CompTIA

Exam Questions XK0-006

CompTIA Linux+ Exam

NEW QUESTION 1
A systems administrator is reconfiguring existing user accounts in a Linux system. Which of the following commands should the administrator use to include "myuser" in the finance group?

A. groupadd finance myuser
B. groupmod finance myuser
C. useradd -g finance myuser
D. usermod -aG finance myuser

Answer: D

Explanation:
Comprehensive and Detailed Explanation: From Exact Extract:
To add an existing user (myuser) to an existing group (finance) without removing them from other groups, the correct command is usermod -aG finance myuser.
The -aG option appends the user to the supplementary group
(s) specified.
Other options:

A. groupadd is for creating new groups, not adding users to groups.

B. groupmod is for modifying group properties, not user membership.

C. useradd creates new users; not applicable to existing users.
Reference:
CompTIA Linux+ Study Guide: Exam XK0-006, Sybex, Chapter 6: "User and Group Management", Section: "Modifying Group Membership"
CompTIA Linux+ XK0-006 Objectives, Domain 1.0: System Management
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NEW QUESTION 2
An administrator updates the network configuration on a server but wants to ensure the change will not cause an outage if something goes wrong. Which of the following commands allows the administrator to accomplish this goal?

A. netplan try
B. netplan rebind
C. netplan ip
D. netplan apply

Answer: A

Explanation:
Network configuration changes can cause immediate loss of connectivity if applied incorrectly. Linux+ V8 emphasizes safe configuration practices, particularly when managing remote systems.
The netplan try command applies network configuration changes temporarily and prompts the administrator to confirm them within a timeout period. If the administrator does not confirm, Netplan automatically rolls back to the previous working configuration. This prevents accidental outages caused by misconfigured network settings.
The netplan apply command makes changes permanent immediately and does not provide rollback protection. The other options are not valid Netplan commands.
Linux+ V8 documentation explicitly references netplan try as a safe testing mechanism. Therefore, the correct answer is A.

NEW QUESTION 3
A systems administrator is creating a backup copy of the /home/ directory. Which of the following commands allows the administrator to archive and compress the directory at the same time?

A. cpio -o /backups/home.tar.xz /home/
B. rsync -z /backups/home.tar.xz /home/
C. tar -cJf /backups/home.tar.xz /home/
D. dd of=/backups/home.tar.xz if=/home/

Answer: C

Explanation:
Creating backups is a core responsibility in Linux system management, and the Linux+ V8 objectives emphasize proper use of archiving and compression tools.
The tar utility is the standard Linux tool for creating archive files, and it also supports compression through various options.
The command tar -cJf /backups/home.tar.xz /home/ correctly combines both archiving and compression in a single step. The -c option creates a new archive, -J specifies XZ compression, and -f allows the administrator to define the output file name. This results in a compressed archive of the entire /home/ directory, which is efficient for storage and transfer.
The other options are incorrect. cpio is an archiving tool but does not perform compression by itself without additional commands or pipelines. rsync -z compresses data during transfer but does not create an archive file. The dd command performs low-level copying of raw data and is not suitable for directory-based backups.
Linux+ V8 documentation highlights tar as the preferred utility for filesystem backups due to its flexibility, reliability, and support for multiple compression algorithms. Therefore, the correct answer is C.

NEW QUESTION 4
Which of the following most accurately describes a webhook?

A. An authentication method for web-server communication
B. An SNMP-based API for network device monitoring
C. A means to transmit sensitive information between systems
D. An HTTP-based callback function

Answer: D

Explanation:
Webhooks are commonly used in automation and DevOps workflows, which are emphasized in the Linux+ V8 objectives. A webhook is best described as anHTTP-based callback mechanismthat allows one system to notify another when a specific event occurs.
OptionDcorrectly defines a webhook. Instead of polling an API at regular intervals, a webhook allows an application to automatically send an HTTP request—typically a POST—to a predefined URL when an event happens. This makes webhooks efficient, event-driven, and well-suited for automation pipelines, CI/CD systems, and monitoring integrations.
The other options are incorrect. OptionAconfuses webhooks with authentication mechanisms. OptionBincorrectly associates webhooks with SNMP, which is a separate protocol. OptionCis misleading because webhooks are not inherently designed for transmitting sensitive data and require additional security measures such as TLS and authentication.
Linux+ V8 documentation highlights webhooks as a key integration method in automated environments, enabling systems to react in real time to changes or triggers.
Therefore, the correct answer isD.

NEW QUESTION 5
In the echo "profile-$num-$name" line of a shell script, the variable $num seems to not be expanding during execution. Which of the following notations ensures the value is expanded?

A. echo "profile-$(num)-$name"
B. echo 'profile-$num-$name'
C. echo "profile-'$num'-$name"
D. echo "profile-${num}-$name"

Answer: D

Explanation:
Shell variable expansion is a fundamental scripting concept included in Linux+ V8 objectives. In Bash and similar shells, variables are expanded only when they are interpreted within double quotes or unquoted contexts, and sometimes explicit syntax is required to avoid ambiguity.
The correct notation is ${num}, as shown in option D. Using curly braces around the variable name ensures the shell correctly identifies the variable boundary, especially when it is adjacent to other characters. This guarantees proper expansion of the variable's value.
The other options are incorrect. Single quotes prevent variable expansion entirely. The $(...) syntax is used for command substitution, not variable expansion. Quoting the variable name itself also prevents expansion.
Linux+ V8 documentation emphasizes ${VAR} notation as a best practice in shell scripting for clarity and correctness. Therefore, the correct answer is D.

