Linux server - Configure local storage

1. **What is /dev/sda.**
   - In Linux, /dev/sda is a special device file that represents the first block storage device, typically the first hard disk drive or solid-state drive (SSD) in your system. The /dev directory contains device files that allow you to interact with hardware devices.
   - Here's what each part of /dev/sda represents:
   - /: This is the root directory of the file system.
   - dev: This is a directory where device files are stored.
   - sda: This is the name of the device file that corresponds to the first block storage device.

   B. What is /dev/sdb.
   - sdb: The name of the device file representing the second block storage device.

   C. What is /dev/sda1.
   - 1: The number indicating the first partition on that device.

   D. /dev/sda2.
   - 2: The number indicating the second partition on that device.

   E./dev/vda
   - In a Linux virtualized environment, such as a virtual machine (VM) running on a hypervisor like KVM, /dev/vda typically represents the virtual block device associated with the primary virtual disk or storage device of the VM.

2. **What is the use of "df "command?**
   - In Linux, the df command is used to display disk space usage information for mounted filesystems. It provides a summary of various statistics related to each mounted filesystem, including the amount of disk space used, available space, and the filesystem type. The primary purpose of the df command is to help users and administrators monitor their system's disk space usage.

3. **From which command we get UUID of file system?**
   - To get the UUID (Universally Unique Identifier) of a filesystem in Linux, you can use the blkid command.

4. **I want to use /dev/sdb1, which command will used?**
   - To use the /dev/sdb1 partition, you typically need to mount it to a directory in your Linux file system. You can use the mount command with the appropriate arguments to do this. Here's the full command:
   - sudo mount /dev/sdb1 /path/to/mount/point
   - Replace /path/to/mount/point with the actual path to the directory where you want to mount the /dev/sdb1 partition. You may need superuser (root) privileges, which is why sudo is used at the beginning of the command to execute it with elevated permissions.

5. **Where we find all hardware info?**
   - lshw: Lists detailed hardware information for various components.
   - lscpu: Displays CPU-related information and capabilities.
   - lsusb and lspci: Lists USB and PCI devices, respectively.
   - lsblk: Shows block devices, including hard drives and partitions.
   - free: Provides information about system memory (RAM) usage and swap space.
   - df: Displays disk space usage on mounted filesystems.
   - ifconfig or ip: Shows network interface information.
   - dmidecode: Provides information about system hardware, including the BIOS.
   - hwinfo: Offers comprehensive hardware information on some distributions.
   - inxi: Provides a concise overview of system hardware.
   - lsmod: Lists loaded kernel modules, helpful for identifying device drivers.
   - /proc and /sys directories: Contain various hardware-related information accessible through file entries.

6. **Which command is used to create MBR partition?**
   - fdisk command to create MBR (Master Boot Record) partitions on a storage device.

7. **Which command is used to create GPT partition?**
   - gdisk command to create GPT (GUID Partition Table) partitions on a storage device.

8. **What is sda, sdb, sdc, sdb1, sdb2, sdb3?**
   - sda, sdb, sdc, etc.:
     - These labels represent different block storage devices (usually hard drives or SSDs) attached to your computer.
     - sda typically refers to the first storage device, sdb to the second, sdc to the third, and so on.

- These devices can include your primary system drive, secondary drives, USB drives, or other storage devices.
- sda1, sda2, sdb1, sdb2, etc.:
  - These labels represent partitions on the respective storage devices.
  - For example, sda1 is the first partition on the first storage device (sda), sda2 is the second partition on the first storage device, sdb1 is the first partition on the second storage device (sdb), and so forth.
  - Partitions are logical divisions of a storage device and are used to organize and manage data. Each partition can have its own filesystem and usage.

9. **What is the use of swap partition?**
   - swap partition in a Linux or Unix-like operating system serves several essential purposes:
   - **Virtual Memory Expansion:** It extends a computer's virtual memory when physical RAM is fully utilized, allowing the operating system to use disk space as additional memory.
   - **Preventing Out-of-Memory Crashes:** Swap space prevents system crashes due to memory exhaustion by providing a backup memory source when RAM is depleted.
   - **Hibernation Support:** Swap space stores the contents of RAM when a system hibernates, enabling the system to resume its state upon waking.
   - **Storing Inactive Data:** It can temporarily hold inactive data from RAM, freeing up physical memory for active tasks.
   - **Performance Optimization:** In some cases, having an appropriately sized swap partition can improve system performance by helping the operating system manage memory resources effectively.

10. **Explain LVM**
    - LVM stands for Logical Volume Manager, and it is a storage management technology used in Linux and other Unix-like operating systems. LVM provides a flexible and dynamic way to manage disk storage by abstracting physical storage devices (such as hard drives and SSDs) into logical volumes that are easier to manage and resize.

11. Define following terms, PV, VG, LV.

- **PV (Physical Volume):**
- A Physical Volume (PV) is a physical storage device, such as a hard drive, solid-state drive (SSD), or disk partition, that is integrated into the LVM storage management system.
- **VG (Volume Group):**
- A Volume Group (VG) is a logical container that consists of one or more Physical Volumes (PVs).
- **LV (Logical Volume):**
- A Logical Volume (LV) is a virtual partition or storage volume created within a Volume Group (VG).

12. From which command we can get information about LVM status?

- The lvs command displays information about logical volumes, including their names, sizes, free space, and more.