LINUX INTERVIEW QUESTIONS

1- What is Linux?

-Linux is Unix like most known and most – used open source operating system.

2- What are the basic component of linux?

-Basic componets of linux are: a-kernel

b- shell

c-system hardware

d- system library

e-system utilities

3- What is BASH?

- **BASH is a bourne again shell ,it is the similar to bourne shell with more additional features.**

4-What is kernel?

-Kernel is the core of the OS,which manages the hardware resource and user intraction in to the system.

5-What is the main difference between unix and Linux?

- **Unix is owened by open group which is not free and open source, companies like IBM,SOLARIS ,HP,APPLE owned the licenced to use unix and where as linux is free and open source which anyone allows to modify the source code and freely distributed.**

6-Two types of user mode are: a- CLI = command line interface

b- GUI= Graphics user interface

7-What is LILO?

- **LILO is a linux loader which load the linux OS into the main memory and start it's operation.**

8- what is swap space?

- **Swap space is the space which is use when the physical or RAM memory is full. Its main function is to substitute disk space for RAM memory when real RAM does not have enough space to hold all programs that are executing, and more space is required. In simple words, it can be used as an extension of RAM by Linux.**

9- What do you mean by process state in linux?

- **Process state of linux are : ready, running, waiting ,terminated and Zombie .**

10- What is Linux Shell?

- **Shell is a program that take the input from the user and convert in to the kernel undestable language.Different type of shell are : CSH,KSH,BASH,Bourne Shell …**

11- what are the different mode of vi editors?

- **Command mode(Regular mode)**
- **Insertion mode(Edit mode)**
- **EX-mode(Replacement mode)**

12- What is a maximum length for a filename under Linux?

- **The maximum length for a filename under Linux is 255 bytes.**

13-Name the Linux that is specially designed by Sun micro system?

- **Linux that is specially designed by Sun micro system is Solaris.**

14-Under the Linux system, what is the typical size for swap partitions?

- **The typical size for a swap partition under a Linux system should be twice the amount of physical memory or RAM available on the system.**

15- What are file permissions in Linux? Name different types of file systems in Linux.

-There are three owners in the Linux System i.e., user, group, and others. These owners have three types of permissions defined as listed below:

- **Read (r):** It allows the user to open and read the file or list the directory.
- **Write (w):** It allows the user to open and modify the file. One can also add new files to the directory.
- **Execute (x):** It allows the user to execute or run the file. One can also lookup a specific file within a directory.

16- Name the file that is used to automatically mount file systems?

- **File that is used to automatically mount file systems is a Fstab file.**

17- What is LVM and why is it required?

- **LVM (Logical Volume Management) is basically a tool that provides logical volume management for the Linux kernel. It is especially required to resize the size of the file system online. In Linux, the size of the LVM partition can be extended using "lvextend" command and can be reduced using "lvreduce" commands, respectively.**

18- What is a "/proc" file system?

-Proc file system is a pseudo or virtual file system that provides an interface to the kernel data structure. It generally includes useful information about processes that are running currently. It can also be used to change some kernel parameters at runtime or during execution. It is also regarded as a control and information center for the kernel. All files under this directory are named virtual files

19- What do you mean by the daemons?

- **Daemon is th program or process that run in the background.**

20- Name daemon that controls the print spooling process?

- **Daemon that controls the print spooling process is line printing daemon.**

21- What is Zombie process?

- **Zombie Process, also referred to as a defunct or dead process in Linux, is a process that has finished the execution, but its entry remains in the process table. It usually happens due to a lack of correspondence between parent and child processes.**

22- What is the difference between cron and anacron?

- Cron: **It is a program in Linux that is used to execute tasks at a scheduled time. It works effectively on machines that run continuously.**
- Anacron: **It is a program in Linux that is used to execute tasks at certain intervals. It works effectively on machines that are powered off in a day or week.**

23- What is load average in Linux?

- Load average, as the name suggests, is the average system load on Linux servers being calculated over a given period of time. The load average of Linux servers can be found using "top" and "uptime" commands. It is simply used to keep track of system resources. It is represented by a decimal number starting at 0.00. It tells you the load that the system has been under

24- What do you mean by Shell Script?

- **It is the script that allows the execution of different command that are entered in the shell.**

25- What is INODE and Process Id?

- **INODE: is the pointer or number that are given to the file system.**
- **Process id: It is a unique Id given to each process. It is simply used to uniquely identify an active process throughout the system until the process terminates.**

26- Name the first process that is started by the kernel in Linux and what is its process id?