NEW QUESTION 6
On a Kubernetes cluster, which of the following resources should be created in order to expose a port so it is publicly accessible on the internet?

A. Deployment
B. Network
C. Service
D. Pod

Answer: C

Explanation:
Container orchestration concepts are part of the Automation and Orchestration domain in Linux+ V8. In Kubernetes, workloads run inside Pods, but Pods are not directly accessible from outside the cluster.
To expose an application externally, aServiceresource must be created. Services provide a stable network endpoint and can be configured as NodePort, LoadBalancer, or ClusterIP. Public exposure is typically achieved using NodePort or LoadBalancer types.
OptionC, Service, is correct. Deployments manage Pods, but they do not handle networking exposure. Pods represent running containers but lack external accessibility by default. "Network" is not a valid Kubernetes resource type.
Linux+ V8 documentation highlights Services as the mechanism for exposing containerized applications. Therefore, the correct answer isC.

NEW QUESTION 7
Which of the following commands should a Linux administrator use to determine the version of a kernel module?

A. modprobe bluetooth
B. lsmod bluetooth
C. depmod bluetooth
D. modinfo bluetooth

Answer: D

Explanation:
Kernel module management is an important part of Linux system administration and is covered in the Linux+ V8 objectives. When an administrator needs to determine metadata about a kernel module—such as itsversion, author, description, license, filename, and dependencies—the correct tool is modinfo.
The commandmodinfo bluetoothdisplays detailed information about the specified kernel module, including the module version if it is defined. This makes it the correct and intended command for retrieving version details of kernel modules, whether or not the module is currently loaded.
The other options are incorrect. modprobe bluetooth is used to load or unload kernel modules and does not display version information. lsmod lists loaded modules but does not show version details and does not accept module names as arguments in that manner. depmod is used to generate module dependency information and does not provide module metadata to the administrator.
Linux+ V8 documentation specifically references modinfo as the utility for inspecting kernel module properties. This command is essential for troubleshooting driver issues, verifying compatibility, and auditing kernel components.
Therefore, the correct answer isD. modinfo bluetooth.

NEW QUESTION 8
A systems administrator manages multiple Linux servers and needs to set up a reliable and secure way to handle the complexity of managing event records on the OS and application levels. Which of the following should the administrator do?

A. Create an automated process to retrieve logs from the server by demand.
B. Implement a centralized log aggregation solution.
C. Configure daily automatic backups of logs to remote storage.
D. Deploy log rotation procedures to manage the records.

Answer: B

Explanation:
Log management is a critical system management function highlighted in CompTIA Linux+ V8, particularly in multi-server environments. As the number of systems and applications grows, managing logs locally on each server becomes inefficient and error-prone.
The best solution is toimplement a centralized log aggregation solution, making optionBcorrect. Centralized logging collects logs from multiple systems and applications into a single, secure location. This simplifies monitoring, searching, correlation, auditing, and incident response. Common solutions include syslog servers, ELK/EFK stacks, and SIEM platforms.
Linux+ V8 documentation emphasizes centralized logging as a best practice for availability, troubleshooting, and security analysis. It enables administrators to detect patterns, investigate incidents, and maintain compliance more effectively than isolated log files.
The other options are insufficient on their own. On-demand retrieval does not scale well. Log backups protect data but do not simplify analysis. Log rotation manages disk usage but does not address distributed log complexity.
Therefore, the correct answer isB. Implement a centralized log aggregation solution.

NEW QUESTION 9
While hardening a system, an administrator runs a port scan with Nmap, which returned the following output:

```
# nmap 104.21.75.76
Starting Nmap 7.80 ( https://nmap.org ) at 2024-07-09 18:09 UTC
Nmap scan report for 104.21.75.76
Host is up (0.00087s latency).
Not shown: 996 closed ports
PORT STATE SERVICE
23/tcp open telnet
80/tcp open http
443/tcp open https
8080/tcp open http-proxy

Nmap done: 1 IP address (1 host up) scanned in 4.93 seconds
```

Which of the following is the best way to address this security issue?

A. Configuring a firewall to block traffic on port 23 on the server
B. Changing the system administrator's password to prevent unauthorized access
C. Closing port 80 on the network switch to block traffic
D. Disabling and removing the Telnet service on the server

Answer: D

Explanation:
This scenario falls under theSecuritydomain of the CompTIA Linux+ V8 objectives and focuses on system hardening and service minimization. The Nmap scan output reveals thatport 23 (Telnet)is open on the system, which represents a significant security risk.
Telnet is an insecure, legacy protocol that transmits authentication credentials and session data inplaintext, making it vulnerable to interception through packet sniffing or man-in-the-middle attacks. Linux+ V8 documentation explicitly emphasizes the principle ofleast functionality, which states that unnecessary or insecure services should be disabled and removed entirely rather than merely restricted.
OptionD, disabling and removing the Telnet service on the server, is the best and most secure solution. This action eliminates the vulnerable service completely, ensuring that it cannot be exploited internally or externally. In secure Linux environments, Telnet should be replaced withSSH, which provides encrypted communication and strong authentication mechanisms.
OptionA, blocking port 23 with a firewall, reduces exposure but does not eliminate the underlying risk. If the firewall rules are misconfigured or bypassed, the Telnet service would still be available. Linux+ V8 best practices recommend removing insecure services rather than relying solely on perimeter controls.
OptionBis unrelated, as changing passwords does not address the risk of plaintext credential transmission. OptionCis incorrect because closing ports at the network switch level is not an appropriate or scalable solution for host-level service hardening and does not address internal access risks.
Linux+ V8 documentation consistently highlights service auditing, port scanning, and removal of insecure protocols as essential system hardening steps.
Therefore, the most effective and secure remediation is to disable and remove the Telnet service.

