Linux Disk Management

11, How would you check what is the size of a certain directory?

A) du -sh /root/

12, What is LVM?

Explain the following in regards to LVM:

PV

VG

LV

A) Logical volume management (LVM) is a form of storage virtualization that offers system administrators a more flexible approach to managing disk storage space than traditional partitioning. This type of virtualization tool is located within the device-driver stack on the operating system.

PV – used to crate physical volume

pvcreate /dev/sdc1

VG – used to crate volume groups

vgcreate demo\_vg /dev/sdc1

LV – used to create logical volume and assign it to volume groups

vlcrate -n demo\_vl –size 1G demo\_vg

13, What is NFS? What is it used for?

A) Network File System allows a system to share directories and files with others over a network.

14, What RAID is used for? Can you explain the differences between RAID 0, 1, 5 and 10?

<https://www.techtarget.com/searchstorage/definition/RAID#:~:text=Brien%20Posey-,What%20is%20RAID%3F,the%20goal%20of%20providing%20redundancy>.

A) Redundant Array Of Independent Disks is a way of storing the same data in different places on multiple hard disks to protect data in the case of a drive failure. It is also used to improve efficiency by combining multiple hard drives together.

RAID 0 - This configuration has striping but no redundancy of data. It offers the best performance, but it does not provide fault tolerance.

RAID 1 - Also known as disk mirroring, this configuration consists of at least two drives that duplicate the storage of data. There is no striping. Read performance is improved, since either disk can be read at the same time. Write performance is the same as for single disk storage.

RAID 5 - This level is based on parity block-level striping. The parity information is striped across each drive, enabling the array to function, even if one drive were to fail. The array's architecture enables read and write operations to span multiple drives. This results in performance better than that of a single drive, but not as high as a RAID 0 array. RAID 5 requires at least three disks, but it is often recommended to use at least five disks for performance reasons.

RAID 5 arrays are generally considered to be a poor choice for use on write-intensive systems because of the performance impact associated with writing parity data. When a disk fails, it can take a long time to rebuild a RAID 5 array.

RAID 10 – It is also known as RAID 1+0, is a RAID configuration that combines disk mirroring and disk striping to protect data. It requires a minimum of four disks and stripes data across mirrored pairs. As long as one disk in each mirrored pair is functional, data can be retrieved.

15, Describe the process of extending a filesystem disk space

A) Create a new virtual disk in VirtualBox

fdisk /dev/sdb

mkfs.xfs /dev/sdb1

To make file system

mkdir /data

mount /dev/sdb1 /data

To mount new disk volume to a directory.

16, What is stored in each of the following logs?

/var/log/messages

/var/log/boot.log

A) /var/log/messages - Contains global system messages, including the messages that are logged during system startup. There are several things that are logged in /var/log/messages including mail, cron, daemon, kern, auth, etc.

/var/log/boot.log - System Boot log stores all information related to booting operations.

17, How do you kill a process in D state?

A) cannot kill "D" state processes, even with SIGKILL or kill -9. As the name implies, they are uninterruptible. You can only clear them by rebooting the server or waiting for the I/O to respond. It is normal to see processes in a "D" state when the server performs I/O intensive operations.