Redhat Enterprise Linux guide.

UNIX is the first Operating system in the world, developed by Kem Thompson and Dennis Ritchie in 1969 at Bell Lab by AT&T Company.

Some Unix OS's,
IBM : AIX
SGI : IRIX
Sun : Solaris

Free software foundation organization, they start a project by name GNU. The main aim of this project is to develop such an operating system that can run on any platform.

In 1991, a student Linuz Torvalds developed a kernel named Linux's kernel plus GNU application called Linux operating system.

Linux is an open source technology.

Different companies that provide Linux in Market are Redhat, SuSe, Scientific, Centos, and Knoppix etc.

Features:

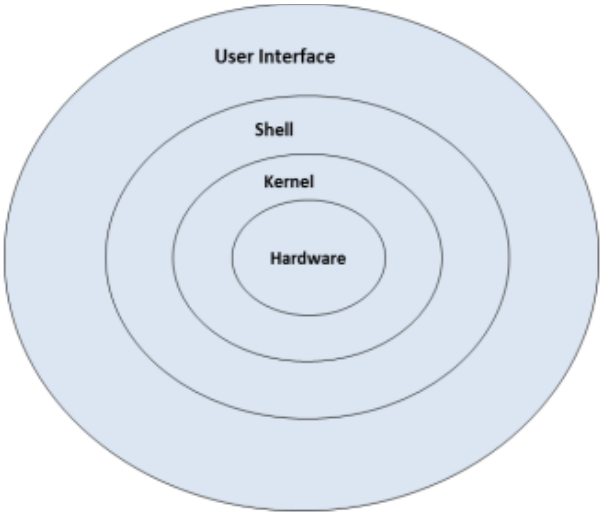
- Linux is very reliable OS because kernel of Linux is very stable as compare to windows kernel not crashed easily.
- Linux is the much secured OS because there is no any problem of virus.
- Free and Opensource – Its source is availabale for anybody to usee and alter. Many developers are collaborate to improve and strengthen Linux, lots of developers constantly work on updating the linux systems.
- Extremly flexible – Linux can be used for high performance server applications, desktop applications, and embedded systems. You can install only the needed components for a particular use. You can also restrict the use of specific computers.
- Best for Developers - Linux support almost all programming language. A majority of developers all around the world prefer the Linux terminal over the Windows command line.

Advantages

- Versatile - It allows you to run many applications at the same time, also called "Multi Tasking" and also allows for simultaneous multi-user logins.
- Low Cost – There is no need to spend time and huge amount money to obtain licenses since Linux and much of it's software come with the GNU General Public License. There is no need to worry about any software's that you use in Linux.
- Security- Linux is so much secure in architecture that you even don't need to go behind a firewall until you are on Network.
- Stability- Linux has high stability compared with other operating systems. There is no need to reboot the Linux system to maintain performance levels. Rarely it freeze up or slow down. It has a continuous up-times of hundreds of days or more.
- Compatility - It runs all common Unix software packages and can process all common file formats.

Windows OS	Linux OS
It is a proprietary software everything need to buy	It is an open source software everything is free
Less secure	More secure
More costly	Less cost compare to Windows
Developed by Microsoft corporation	Developed by Linus Torvalds
Options need to select	You can develop anything as per your requirement
Kernel is not editable	Kernel is editable

Linux Architecture



Kernel - It is a program. Kernel is a Core component of operating system, interacts directly with hardware and 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.

User Interface - In information technology, the user interface (UI) is everything designed into an information device with which a human being may interact. Two types CLI (Command line interface) and GUI (Graphical User Interface).

System Utility - System Utility programs are responsible to do specialized, individual level tasks

System Library - System libraries are special functions or programs using which application programs or system utilities accesses Kernel's features. These libraries implements most of the functionalities of the operating system.

Linux File System

Everything in Linux can be reduced to a file. Partitions are associated with files such as /dev/hda1. The Filesystem Hierarchy Standard (FHS) is the official way to organize files in Unix and Linux directories.

Linux file system and directory structure Several major directories are associated with all modern Unix/Linux operating systems. These directories organize user files, drivers, kernels, logs, programs, utilities, and more into different categories. The standardization of the FHS makes it easier for users of other Unix-based operating systems to understand the basics of Linux. All of the other directories shown in Table are subdirectories of the root directory, unless they are mounted separately.

Directory	Description
/	Root directory is top-level directory in the FHS. All other directories are sub directories of root.
/bin	Essential command line utilities
/boot	Includes Linux startup files, including the Linux kernel. Can be small; 16MB is usually adequate for a typical modular kernel. If you use multiple kernels, such as for testing a kernel upgrade, increase the size of this partition accordingly.
/etc	Most basic configuration files.
/dev	Hardware and software device drivers for everything from floppy drives to terminals.
/home	Home directories for almost every user
/lib	Program libraries for the kernel and various command line utilities
/mnt	The mount point for removable media, including floppy drives, CD-ROMs, and Zip disks
/opt	Used to store application data(optional)
/proc	Currently running kernel-related processes, including device assignments such as IRQ ports, I/O addresses
/root	The home directory of the root user.
/sbin	System administration commands
/tmp	Temporary files. By default, Red Hat Linux deletes all files in this directory periodically.
/usr	Small programs accessible to all users. Includes many system administration commands and utilities.
/var	Variable data, including log files and printer spools.