NEW QUESTION 10
An administrator is investigating the reason a Linux workstation is not resolving the website http://www.comptia.org. The administrator executes some commands and receives the following output:

```
$ dig @8.8.8.8 www.comptia.org +short
104.18.16.29

$ nslookup -querytype=A www.comptia.org
...
Name: www.comptia.org
Address: 104.18.16.29

$ nslookup -querytype=AAAA www.comptia.org
...
*** Can't find www.comptia.org: No answer

$ ping -4 www.comptia.org
PING  www.comptia.org (104.18.99.101)
From somehost (192.168.1.192) icmp_seq=3 Destination Host Unreachable
...

$ cat /etc/hosts
127.0.0.1 localhost localhost.localdomain
104.18.99.101    www.comptia.org
```

Which of the following is the most likely cause?

A. The static entry needs to be removed from /etc/hosts.
B. The remote website does not support IPv6, and the workstation requires it.
C. The firewall needs to be modified to allow outbound HTTP and HTTPS.
D. The nameserver in /etc/resolv.conf needs to be updated to 8.8.8.8

Answer: A

Explanation:
When troubleshooting name resolution issues in Linux, /etc/hosts entries take precedence over DNS lookups. The workstation??s /etc/hosts file contains the line:
CopyEdit 104.18.99.101 www.comptia.org
This means any attempt to access www.comptia.org will resolve to 104.18.99.101, regardless of the real DNS response. However, both dig and nslookup show the correct IP as104.18.16.29. Because the local /etc/hosts entry overrides DNS, and the hardcoded IP is either incorrect or unreachable, all network traffic to www.comptia.org will fail or not reach the intended destination, resulting in the observed connectivity issue (Destination Host Unreachable).
Other options:
* B.The lack of IPv6 support is irrelevant since the host is using IPv4 and the DNS queries for IPv4 (A record) are successful.
* C.The firewall would block all HTTP/HTTPS connections, but the error shown is a host unreachable, not a port-specific issue.
* D.The nameserver is working; both dig and nslookup queries succeed and return the correct A record.
[Reference:, CompTIA Linux+ Study Guide: Exam XK0-006, Sybex, Chapter 8: "Networking Fundamentals", Section: "Troubleshooting Name Resolution", CompTIA Linux+ XK0-006 Objectives, Domain 2.0: Networking,]

NEW QUESTION 10
Which of the following is the main reason for setting up password expiry policies?

A. To avoid using the same passwords repeatedly
B. To mitigate the use of exposed passwords
C. To force usage of passwordless authentication
D. To increase password strength and complexity

Answer: B

Explanation:
Password management is a core topic in the Security domain of CompTIA Linux+ V8. Password expiry policies are implemented to reduce the risk associated with long-lived credentials.
The primary reason for enforcing password expiration is to mitigate the risk of exposed or compromised passwords. If a password is leaked through phishing, malware, keylogging, or data breaches, limiting its lifespan reduces the window of opportunity for attackers to exploit it. Requiring periodic password changes ensures that compromised credentials eventually become invalid.
Option B correctly captures this security objective. Linux+ V8 documentation emphasizes minimizing credential exposure as a key principle of access control.
The other options are secondary or incorrect. Avoiding password reuse and increasing complexity are addressed through password history and complexity policies, not expiration alone. Password expiry does not force passwordless authentication, making option C incorrect.
Therefore, the correct answer is B. To mitigate the use of exposed passwords.

NEW QUESTION 15
A Linux systems administrator is running an important maintenance task that consumes a large amount of CPU, causing other applications to slow. Which of the following actions should the administrator take to help alleviate the issue?

A. Increase the available CPU time with pidstat.
B. Lower the priority of the maintenance task with renice.
C. Run the maintenance task with nohup.
D. Execute the other applications with the bg utility.

Answer: B

Explanation:
Process scheduling and resource management are essential Linux administration skills covered in Linux+ V8. When a process consumes excessive CPU resources, it can negatively impact overall system performance.
The correct solution is tolower the priorityof the CPU-intensive task using the renice command. Niceness values influence how much CPU time a process receives relative to others. Increasing the niceness value reduces the process??s priority, allowing other applications to receive CPU resources more fairly.
OptionBdirectly addresses the issue. The other options do not. pidstat monitors processes but does not modify CPU allocation. nohup allows a process to continue running after logout but does not affect scheduling priority. bg resumes a stopped job in the background but does not reduce CPU usage.
Linux+ V8 documentation explicitly references nice and renice for managing CPU contention. Therefore, the correct answer isB.

