

Linux Operating System

Agenda

- What is Linux?
- What is Operating System?
- History of Linux
- Linux Origins
- Why Linux?
- Architecture of Linux
- Advantages/Disadvantages of Linux
- Linux File System hierarchy
- Basic Linux commands
- Advance Linux commands
- Deployment commands

What is Linux?

- It is Unix like operating system
- It can run on 32 bit and 64 bit hardware
- Linux OS is freely distributable and cross platform
- Supports multiple processors
- True multi-tasking and multi-user OS

What is an Operating System?

Operating system is an interface between user and the computer hardware. The hardware of the computer cannot understand the human readable language as it works on binaries i.e. 0's and 1's. In such case we need an interface which can translate human language to hardware and vice-versa for effective communication.

Types of Operating system:

1.Single user-single tasking Operating system

Example: **MS-DOS**

2.Single user Multi-tasking Operating system

Example: **Windows**

3.Multi-user Multi-Tasking Operating system

Example: **Linux**

History-LINUX



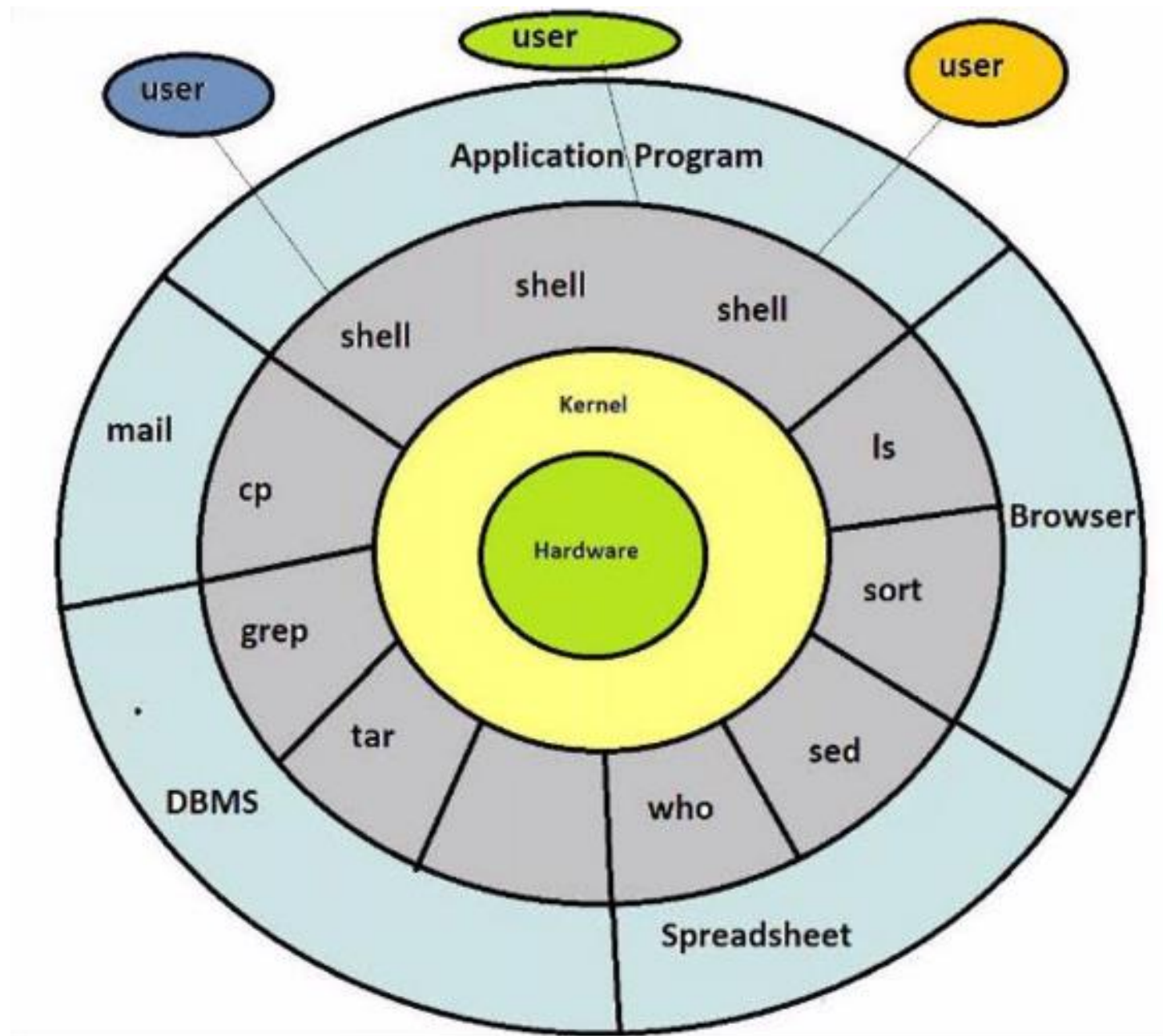
- In April 1991, Linus Torvalds, a 21-year-old student at the University of Helsinki, Finland started working on some simple ideas for an operating system.
- By September 1991, Linux version 0.01 was released on the FTP server of the Finnish University and Research Network. It had 10,239 lines of code.
- The X Window System was soon ported to Linux. In March 1992, Linux version 0.95 was the first to be capable of running X.

