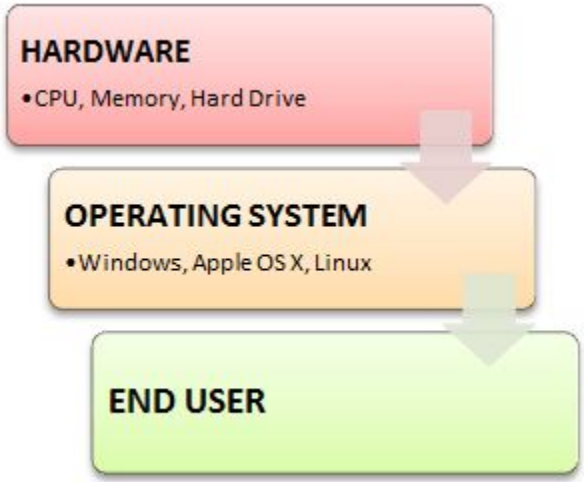
Linux Overview

What is Linux?

LINUX is an operating system or a kernel distributed under an open-source license. Its functionality list is quite like UNIX.



Who created Linux?

Linux is an operating system or a kernel which germinated as an idea in the mind of young and bright **Linus Torvalds** when he was a computer science student. He used to work on the UNIX OS (proprietary software) and thought that it needed improvements.

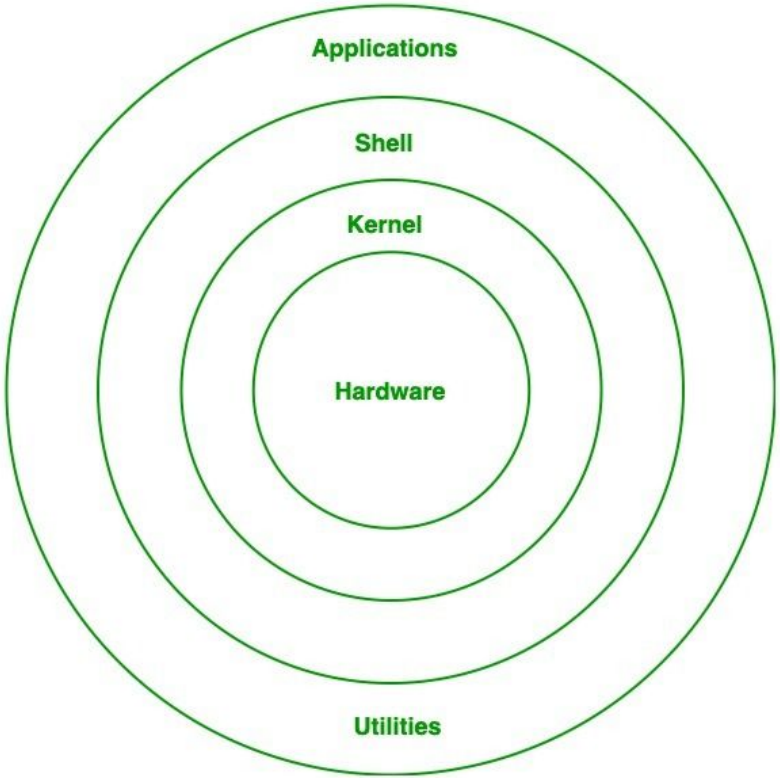
Is There Any Difference between Linux and Ubuntu?

Main difference between Linux and Ubuntu is Linux is the family of open-source operating systems which is based on Linux kernel.

Ubuntu is a free open-source operating system and the Linux distribution which is based on Debian.

Linux is the core system and Ubuntu is the distribution of Linux.

Architecture of Linux



1. Kernel:

   Core of the Linux based operating system. It virtualizes the common hardware resources of the computer to provide each process with its virtual resources. This makes the process seem as if it is the sole process running on the machine. The kernel is also responsible for preventing and mitigating conflicts between different processes. Different types of the kernel are:

   Monolithic Kernel

   Hybrid kernels

   Exo kernels

   Micro kernels

2. System Library: Special types of functions that are used to implement the functionality of the operating system.

3. Shell: It is an interface to the kernel which hides the complexity of the kernel's functions from the users. It takes commands from the user and executes the kernel's functions.