NEW QUESTION 17
A systems administrator wants to review the amount of time the NetworkManager service took to start. Which of the following commands accomplishes this goal?

A. resolvectl
B. journalctl
C. systemctl daemon-reload
D. systemd-analyze blame

Answer: D

Explanation:
System boot performance analysis is an important system management task included in Linux+ V8. When administrators need to determine how long services take to start during boot,systemd analysis toolsare required.
The correct command issystemd-analyze blame. This command lists all systemd services and shows how long each one took to initialize during the boot process. It is commonly used to identify slow-starting services that may impact system startup performance, including NetworkManager.
The other options are incorrect. resolvectl is used for DNS resolution management and provides no service timing information. journalctl can display logs but does not provide a clear, summarized service startup timing report. systemctl daemon-reload only reloads systemd unit files and does not perform analysis.
Linux+ V8 documentation explicitly references systemd-analyze blame as the correct tool for diagnosing service startup delays. Therefore, the correct answer isD.

NEW QUESTION 21
A Linux administrator receives reports that an application hosted in a system is not completing tasks in the allocated time. The administrator connects to the system and obtains the following details:

```
# uptime
12:47:43 up 22:17, 2 users, load average: 7.75, 5.72, 5.17

# nproc
4

# vmstat -w 1 3
[...]
r b swpd free    buff cache si so bi bo in  cs  us sy id wa st gu
8 0 671563760 348103671476 0  0  0  0 40901386100 0  0  0  0  0
8 0 671563760 348103671476 0  0  0  0 40761389100 0  0  0  0  0
8 0 671563760 348103671476 0  0  0  0 40761389100 0  0  0  0  0

# free -h
              total  used  free shared buff/cache available
Mem:          3.8Gi 334Mi 3.6Gi  20Mi       70Mi     3.5Gi
Swap:         7.8Gi  65Mi 7.8Gi
```

Which of the following actions can the administrator take to help speed up the jobs?

A. Increase the amount of free memory available to the system.
B. Increase the amount of CPU resources available to the system.
C. Increase the amount of swap space available to the system.
D. Increase the amount of disks available to the system.

Answer: B

Explanation:
This scenario represents a classic CPU-bound performance issue, which is covered under the Troubleshooting domain of CompTIA Linux+ V8. The most important indicator is the load average compared to the number of available CPU cores.
The system has 4 CPU cores, as shown by nproc, but the load averages are consistently above 5, with a peak of 7.75. Load average reflects the number of processes either actively running on the CPU or waiting for CPU time. When the load average exceeds the number of CPU cores for extended periods, it indicates CPU contention. Processes must wait longer to be scheduled, resulting in delayed task completion.
The memory statistics confirm that memory is not the bottleneck. free -h shows over 3.5 GiB of available memory, and swap usage is minimal. Additionally, vmstat shows no significant swap-in or swap-out activity and low I/O wait, ruling out memory pressure and disk bottlenecks.
Increasing swap space would not help because the system is not memory constrained. Adding more disks would not address CPU scheduling delays. Increasing free memory is unnecessary because sufficient memory is already available.
Linux+ V8 documentation emphasizes correlating load average with CPU core count to diagnose CPU saturation. The most effective way to speed up job execution in this case is to increase CPU resources, such as adding more vCPUs, moving the workload to a more powerful system, or distributing the workload across multiple systems.
Therefore, the correct answer is B. Increase the amount of CPU resources available to the system.

NEW QUESTION 22
A user states that an NFS share Is reporting random disconnections. The systems administrator obtains the following information

```
#df -h
Filesystem              Size  Used  Avail  Use% Mounted on
/dev/mapper/fedora-
root                    15G   15G   204K   100% /
devtmpfs                4.0M  0     4.0M   0%   /dev
tmpfs                   2.0G  0     2.0G   0%   /dev/shm
tmpfs                   783M  816K  782M   1%   /run
tmpfs                   2.0G  0     2.0G   0%   /tmp
/dev/vda2               960M  481M  480M   51%  /boot
10.0.0.1:/nfsdata       4T    3.8T  200G   95%  /share

$ ip -s link show
2: enp1s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen
link/ether 52:5a:00:f7:27:23 brd ff:ff:ff:ff:ff:ff
RX:  bytes      packets   errors   dropped   missed   mcast
     108487310  149198    9584     40721     0        0
TX:  bytes      packets   errors   dropped   carrier  collsns
     3015941    33656     12780    7854      0        0
```

Which of the following best explains the symptoms that are being reported?

A. The mount point is incorrect for the NFS share.
B. The IP address of the NFS share is incorrect.
C. The filesystem is nearly full and is reporting errors.
D. The interface is reporting a high number of errors and dropped packets.

