Module : 21 Linux server -deployment of network services

1) LILO

- Older Bootloader: LILO has been around since the early days of Linux.
- Configuration: It uses a simple configuration file (/ etc / lilo. conf).
- Boot Process: LILO loads the operating system directly from the boot sector without interactive boot options.
- Flexibility: It's less flexible compared to GRUB, as changes to the boot configuration require reinstalling the bootloader.
- Error Handling: If there's an error in the boot configuration, LILO often requires manual intervention to fix it.
- GRUB
- Modern Bootloader: GRUB is more modern and widely used today.
- Configuration: GRUB uses a more complex configuration file (/ boot / grub / grub.cfg or / etc / grub. d /)
- Boot Process: GRUB supports an interactive boot menu, allowing users to choose different kernel versions or operating systems at boot time.

- Flexibility: Changes to the boot configuration in GRUB don't require reinstalling the bootloader, making it more flexible.
- Error Handling: GRUB provides better error handling and diagnostic capabilities, which can help troubleshoot boot issues more easily.

2) Using a Live CD/USB

- Boot from a Live CD/USB of your Linux distribution.
- Open a terminal and mount your root partition (e.g., sudo mount /dev /sda 1 / mnt) Chroot into your system (sudo chroot / mnt).
- Change the password using the passwd command.
- Reboot your system.

3) This command use for format partition in Linux OS

- sudo fdisk -l
- sudo umount /dev/sdXn
- sudo mkfs.ext4 /dev/sdXn

4) enable “quota” in Linux

- sudo apt update
- sudo apt install quota
- sudo nano /etc/fstab

- /dev/sda1   /home   ext4 defaults,usrquota,grpquota 0 2
- sudo mount -o remount /home
- sudo quotacheck -cug /home
- sudo edquota -u username
- quota -s

5) Create Mount Partition in Linux

- sudo fdisk -l
- sudo mkdir -p /mnt/my_partition
- sudo mount /dev/sdXn /mnt/my_partition
- df -h

6) Use of “mdadm” Command

- sudo mdadm --create --verbose /dev/md0 --level=1 --raid-devices=2 /dev/sda1 /dev/sdb1
- sudo mdadm --assemble /dev/md0 /dev/sda1 /dev/sdb1
- sudo mdadm --monitor --mail=root --delay=300 /dev/md0
- sudo mdadm --manage /dev/md0 --add /dev/sdc1
- sudo mdadm --manage /dev/md0 --remove /dev/sdb1
- sudo mdadm --detail /dev/md0
- sudo mdadm --stop /dev/md0
- sudo mdadm --zero-superblock /dev/sda1 /dev/sdb1

7) Configure a secure Apache web server in Linux

- sudo apt update
- sudo apt install apache2
- sudo apt upgrade
- sudo ufw allow http
- sudo ufw allow https
- sudo ufw enable
- sudo nano /etc/apache2/mods-enabled/dir.conf
- sudo nano /etc/apache2/conf-available/security.conf
- sudo apt install certbot python-certbot-apache
- sudo certbot --apache
- sudo nano /etc/apache2/conf-available/security.conf
- sudo systemctl restart apache2

8) To run Windows Software on Linux operating System

- sudo apt update
- sudo apt install wine
- wine your-application.exe

9) Windows

- Developed by Microsoft.
- Proprietary software with closed-source code.
- First released in 1985.
- Generally requires a paid license.

- Different versions (e.g., Home, Professional) have different prices.
- Graphical User Interface (GUI) is consistent across versions.
- Known for its Start Menu and taskbar.
- Less customization available for the interface.
- Linux
- Developed by a community of developers.
- Open-source software based on the Linux kernel.
- First released in 1991.
- Most distributions (distros) are free to download and use.
- No licensing fees.
- Highly customizable GUI.
- Multiple desktop environments (e.g., GNOME, KDE, XFCE).
- Allows users to change the look and feel extensively.

10) Cost-Effective

- Free to Use: Open source software is typically free to download, use, and distribute, which reduces the cost of software acquisition and licensing.
- No Vendor Lock-in: Users are not tied to a single vendor, allowing for more flexibility and cost savings.
- Transparency

- Access to Source Code: Users can view, modify, and audit the source code, ensuring transparency and security.
- Customizability: Users can tailor the software to their specific needs, making it more adaptable and efficient.
- Security
- Community Review: The open source community continuously reviews and improves the code, which helps identify and fix security vulnerabilities faster.
- Quick Updates: Security patches and updates are often released more quickly due to the collaborative nature of open source projects.
- Collaboration and Innovation
- Community Collaboration: Open source projects benefit from contributions by developers worldwide, fostering collaboration and innovation.
- Rapid Development: The collaborative model allows for rapid development and the inclusion of new features.
- Flexibility and Freedom
- No Restrictions: Users have the freedom to use the software for any purpose, without restrictions imposed by proprietary licenses.
- Interoperability: Open source software often adheres to open standards, making it more compatible with other software and systems.

- Quality and Reliability
- Peer Review: The code is peer-reviewed by a diverse community, leading to higher quality and more reliable software.
- Continuous Improvement: The collaborative model ensures continuous improvement and evolution of the software.
- Educational Value
- Learning Resource: Access to source code provides an excellent learning resource for students and developers to understand how software works.
- Skill Development: Contributing to open source projects helps individuals develop their skills and gain experience in software development.

11) sudo apt update

- sudo apt install apache2
- sudo systemctl start apache2
- sudo systemctl enable apache2
- sudo ufw allow in "Apache Full"
- <VirtualHost *:80>
- ServerAdmin webmaster@your_domain.com
- ServerName your_domain.com
- DocumentRoot /var/www/your_domain
- ErrorLog ${APACHE_LOG_DIR}/error.log

- CustomLog ${APACHE_LOG_DIR}/access.log combined
- </VirtualHost>
- sudo a2ensite your_domain.conf
- sudo systemctl restart apache2

12) <!DOCTYPE html>

- <html lang="en">
- <head>
- <meta charset="UTF-8">
- <meta name="viewport" content="width=device-width, initial-scale=1.0">
- <title>Welcome to My Website</title>
- </head>
- <body>
- <h1>Hello, World!</h1>
- <p>This is a simple web page.</p>
- </body>
- </html>
- sudo nano /etc/apache2/sites-available/your_domain.conf
- <VirtualHost *:80>
- ServerAdmin webmaster@your_domain.com
- ServerName your_domain.com
- ServerAlias www.your_domain.com
- DocumentRoot /var/www/your_domain

- ErrorLog ${APACHE_LOG_DIR}/error.log
- CustomLog ${APACHE_LOG_DIR}/access.log combined
- </VirtualHost>
- sudo a2ensite your_domain.conf
- sudo systemctl restart apache2

13) sudo apt update

- sudo apt install mysql-server
- sudo mysql_secure_installation
- sudo systemctl start mysql
- sudo systemctl enable mysql
- sudo apt update
- sudo apt install mariadb-server
- sudo mysql_secure_installation
- sudo systemctl start mariadb
- sudo systemctl enable mariadb
- sudo mysql -u root -p
- CREATE DATABASE mydatabase;
- CREATE USER 'myuser'@'localhost' IDENTIFIED BY 'mypassword'; GRANT ALL PRIVILEGES ON mydatabase.* TO 'myuser'@'localhost'; FLUSH PRIVILEGES;
- SHOW DATABASES;
- USE mydatabase;

- CREATE TABLE example (id INT AUTO_INCREMENT, name VARCHAR(255) NOT NULL, PRIMARY KEY (id));
- INSERT INTO example (name) VALUES ('John Doe');
- SELECT * FROM example;