Diagram Booting process:-
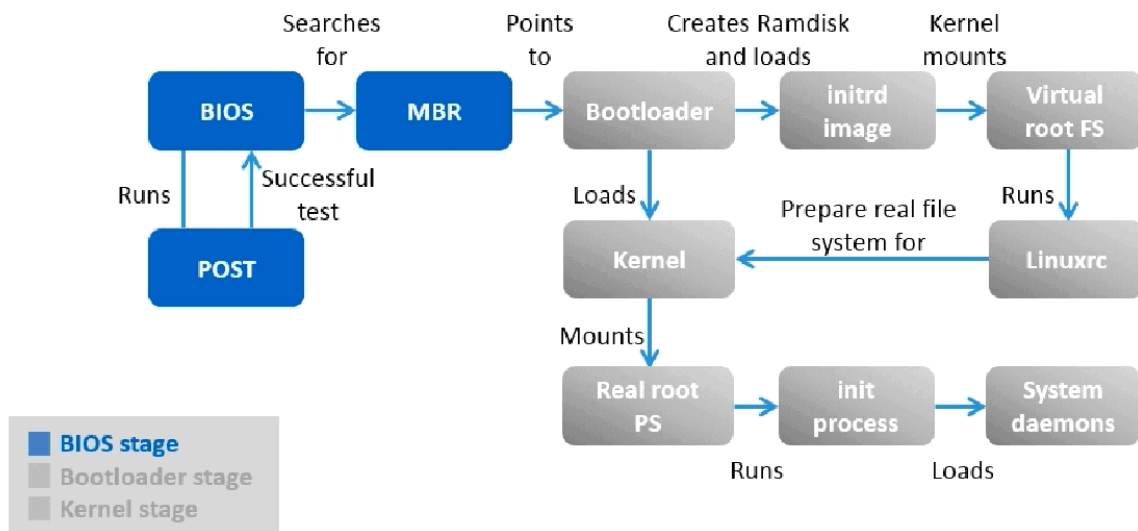
BIOS: - Perform POST →Loads MBR

MBR: - Loads GRUB2Boot Loader

GRUB2: - Loads the vmlinuzkernel image →Extracts the contents of initramfsimage

KERNEL: - Loads necessary driver modules from initrd image→Starts systems 1st process -systemd

SYSTEMD: - Reads configuration files from the /etc/systemd directory→
•Reads file linked by /etc/systemd/system/default.target→
•Brings the system to the state defined by the system target

```
                    GRUB 2 menu-configuration
[root@vivek ~]# cat /etc/default/grub
GRUB_TIMEOUT=5
GRUB_DISTRIBUTOR="$(sed 's, release .*$,,g' /etc/system-release)"
GRUB_DEFAULT=saved
GRUB_DISABLE_SUBMENU=true
GRUB_TERMINAL_OUTPUT="console"
GRUB_CMDLINE_LINUX="crashkernel=auto resume=/dev/mapper/rhel-swap rd.lvm.lv=rhel/root rd.lvm.lv=rhel/swap rhgb quiet"
GRUB_DISABLE_RECOVERY="true"
GRUB_ENABLE_BLSCFG=true
```

```
                    list of default helper scripts located
[root@vivek grub2]# ll /etc/grub.d
total 84
-rwxr-xr-x. 1 root root  8958 Dec  5  2019 00_header
-rwxr-xr-x. 1 root root  1043 Dec 11  2019 00_tuned
-rwxr-xr-x. 1 root root  1240 Dec  5  2019 01_menu_auto_hide
-rwxr-xr-x. 1 root root   232 Dec  5  2019 01_users
-rwxr-xr-x. 1 root root 13434 Dec  5  2019 10_linux
-rwxr-xr-x. 1 root root 11696 Dec  5  2019 20_linux_xen
-rwxr-xr-x. 1 root root  2559 Dec  5  2019 20_ppc_terminfo
-rwxr-xr-x. 1 root root 10670 Dec  5  2019 30_os-prober
-rwxr-xr-x. 1 root root  1412 Dec  5  2019 30_uefi-firmware
-rwxr-xr-x. 1 root root   214 Dec  5  2019 40_custom
-rwxr-xr-x. 1 root root   216 Dec  5  2019 41_custom
-rw-r--r--. 1 root root   483 Dec  5  2019 README
```

C R E A T E D   B Y : -   V I V E K   G A N D H I

Booting Procedure and kernel Parameters

To view all available targets

```
[root@vivek grub2]# systemctl list-units --type=target --all
  UNIT                 LOAD      ACTIVE    SUB     DESCRIPTION
  basic.target         loaded    active    active  Basic System
  cryptsetup.target    loaded    active    active  Local Encrypted Volumes
  emergency.target     loaded    inactive  dead    Emergency Mode
  getty-pre.target     loaded    inactive  dead    Login Prompts (Pre)
  getty.target         loaded    active    active  Login Prompts
  graphical.target     loaded    active    active  Graphical Interface
  initrd-fs.target     loaded    inactive  dead    Initrd File Systems
```

To view all targets installed on disk

```
[root@vivek grub2]# systemctl list-unit-files --type=target --all
UNIT FILE                  STATE
anaconda.target            static
basic.target               static
bluetooth.target           static
cryptsetup-pre.target      static
cryptsetup.target          static
ctrl-alt-del.target        disabled
default.target             indirect
```

To view current default target, run

```
[root@vivek grub2]# systemctl get-default
graphical.target
```

switch to a different target

```
[root@vivek grub2]# systemctl isolate multi-user.target
```

To set a default target, run

```
[root@vivek ~]# systemctl set-default multi-user.target
Removed /etc/systemd/system/default.target.
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/multi-user.target.
[root@vivek ~]# systemctl get-default
multi-user.target
```

Output

```
    Red Hat Enterprise Linux 8.2 (Ootpa)
    Kernel 4.18.0-193.el8.x86_64 on an x86_64

    Activate the web console with: systemctl enable --now cockpit.socket

    vivek login: _
```