Answer: D

Explanation:
This issue is best analyzed using a layered troubleshooting approach, as recommended in the Troubleshooting domain of CompTIA Linux+ V8. The reported symptom is intermittent or random disconnections from an NFS share, which commonly indicates a network reliability issue rather than a configuration or filesystem problem.
The most critical evidence comes from the output of ip -s link show. The network interface enp1s0 is reporting significant numbers of errors and dropped packets on both the receive (RX) and transmit (TX) paths. High packet loss at the network interface level directly affects protocols like NFS, which rely on stable, continuous TCP/IP communication. When packets are dropped or corrupted, NFS clients may experience timeouts, retransmissions, and apparent disconnections.
Although the df -h output shows that the NFS filesystem is 95% full, this alone does not typically cause random disconnections. A nearly full filesystem may lead to write failures or performance degradation, but it does not explain intermittent connectivity loss. Linux+ V8 documentation notes that filesystem capacity issues usually present as I/O errors, not transport-layer disconnects.
Options A and B can also be ruled out. If the mount point or IP address were incorrect, the NFS share would fail consistently rather than intermittently. The fact that the share is mounted and accessible confirms that the mount configuration and IP addressing are correct.
Linux+ V8 emphasizes that NFS performance and reliability are highly sensitive to network quality. Packet errors, drops, faulty NICs, cabling issues, duplex mismatches, or driver problems commonly result in unstable NFS behavior.
Therefore, the best Explanation for the reported random disconnections is D. The interface is reporting a high number of errors and dropped packets.

NEW QUESTION 23
A Linux administrator updates the DNS record for the company using:
cat /etc/bind/db.abc.com
The revised partial zone file is as follows:
ns1 IN A 192.168.40.251
ns2 IN A 192.168.40.252
www IN A 192.168.30.30
When the administrator attempts to resolve www.abc.com to its IP address, the domain name still points to its old IP mapping:
nslookup www.abc.com
Server: 192.168.40.251
Address: 192.168.40.251#53
Non-authoritative answer
Name: www.abc.com
Address: 199.168.20.81
Which of the following should the administrator execute to retrieve the updated IP mapping?

A. systemd-resolve query www.abc.com
B. systemd-resolve status
C. service nslcd reload

D. resolvectl flush-caches

Answer: D

Explanation:
This scenario represents a classic DNS troubleshooting situation covered in the Troubleshooting domain of the CompTIA Linux+ V8 objectives. Although the DNS zone file has been updated correctly on the BIND server, the system continues to resolve the domain name to an outdated IP address. This behavior strongly indicates DNS caching rather than a configuration error in the zone file itself.
Modern Linux systems that use systemd-resolved cache DNS responses locally to improve performance and reduce external queries. Even after a DNS record is updated on the authoritative server, cached results may persist until the cache expires or is manually cleared. The nslookup output showing a non-authoritative answer further confirms that the response is being served from a cache rather than directly from the updated zone data.
The correct solution is to flush the local DNS cache so the system can retrieve the updated record from the DNS server. The command resolvectl flush-caches clears all cached DNS entries maintained by systemd- resolved, forcing fresh queries to authoritative name servers. This aligns directly with Linux+ V8 documentation for resolving name resolution inconsistencies caused by stale cache entries.
The other options are incorrect for the following reasons. systemd-resolve query www.abc.com performs a DNS lookup but does not clear cached entries. systemd-resolve status only displays resolver configuration and statistics. service nslcd reload reloads the Name Service LDAP daemon and is unrelated to DNS resolution or caching.
Linux+ V8 emphasizes identifying whether issues originate from services, configuration, or cached data. In this case, flushing the DNS cache is the correct and least disruptive corrective action.
Therefore, the correct answer is D. resolvectl flush-caches.

NEW QUESTION 27
A Linux user needs to download the latest Debian image from a Docker repository. Which of the following commands makes this task possible?

A. docker image init debian
B. docker image pull debian
C. docker image import debian
D. docker image save debian

Answer: B

Explanation:
Container management and image handling are part of modern Linux automation practices covered in CompTIA Linux+ V8. Docker images are stored in container registries such as Docker Hub, and administrators commonly need to download images to deploy containers.
The correct command for downloading an image from a Docker repository is docker image pull. This command retrieves the specified image from a configured container registry and stores it locally. When no tag is specified, Docker automatically pulls the latest available version of the image. Therefore, docker image pull debian downloads the most recent Debian image from Docker Hub.
The other options are incorrect. docker image init is not a valid Docker command and does not exist in Docker??s CLI. docker image import is used to create a Docker image from a tarball file, not to download an image from a repository. docker image save exports an existing local image into a tar archive and does not retrieve images from a remote registry.
Linux+ V8 documentation emphasizes understanding container image lifecycles, including pulling, tagging, and running images. Pulling images is a foundational step before container execution and automation workflows.
Therefore, the correct answer is B. docker image pull debian.

NEW QUESTION 29
A Linux administrator attempts to log in to a server over SSH as root and receives the following error message: Permission denied, please try again. The administrator is able to log in to the console of the server directly with root and confirms the password is correct. The administrator reviews the configuration of the SSH service and gets the following output:

```
Port 22
PermitRootLogin prohibit-password
PasswordAuthentication yes
PermitEmptyPassword no
Use PAM no
MaxSessions 1
MaxAuthTries 3
```

Based on the above output, which of the following will most likely allow the administrator to log in over SSH to the server?

A. Log out other user sessions because only one is allowed at a time.
B. Enable PAM and configure the SSH module.
C. Modify the SSH port to use 2222.
D. Use a key to log in as root over SSH.