4. Hardware Layer: This layer consists all peripheral devices like RAM/ HDD/ CPU etc.

5. System Utility: It provides the functionalities of an operating system to the user.

Advantages of Linux

1. Open Source OS
2. Highly secure
3. The software updates in Linux are easy and frequent.
4. Large community support.
5. Performance of the Linux system is much higher than other OS.
6. Linux based server could run non-stop without a reboot for years on end.
7. Used by Amazon, Facebook, Google etc companies.

Disadvantages of Linux

1. Difficult for beginner.
2. No standard edition
3. Difficult to troubleshoot.

Linux Commands

ls

top

free

touch file1.txt

cat file.txt

alias

tail

curl

chown

man

chmod

sudo

grep

pwd

ifconfig

telnet

nc -vz

nmap

diff

find

ssh

ssh-keygen

scp

nslookup

ufw

firewalld

df -h

du -sh

uptime

timedatectl

kill

mkdir

vi

nano

yum,dnf,apt

tar, zip, unzip

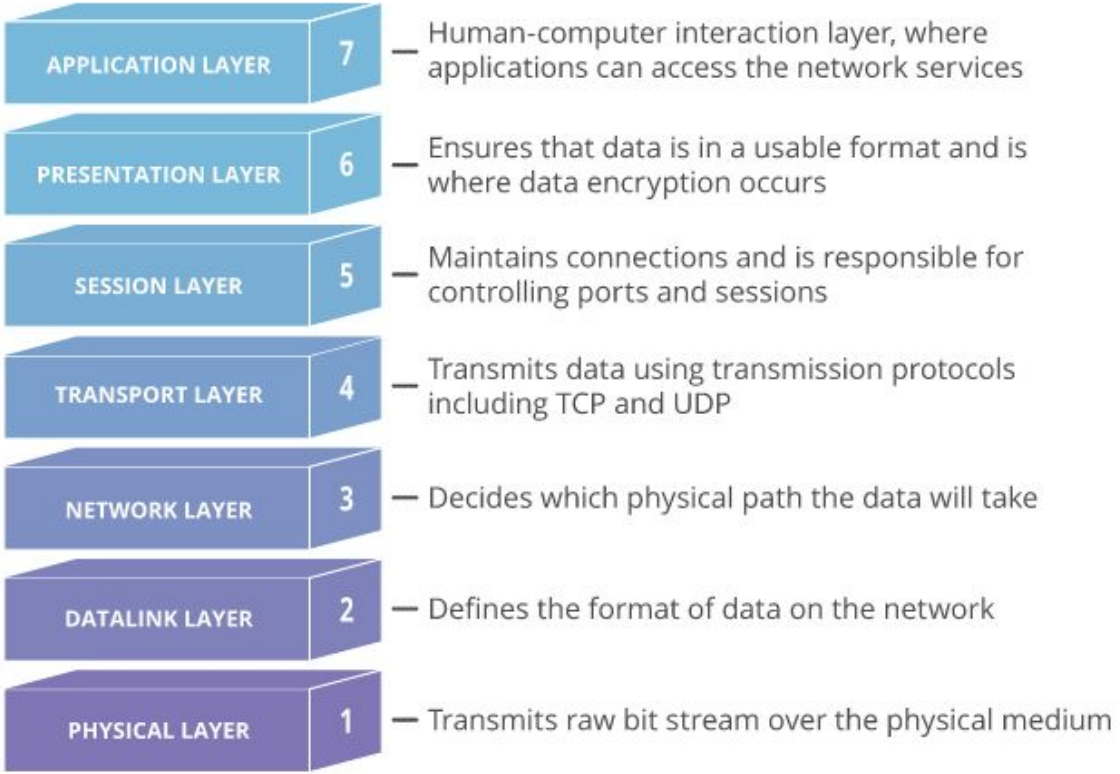
sed, awk

useradd

passwd

userdel

OSI model


APPLICATION LAYER
7
Human-computer interaction layer, where applications can access the network services
PRESENTATION LAYER
6
Ensures that data is in a usable format and is where data encryption occurs
SESSION LAYER
5
Maintains connections and is responsible for controlling ports and sessions
TRANSPORT LAYER
4
Transmits data using transmission protocols including TCP and UDP
NETWORK LAYER
3
Decides which physical path the data will take
DATALINK LAYER
2
Defines the format of data on the network
PHYSICAL LAYER
1
Transmits raw bit stream over the physical medium

Thank you .