- **The first process started by the kernel in Linux is "init" and its process id is 1.**

27- Why /etc/resolv.conf and /etc/hosts files are used?

-/etc/resolv.conf: It is used to configure DNS name servers as it contains the details of the nameserver i.e., details of your DNS server. The DNS server is then used to resolve the hostname of the IP address.

-/etc/hosts: It is used to map or translate any hostname or domain name to its relevant IP address.

28- What are the advantages of using NIC teaming?

- **NIC (Network Interface Card) teaming has several advantages as given below:**
  - **a- Load Balancing**
  - **b- Failover**
  - **c -Increases uptime**

29- What do you mean by Network bonding?

- **Network Bonding, also known as NIC Teaming, is a type of bonding that is used to connect multiple network interfaces into a single**

interface. It usually improves performance and redundancy simply by increasing network throughput and bandwidth.

30- What are different network bonding modes used in Linux?

- **Different network bonding modes used in Linux are listed below:**

- **Mode-0 (balance-rr): It is the default mode and is based on round-robin policy. It offers features like fault tolerance and load balancing.**
- **Mode-1 (active-backup): It is based on an active-backup policy. In this, only one node responds or works at the time of failure of other nodes.**
- **Mode-2 (balance-xor): It sets an XOR (exclusive-or) mode for providing load balancing and fault tolerance.**
- **Mode-3 (broadcast): It is based on broadcast policy. It sets a broadcast mode for providing fault tolerance and can be used only for specific purposes.**
- **Mode-4 (802.3ad): It is based on IEEE 802.3ad standard also known as Dynamic Link Aggregation mode. It sets an IEEE 802.3ad dynamic link aggregation mode and creates aggregation groups that share the same speed and duplex settings.**
- **Mode-5 (balance-tlb): It is also known as Adaptive TLB (Transmit Load Balancing). It sets TLB mode for fault tolerance and load balancing. In this mode, traffic will be loaded based on each slave of the network.**
- **Mode-6 (balance-alb): It is also known as Adaptive Load Balancing. It sets ALB mode for fault tolerance and load balancing. It doesn't need any special switch support.**

31- Name default ports used for DNS, SMTP, FTP, SSH, DHCP and squid.

- Default ports used for various services are as follows:

Service	Port
DNS	53
SMTP	25
FTP	20 (Data transfer), 21 (Connection established)
SSH	22
DHCP	67/UDP (dhcp server), 68/UDP (dhcp client)
squid	3128

32- What is SSH? How we can connect to a remote server via SSH?

-SSH (Secure Shell), as the name suggests, is basically a protocol that is being used to securely connect to remote servers or systems and enables two systems to communicate.

33- Write the difference between Soft and Hard links?

- **Hard Links:** It is a special kind of file that points to the same underlying inode as another file. It can be referred to as an additional name for an existing file on Linux OS. Total number of hard links for a file can be displayed using the "ls -l" command. Such links cannot be used across file systems. Hard links can be created using the following command:
  $ ln [original filename] [link name]

  Soft Links: It is also termed a symbolic Link. Soft links are kinds of files that usually point to another file. It does not include any amount of data in the target file and simply points to another entry anywhere in the file system. Such links can be used across file systems. Soft links can be created using the following command:
  $ ln -s [original filename] [link name]

34- Name three standard streams in Linux.

- **Standard streams are basically I/O (Input and Output) communication channels between a program and its environment in Linux. Input and output in the Linux environment are distributed across three standard streams. Three standard streams in Linux are as follows:**

1. **Standard Input (stdin)**
2. **Standard Output (stdout)**
3. **Standard Error (stderr**)

35- What do you mean by unmask?

- **Umask, also known as user file-creation mask, is a Linux command that allows you to set up default permissions for new files and folders that you create. In Linux OS, umask command is used to set default file and folder permission. It is also used by other commands in Linux like mkdir, tee, touch, etc. that create files and directories.**

  Syntax: `umask [-p] [-S] [mask]`
- **Where,**
  [mask]: It represents the permission masks that you are applying.
  [-S]: It displays the current mask as a symbolic value.
  [-p]: It displays the current mask along with umask command thus allowing it to be copied and pasted as a future input.

36-Name the command used to review boot messages.

- **The command that is used to review boot messages is the "dmesg" command.**

37- What is samba? Why is it required?