Answer: D

Explanation:
The SSH configuration option PermitRootLogin prohibit-password prevents the root user from logging in with password authentication. This setting means root cannot use a password to log in via SSH; only key- based authentication is permitted for root. The administrator can still log in as root locally, which is not affected by this SSH configuration. To allow SSH access as root, the administrator must use an SSH key instead of a password.
Other options:
* A. MaxSessions controls the number of simultaneous SSH sessions but is not causing the login denial here.
* B. PAM (Pluggable Authentication Modules) is disabled, but enabling it is not required for basic SSH authentication.

* C. Changing the SSH port is unrelated to the authentication method issue.
Reference:
CompTIA Linux+ Study Guide: Exam XK0-006, Sybex, Chapter 11: "Securing Linux", Section: "Securing SSH Access"
CompTIA Linux+ XK0-006 Objectives, Domain 3.0: Security

NEW QUESTION 32
A Linux administrator is testing a web application on a laboratory service and needs to temporarily allow DNS and HTTP/HTTPS traffic from the internal network. Which of the following commands will accomplish this task?

A. firewalld -- add-service=dns, http,https -- zone=internal
B. iptables -- enable-service='dns|http|https' -- zone=internal
C. firewall-cmd --add-service={dns, http, https} --zone=internal
D. systemctl mask firewalld --for={dns, http, https} --zone=internal

Answer: C

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
The correct way to temporarily allow specific services in a particular zone with firewalld is to use firewall- cmd --add-service=service --zone=zone. Multiple services can be specified in curly braces and separated by commas. The correct syntax is:
bash CopyEdit
firewall-cmd --add-service={dns,http,https} --zone=internal
This command will allow DNS (port 53), HTTP (port 80), and HTTPS (port 443) through the firewall for the "internal" zone temporarily (for the current runtime session).
Other options:
* A. The command syntax is incorrect; firewalld is a service, not a command-line tool.
* B. iptables does not use the --enable-service flag, nor does it have zones in this way.
* D. systemctl mask disables services, and the rest of the command is invalid.
Reference:
CompTIA Linux+ Study Guide: Exam XK0-006, Sybex, Chapter 9: "Networking", Section: "Managing Firewalls with firewalld"
CompTIA Linux+ XK0-006 Objectives, Domain 2.0: Networking
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NEW QUESTION 35
Which of the following describes PEP 8?

A. The style guide for Python code
B. Python virtual environments
C. A package installer for Python
D. A Python variable holding octal values

Answer: A

Explanation:
Python scripting is part of Linux automation, and Linux+ V8 includes knowledge of Python development standards. PEP 8 stands for Python Enhancement Proposal 8 and defines the official style guide for Python code.
PEP 8 provides conventions for code layout, indentation, naming, line length, whitespace usage, and commenting. Its purpose is to improve code readability and maintainability, especially in collaborative environments. Linux+ V8 emphasizes that standardized coding practices are critical in automation and DevOps workflows.
The other options are incorrect. Python virtual environments are managed using tools such as venv. Package installation is handled by pip. Octal values are represented using specific syntax and are unrelated to PEP 8.
Therefore, the correct answer is A.

NEW QUESTION 37
A Linux administrator needs to analyze a compromised disk for traces of malware. To complete the analysis, the administrator wants to make an exact, block-level copy of the disk. Which of the following commands accomplishes this task?

A. cp -rp /dev/sdc/* /tmp/image
B. cpio -i /dev/sdc -ov /tmp/image
C. tar cvzf /tmp/image /dev/sdc
D. dd if=/dev/sdc of=/tmp/image bs=8192

Answer: D

Explanation:
Disk forensics and malware analysis fall under theSecuritydomain in the CompTIA Linux+ V8 objectives. When analyzing a compromised disk, it is critical to preserve the data exactly as it exists, including unused space, deleted files, and hidden metadata. This requires ablock-level copy, not a file-level copy.
The dd command is the correct tool for this task. It operates at a low level, copying raw data from an input device (if=/dev/sdc) directly to an output file (of=/tmp/image) without interpreting filesystem structures. This ensures an exact, bit-for-bit replica of the disk, which is essential for forensic integrity and malware analysis. The bs=8192 option improves performance by specifying a larger block size during copying.
The other options are incorrect. cp -rp copies files and directories but does not capture free space, deleted data, or disk metadata. cpio and tar are archive utilities that operate at the filesystem level and cannot produce a true disk image. These tools also require the filesystem to be mounted and readable, which is not appropriate for forensic preservation.
Linux+ V8 documentation highlights dd as the preferred utility for disk imaging, backups, and forensic investigations. Administrators are also advised to perform such operations on unmounted disks to avoid altering evidence.
Therefore, the correct and best command for creating an exact block-level disk copy isD. dd if=/dev/sdc of=/tmp/image bs=8192.

NEW QUESTION 38
A systems administrator needs to set the IP address of a new DNS server. Which of the following files should the administrator modify to complete this task?

