BOOT PROCESS

BIOS/POST

power-on-self-test (POST) is executed

MBR

selecting the bootable device

GRUB2

1. Loads the vmlinuz kernel image

kernel

1. Loads necessary drivers modules from initrd image
2. Start system first process- systemd

Systemd

1. Reads configuration file from he /etc/system/directory
2. Reads file linked by /etc/systemd/system/default.target
3. Brings the system to the state defined by the system target

➢ There are six steps in linux boot process:-

1) **BIOS**
2) **MBR**
3) **GRUB**
4) **KERNEL**
5) **SYSTEMD**
6) **RUN LEVEL**

- ❖ **POST will perform hardware self test**

1. BIOS :- BIOS stands for basic input output system. It perfomed some integrity check the search loads and execute the boot loader program.

Once the boot loader program is detected and loaded in the memory bios give the control to it. So In simple term BIOS loads and executes the MBR boot loader.

2. MBR :- MBR stands for Master Boot Record is 512 byte in size. It has 3 component s :-

1) Primary boot loader in first 446 byte
2) Second partition table info in next 64 byte

3) Error detection check in last 2 byte

Works of MBR :-

- MBR discovers the bootable device and loaders the Grub2 boot loader into memory and transfers control over to it.

3. GRUB :-

-Grub stands for Grand Unified Bootloader.

- Grub displays a splash screen and wait for few seconds. If there is multiple kernel images, we can choose which one to be execute, and if we don't enter anything it loads the default kernel image as specified in the grub configuration file.

Grub configuration file is /boot/grub2/grub.cfg so grub loads and execute kernel and initrd image.

4. Kernel :-

Kernel starts the systemd process with a process "Id 1". It also mount the root file system.

* initrd stand for initial RAM Disk

* initrd is used by kernel as temporary root file system until kernel is mounted it also contains necessary drivers compiled inside., which helps it to access the hard driver partition, and other hardware.

5. Systemd :-

-Systemd Is the first process that starts after the system boots, and is the final process that is running , when the system shutsdown.

- It control the final stages of booting and prepares the system for use

System read the file /etc/systemd/system/default.target to determine the default system target on run level and the target file defines the service that system start.

6. RUN LEVEL :- There are six run level-

init 0 – power off

init 1 – single user

init 2 – multiuser without network

init 3 – multiuser with network

init 5 – GUI (graphical user interface)

init 6 - Restart