- **Samba is basically an open-source software suite. It runs a number of different Operating systems such as OpenVMS, IBM , etc. It is generally used to connect Linux machines to Microsoft network resources simply by providing Microsoft SMB support. It provides more secure, stable, fast file and print services for every client or user using SMB (Server Message Block) or CIFS (Central Server Message Block) protocol.**

38- Linux File Systems: Ext2 vs Ext3 vs Ext4 vs XFS

ext2, ext3, ext4 and xfs are all filesystems created for Linux. This article explains the following:

- High level difference between these filesystems.
- How to create these filesystems.
- How to convert from one filesystem type to another.

Ext2

- Ext2 stands for second extended file system.
- It was introduced in 1993. Developed by Rémy Card.
- This was developed to overcome the limitation of the original ext file system.
- Ext2 does not have journaling feature.
- On flash drives, usb drives, ext2 is recommended, as it doesn't need to do the over head of journaling.
- Maximum individual file size can be from 16 GB to 2 TB
- Overall ext2 file system size can be from 2 TB to 32 TB

Ext3

- Ext3 stands for third extended file system.
- It was introduced in 2001. Developed by Stephen Tweedie.
- Starting from Linux Kernel 2.4.15 ext3 was available.
- The main benefit of ext3 is that it allows journaling.
- Journaling has a dedicated area in the file system, where all the changes are tracked. When the system crashes, the possibility of file system corruption is less because of journaling.
- Maximum individual file size can be from 16 GB to 2 TB
- Overall ext3 file system size can be from 2 TB to 32 TB
- There are three types of journaling available in ext3 file system.
    - Journal – Metadata and content are saved in the journal.
    - Ordered – Only metadata is saved in the journal. Metadata are journaled only after writing the content to disk. This is the default.

- Writeback – Only metadata is saved in the journal. Metadata might be journaled either before or after the content is written to the disk.

- You can convert a ext2 file system to ext3 file system directly (without backup/restore).

Ext4

- Ext4 stands for fourth extended file system.
- It was introduced in 2008.
- Starting from Linux Kernel 2.6.19 ext4 was available.
- Supports huge individual file size and overall file system size.
- Maximum individual file size can be from 16 GB to 16 TB
- Overall maximum ext4 file system size is 1 EB (exabyte). 1 EB = 1024 PB (petabyte). 1 PB = 1024 TB (terabyte).
- Directory can contain a maximum of 64,000 subdirectories (as opposed to 32,000 in ext3)
- You can also mount an existing ext3 fs as ext4 fs (without having to upgrade it).
- Several other new features are introduced in ext4: multiblock allocation, delayed allocation, journal checksum. fast fsck, etc. All you need to know is that these new features have improved the performance and reliability of the filesystem when compared to ext3.
- In ext4, you also have the option of turning the journaling feature “off”.

XFS File System

- The XFS file system is an extension of the extent file system.
- The XFS is a high-performance 64-bit journaling file system.
- The support of the XFS was merged into Linux kernel in around 2002 and In 2009 Red Hat Enterprise Linux version 5.4 usage of the XFS file system.
- XFS supports maximum file system size of 8 exbibytes for the 64-bit file system.
- There is some comparison of XFS file system is XFS file system can’t be shrunk and poor performance with deletions of the large numbers of files.
- Now, the RHEL 7.0 uses XFS as the default filesystem.

Creating an ext2, or ext3, or ext4 filesystem

Once you’ve partitioned your hard disk using fdisk command, use mke2fs to create either ext2, ext3, or ext4 file system.

Create an ext2 file system:

mke2fs /dev/sda1

Create an ext3 file system:

mkfs.ext3 /dev/sda1

(or)

mke2fs –j /dev/sda1

Create an ext4 file system:

mkfs.ext4 /dev/sda1

(or)

mke2fs -t ext4 /dev/sda1

Converting ext2 to ext3

For example, if you are upgrading /dev/sda2 that is mounted as /home, from ext2 to ext3, do the following.

```
umount /dev/sda2

tune2fs -j /dev/sda2

mount /dev/sda2 /home
```

Note: You really don't need to umount and mount it, as ext2 to ext3 conversion can happen on a live file system. But, I feel better doing the conversion offline.

Converting ext3 to ext4

If you are upgrading /dev/sda2 that is mounted as /home, from ext3 to ext4, do the following.

```
umount /dev/sda2

tune2fs -O extents,uninit_bg,dir_index /dev/sda2

e2fsck -pf /dev/sda2

mount /dev/sda2 /home
```

-