Linux Administration - Interview Preparation Canvas

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1. Basic Linux Commands

Concept Explanation: - Navigation and file operations: ls (list), cd (change dir), cp (copy), mv (move/rename), rm (remove) - Search and archives: grep (search content), find (search files), tar (archive) - Permissions: chmod (change file permissions), chown (change ownership)

Interview Answer: "Basic Linux commands allow navigation, file manipulation, searching, and permission management. For example, chmod controls file access, and grep searches for patterns in files."

Delivery Example: "I would say: 'I use commands like ls and cd to navigate directories, cp and mv to copy or move files, grep and find to search, and chmod/chown to manage permissions and ownership.'"

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2. File System Structure

Concept Explanation: - Linux root hierarchy: /bin, /etc, /home, /var, /usr, /tmp, /opt, /boot - Each directory has a specific role (e.g., /var/log for logs, /etc for configuration)

Interview Answer: "Linux follows a hierarchical file system structure where each directory has a specific purpose, like /etc for configs and /var/log for logs."

Delivery Example: "I would explain: 'In Linux, /etc contains config files, /var/log stores logs, /home holds user directories, and /usr has application binaries.'"

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3. User and Group Management

Concept Explanation: - Commands: useradd, userdel, passwd, groupadd, groupmod - Permissions controlled via groups and ownership

Interview Answer: "Linux user and group management allows secure access control. Users can be added or assigned to groups to manage permissions."

Delivery Example: "I would say: 'I can add a user with useradd, assign a password with passwd, create groups with groupadd, and set file permissions using chown and chmod.'"

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4. Network Configuration

Concept Explanation: - Commands: ifconfig/ip (view/configure IP), netstat (view connections), ping (test connectivity)

Interview Answer: "Linux network configuration is managed via ifconfig or ip for IPs, netstat for connections, and ping for testing reachability."

Delivery Example: "I would explain: 'I check IPs with ip addr, test connectivity using ping, and check open ports and active connections using netstat.'"

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5. Services Management

Concept Explanation: - Commands: systemctl (start, stop, enable, disable services), service (older versions)

Interview Answer: "System services are managed using systemctl or service commands to start, stop, or enable services on boot."

Delivery Example: "I would say: 'I use systemctl start nginx to start a service, systemctl enable nginx to ensure it runs on boot, and systemctl status nginx to check its status.'"

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6. Firewall

Concept Explanation: - iptables: rule-based packet filtering - ufw: simplified firewall management

Interview Answer: "Linux firewalls control incoming/outgoing traffic using iptables or ufw."

Delivery Example: "I would explain: 'I use ufw allow 22 to allow SSH, ufw status to check rules, and iptables for more granular control of network packets.'"

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7. SSH and SFTP

Concept Explanation: - SSH: secure remote login - SFTP: secure file transfer

Interview Answer: "SSH is used for secure remote access, and SFTP is used for secure file transfer."

Delivery Example: "I would say: 'I connect to remote servers using ssh user@host and transfer files securely using sftp.'"

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8. Package Management

Concept Explanation: - apt (Debian/Ubuntu), yum (RHEL/CentOS) - Install, update, remove software packages

Interview Answer: "Package managers like apt and yum are used to install, update, and remove software on Linux systems."

Delivery Example: "I would explain: 'I use apt install package_name on Ubuntu or yum install package_name on CentOS to install software and apt update/upgrade or yum update to update packages.'"

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9. Cron Jobs and Scheduling

Concept Explanation: - Cron schedules recurring tasks - Syntax: * * * * * command (minute, hour, day, month, weekday)

Interview Answer: "Cron jobs automate recurring tasks on Linux servers, such as backups or scripts."

Delivery Example: "I would say: 'I schedule scripts using cron by editing crontab -e. For example, 0 2 * * * /home/user/backup.sh runs a backup daily at 2 AM.'"

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10. Logs

Concept Explanation: - Important logs: /var/log/syslog, /var/log/messages, /var/log/auth.log - Used for monitoring, troubleshooting, auditing

Interview Answer: "Linux logs in /var/log help monitor system, service, and security events for troubleshooting."

Delivery Example: "I would explain: 'I monitor /var/log/syslog for system events, /var/log/auth.log for authentication attempts, and /var/log/messages for general system messages.'"

Example Questions & Scenario Responses:

Q1: Add a new user and assign permissions? - Command: useradd username; passwd username; usermod -aG groupname username - Delivery: 'I create a user with useradd, set a password using passwd, and add the user to groups with usermod for proper permissions.'

Q2: Check open ports? - Command: netstat -tuln or ss -tuln - Delivery: 'I use netstat -tuln or ss -tuln to see all listening TCP/UDP ports and services running.'

Q3: Soft links vs Hard links? - Soft link: pointer, can cross filesystems, breaks if original deleted - Hard link: points to inode, same filesystem, remains if original deleted - Delivery: 'Soft links are shortcuts pointing to files, hard links share the same inode and are indistinguishable from the original file.'

Scenario 1: Service fails to start on boot - Steps: systemctl status service, check logs in /var/log, verify config files - Delivery: 'I check service status with systemctl, review logs for errors, and ensure configuration files are correct.'

Scenario 2: Disk full on /var - Steps: du -sh /var/*, remove unnecessary files, archive logs, extend volume if needed - Delivery: 'I identify large directories with du, clean unnecessary files, rotate logs, and expand the volume if required.'

Scenario 3: Configure static IP - Steps: edit /etc/network/interfaces (Debian) or /etc/sysconfig/network-scripts/ifcfg-* (RHEL), restart networking - Delivery: 'I configure static IP by editing the interface configuration file and restarting the network service to apply changes.'