A. /etc/whois.conf
B. /etc/resolv.conf
C. /etc/nsswitch.conf
D. /etc/dnsmasq.conf

Answer: B

Explanation:
DNS client configuration is a foundational Linux networking task covered in Linux+ V8 system management objectives. When an administrator needs to specify the IP address of a DNS server that the system should use for name resolution, the correct file to modify is/etc/resolv.conf.
The /etc/resolv.conf file defines DNS resolver settings, including one or more nameserver entries that specify the IP addresses of DNS servers. Applications and system services rely on this file to resolve hostnames to IP addresses.
The other options are incorrect. /etc/whois.conf configures WHOIS queries. /etc/nsswitch.conf controls the order of name resolution sources but does not define DNS server IP addresses. /etc/dnsmasq.conf configures a local DNS caching service, not the system-wide resolver directly.
Linux+ V8 documentation highlights /etc/resolv.conf as the authoritative DNS client configuration file, though it may be dynamically managed by tools such as NetworkManager or systemd-resolved.
Therefore, the correct answer isB. /etc/resolv.conf.

NEW QUESTION 40
Which of the following describes the method of consolidating system events to a single location?

A. Log aggregation
B. Health checks
C. Webhooks
D. Threshold monitoring

Answer: A

Explanation:
Comprehensive and Detailed 250 to 350 words of Explanation From Linux+ V8 documents:
Consolidating system events from multiple sources into a single, centralized location is a key concept in Linux system administration and is explicitly covered underlogging and monitoringtopics in the CompTIA Linux+ V8 objectives. This method is known aslog aggregation, making optionAthe correct answer.
Log aggregation refers to the practice of collecting logs generated by operating systems, services, applications, and network devices and storing them in a centralized repository. In Linux environments, logs may originate from systemd-journald, syslog, application-specific log files, containers, and cloud-based workloads. Aggregating these logs allows administrators to analyze events more efficiently, correlate issues across systems, and improve troubleshooting, auditing, and security monitoring.
Linux+ V8 documentation emphasizes centralized logging as a best practice in environments with multiple servers. Without log aggregation, administrators would need to log in to each system individually to inspect logs, which is inefficient and error-prone. Centralized solutions such as syslog servers, ELK/EFK stacks, and SIEM platforms enable real-time analysis, long-term retention, and alerting based on log data.
The other options do not describe log consolidation.Health checksare used to verify whether services or systems are operational but do not collect or store event data.Webhooksare HTTP-based callbacks used for event-driven automation and notifications, not for storing logs.Threshold monitoringinvolves generating alerts when metrics exceed defined limits, such as CPU or memory usage, but it does not centralize system event records.
Linux+ V8 stresses that effective log aggregation improves incident response, supports compliance requirements, and enhances system visibility. It is especially important for detecting security incidents, diagnosing failures, and performing root-cause analysis across distributed systems.

NEW QUESTION 43
An administrator logs in to a Linux server and notices the clock is 37 minutes fast. Which of the following commands will fix the issue?

A. hwclock
B. ntpdate
C. timedatectl
D. ntpd -q

Answer: B

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
The ntpdate command synchronizes the system clock with a remote NTP server immediately, correcting any significant time drift. This is ideal for one-time corrections.
For example:
bash
CopyEdit
ntpdate pool.ntp.org
Other options:
* A.hwclock reads or sets the hardware clock, but does not sync with network time.
* C.timedatectl can set the time manually or manage time settings, but does not immediately sync with a remote NTP server.
* D.ntpd -q can also sync the clock once, but ntpdate is designed specifically for immediate synchronization and is more straightforward for one-time corrections.
[Reference:, CompTIA Linux+ Study Guide: Exam XK0-006, Sybex, Chapter 5: "System Management", Section: "Time Synchronization", CompTIA Linux+ XK0-006 Objectives, Domain 1.0: System Management, ==========]

NEW QUESTION 44
A technician wants to temporarily use a Linux virtual machine as a router for the network segment 10.10.204.0/24. Which of the following commands should the technician issue? (Select three).

A. echo "1" > /proc/sys/net/ipv4/ip_forward
B. iptables -A FORWARD -j ACCEPT
C. iptables -A PREROUTING -j ACCEPT
D. iptables -t nat -s 10.10.204.0/24 -p tcp -A PREROUTING -j MASQUERADE
E. echo "0" > /proc/sys/net/ipv4/ip_forward
F. echo "1" > /proc/net/tcp

G. iptables -t nat -s 10.10.204.0/24 -A POSTROUTING -j MASQUERADE

Answer: ABG

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
To temporarily configure a Linux virtual machine as a router, the technician must enable IP forwarding and set up iptables rules to allow and masquerade traffic:
* A. echo"1">/proc/sys/net/ipv4/ip_forward: Enables IPv4 forwarding in the Linux kernel, allowing the VM to forward packets between interfaces.
* B. iptables -A FORWARD -j ACCEPT: Adds a rule to the iptables firewall to accept all forwarded packets (allows traffic to be routed).
* G. iptables -t nat -s 10.10.204.0/24 -A POSTROUTING -j MASQUERADE: Sets up network address translation (NAT) for outgoing packets from the 10.10.204.0/24 subnet, masquerading them as if they are coming from the VM??s external IP.
Other options:
* C.andH.are not relevant for routing/NAT in this context (PREROUTING is generally used for DNAT, not for standard source NAT).
* D.is syntactically incorrect and mixes PREROUTING with MASQUERADE, which is not the proper combination for SNAT.
* E.disables forwarding.
* F.is not related to IP forwarding.
[Reference:, CompTIA Linux+ Study Guide: Exam XK0-006, Sybex, Chapter 9: "Networking", Section: "Configuring Linux as a Router", CompTIA Linux+ XK0-006 Objectives: Domain 2.0 – Networking, Official CompTIA Linux+ Cert Guide, Chapter 12: "Firewall and NAT configuration",]

NEW QUESTION 48
A Linux software developer wants to use AI to optimize source code used in a commercial product. Which of the following steps should the developer take first?