Features of Linux Operating System

- ▶ **Portable** - Portability means softwares can work on different types of hardware in the same way. Linux kernel and application programs support their installation on any kind of hardware platform.
- ▶ **Open Source** - Linux source code is freely available and it is a community-based development project. Multiple teams work in collaboration to enhance the capability of Linux operating system and it is continuously evolving.
- ▶ **Multi-User** - Linux is a multiuser system means multiple users can access system resources like memory/ ram/ application programs at the same time.
- ▶ **Multiprogramming** - Linux is a multiprogramming system means multiple applications can run at the same time.
- ▶ **Hierarchical File System** - Linux provides a standard file structure in which system files/ user files are arranged.
- ▶ **Shell** - Linux provides a special interpreter program which can be used to execute commands of the operating system. It can be used to do various types of operations, call application programs etc.
- ▶ **Security** - Linux provides user security using authentication features like password protection/ controlled access to specific files/ encryption of data.

Architecture of LINUX O.S.

- ▶ Linux System Architecture is consists of following layers
- ▶ **Hardware layer** - Hardware consists of all peripheral devices (RAM/ HDD/ CPU etc).
- ▶ **Kernel** - Core component of Operating System, interacts directly with hardware, provides low level services to upper layer components.
- ▶ **Shell** - An interface to kernel, hiding complexity of kernel's functions from users. Takes commands from user and executes kernel's functions.
- ▶ **Utilities** - Utility programs giving user most of the functionalities of an operating systems.



ADVANTAGES

- ▶ It's Free and open source.
- ▶ Linux is portable to any hardware platform .
- ▶ Linux requires minimal hardware configuration.
- ▶ Linux continues work well even when the hard disk is almost full.
- ▶ Linux can run almost forever without any reboot. It's stable.
- ▶ Linux operating system does not slow down with time.
- ▶ Linux operating systems comes with some inbuilt softwares like open office for Word, Power-point, Excel, Firefox, CD/DVD burner etc.
- ▶ Linux is one of the most secure operating systems.
- ▶ The large number of Linux distributions gives you a choice.
- ▶ The Linux OS and most Linux applications have very short debug-times.
- ▶ if there were a widespread Linux virus released today, there would be hundreds of patches released tomorrow, either by ordinary people that use the operating system or by the distribution maintainers. We wouldn't need to wait for a patch from a single company like we do with Windows.

DISADVANTAGES

- ▶ There's no standard edition of Linux.
- ▶ Linux is not very user friendly and confusing for beginners.

Linux Folder System

