, IPv6 uses 128 bits, so it is four times larger! Let's do the math: • IPv4: 232 = 4,294,967,296 • IPv6: 2128 = 340,282,366,920,938,463,463,374,607,431,768,211,456 IPv4 has about 4 billion different IP addresses and IPv6 has 340 undecillion! Instead of expressing the address in decimal form (such as is the case with IPv4), IPv6 addresses are expressed in hexadecimal. BIOS versus UEFI 8. A user station statically configured with IPv4 cannot download Group Policy settings; the error message states that a domain controller could not be found. Permissions management is simplified. To run Total Tester, navigate to Start | (All) Programs | Total Seminars, or double-click the icon on your desktop. No permissions A. Figure 2-11 A Class C fire extinguisher is capable of putting out electrical fires. When the backup Status shows "Completed," click Close. Firmware updates (such as BIOS or the unified extensible firmware interface [UEFI]) may be required prior to installation, even for indirect reasons, such as network Preboot Execution Environment (PXE) boot, USB device boot support, and so on. Probably a long time ago. Firewalls control traffic between the Internet and the DMZ, and between the DMZ and internal networks. gigabit (Gb) A unit of digital information equivalent to 125 megabytes. These values are not used for rack widths. Whether you use SSL or TLS, a PKI certificate is required. Note Make sure you plug each physical server network interface card (NIC) into the correct switch port, especially if using port-based VLAN membership; otherwise, devices may not be able to communicate with the server. Site-to-site replication is not only costly, but complex. Routing and Remote Access Service This server role normally uses at least two network interfaces connected to different networks. Figure 3-11 shows a PXE boot screen. A, B, and D are incorrect. Cloud backup normally relies on a schedule. Appendix CompTIA Server + Certification Exam Objectives (SK0-004) Domain Name Percent of Examination Server Administration 24% Storage 12% Security 13% Networking 10% Disaster Recovery 9% Troubleshooting 20% 1.0 Server Architecture 1.1 Explain the purpose and function server form factors • Rack mount • Dimensions • 1U, 2U, 4U • Cable management arms • Rail kits Tower • • Blade enclosure install, configure and maintain server components • CPU • Multiprocessor vs.

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