A. Research which available AI chatbots are best at optimizing source code.
B. Verify that the company has a policy governing the use of AI in software development.
C. Install a private LLM to use on the internal network for source code optimization.
D. Use open-source LLMs that undergo regular security reviews by the community.

Answer: B

Explanation:
Linux+ V8 emphasizessecurity, compliance, and governancewhen introducing new automation technologies, including AI. Before using AI tools to optimize commercial source code, the developer must ensure that such usage complies with organizational policies.
OptionBis correct because verifying company policy is the first and most critical step. AI tools may introduce risks such as intellectual property leakage, licensing conflicts, or regulatory violations. Many organizations restrict how source code can be shared with external systems, including AI services.
The other options are premature. Selecting tools or deploying models should only occur after policy approval. Linux+ V8 highlights governance-first approaches when adopting automation technologies.
Therefore, the correct answer isB.

NEW QUESTION 50
An administrator wants to search a file named myFile and look for all occurrences of strings containingat least five characters, wherecharacters two and five are i, butcharacter three is not b. Which of the following commands should the administrator execute to get the intended result?

A. grep .a*^b-.a myFile
B. grep .a., [a] myFile
C. grepa^b*a myFile
D. grep .i[^b].i myFile

Answer: D

Explanation:
Pattern matching using regular expressions is a key troubleshooting and text-processing skill covered in CompTIA Linux+ V8. The grep command, combined with regular expressions, allows administrators to search for complex string patterns within files.
The requirement specifies:
The string must containat least five characters
Character 2must be i
Character 3mustnotbe b
Character 5must be i
To meet these conditions, the correct regular expression structure is:
. ?? any character (position 1)
i ?? literal i (position 2)
[^b] ?? any character except b (position 3)
. ?? any character (position 4)
i ?? literal i (position 5)
This results in the expression:
i[^b].i
OptionD, grep .i[^b].i myFile, correctly implements this logic. It ensures positional matching and excludes unwanted characters using a negated character class ([^b]), which is explicitly covered in Linux+ V8 regular expression objectives.
The other options contain invalid or malformed regular expressions and do not meet the positional or exclusion requirements. Linux+ V8 emphasizes understanding anchors, character classes, and position-based matching when troubleshooting log files or configuration data.
Therefore, the correct answer isD.

NEW QUESTION 53
Which of the following is a reason multiple password changes on the same day are not allowed?

A. To avoid brute-forced password attacks by making them too long to perform
B. To increase password complexity and the system's security
C. To stop users from circulating through the password history to return to the originally used password
D. To enforce using multifactor authentication with stronger encryption algorithms instead of passwords

Answer: C

Explanation:
Password policy enforcement is a critical component of system security covered in the CompTIA Linux+ V8 objectives. One common control implemented in Linux systems is restricting how frequently users can change their passwords, often referred to asminimum password ageenforcement.
The primary reason multiple password changes within a short time frame are not allowed is toprevent password cycling attacks. Without this restriction, a user could repeatedly change their password in quick succession to bypass password history controls and eventually reuse a previously compromised or weak password. OptionCaccurately describes this scenario and aligns directly with Linux+ V8 security guidance.
Linux systems enforce this behavior through tools such as chage and PAM (Pluggable Authentication Modules). Administrators can configure minimum password age values to ensure users must wait a defined period before changing passwords again. This ensures that password history requirements are effective and meaningful.
The other options are incorrect. OptionAconfuses password expiration with brute-force mitigation, which is typically addressed through account lockout policies. OptionBrefers to password complexity, which is enforced through character requirements rather than change frequency. OptionDis unrelated, as password expiration policies do not enforce multifactor authentication.
Linux+ V8 documentation emphasizes layered access controls, and preventing password reuse through enforced timing restrictions is a core principle of secure authentication design.
Therefore, the correct answer isC.

NEW QUESTION 55
A systems administrator is having issues with a third-party API endpoint. The administrator receives the following output:

```
# curl https://comptia.com/endpoint
curl: (6) Could not resolve host: comptia.com


# dig comptia.com
; <<>> <<>> comptia.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 14031
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;comptia.com. IN A
;; AUTHORITY SECTION:
com. 900 IN SOA a.gtld-servers.net. nstld.verisign-grs.com. 1720473015 1800 900 604800 86400
;; Query time: 159 msec
;; SERVER: 10.255.255.254#53(10.255.255.254) (UDP)
;; WHEN: Mon Jul 08 15:10:45 CST 2024
;; MSG SIZE rcvd: 117
```

Which of the following actions should the administrator take to resolve the issue?

A. Open a secure port in the server's firewall.
B. Request a new API endpoint from a third party.
C. Review and fix the DNS client configuration file.
D. Enable internet connectivity on the host.

Answer: C

NEW QUESTION 56
Which of the following best describes journald?

A. A system service that collects and stores logging data
B. A feature that creates crash dumps in case of kernel failure
C. A service responsible for keeping the filesystem journal
D. A service responsible for writing audit records to a disk

Answer: A

NEW QUESTION 59
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