Linux Server - Linux Services And Permissions

1. Learn about different filesystem types (e.g., ext4, NTFS)

A filesystem defines how data is organized and stored on a disk.
Common types include:

- **ext4** – the default Linux filesystem, stable and widely supported.
- **NTFS** – mainly used by Windows, supports large files and permissions.
- **XFS** – high-performance filesystem often used on servers.
- **FAT32/exFAT** – used on USB drives for cross-platform compatibility.

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2. Manage disk partitions and filesystems using tools like fdisk, mkfs, and mount

- **fdisk** – used to create, delete, and edit disk partitions.
- **mkfs** – formats a partition with a chosen filesystem type, such as ext4 or xfs.
- **mount** – attaches a filesystem to a directory so it becomes accessible to the user.

Example workflow:

1. Create a partition using fdisk /dev/sdX.
2. Format it: mkfs.ext4 /dev/sdX1.
3. Mount it: mount /dev/sdX1 /mnt.

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3. Create a 2048MB partition and verify it

Basic steps:

1. Open the disk tool:
   sudo fdisk /dev/sdX
2. Create a new partition:
   - Press **n** (new partition)
   - Choose primary
   - Accept default start sector
   - Set size: **+2048M**
3. Write changes:
   Press **w** to save and exit.
4. Verify the partition:
   - sudo fdisk -l /dev/sdX

- Or lsblk to confirm size and partition name.

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4. Why LVM is required?

LVM (Logical Volume Manager) provides flexible disk management. It allows:

- Expanding or reducing storage without downtime.
- Combining multiple physical disks into a single logical volume.
- Creating snapshots for backup.
- Easily resizing partitions when needs change.

It solves the limitations of fixed partitions in traditional disk layouts.

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5. How can you find out how much memory Linux is using?

Common commands:

- free -h – shows total, used, and free RAM.
- top or htop – displays real-time memory usage.
- cat /proc/meminfo – provides detailed memory statistics.

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6. What is a typical size for a swap partition under a Linux system?

General guidelines:

- Systems with 4–8 GB RAM: swap often equals RAM size.
- Systems with more RAM: swap can be smaller, such as 4–8 GB.
- For hibernation: swap should be at least the size of RAM.

Most modern setups use between **2 GB and 8 GB**.

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7. What is the maximum file size on the ext4 file system?

ext4 supports a maximum file size of **16 TB** (terabytes), depending on block size.

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8. What is the maximum file size on the xfs file system?

XFS supports extremely large files, with a maximum size up to **8 exabytes**, far beyond typical storage needs.