

Deliverable 1

Introduction

In this project I am going to build a file server with ubuntu server. To build a file server we will have some requirements and we will talk about it in shortly. We will need virtual Machine to do this project. We will talk about how we can install Virtualbox and how we can install ubuntu in virtualbox to build a file server. We will also learn about Linux history, Linux distribution and so much more.

Project hardware and software requirements



- Ubuntu server 20.4
- Virtual Machine
- Dual-core Processor 2.5 GHZ
- RAM 8 GB
- Windows 10 or newer/ MacOS

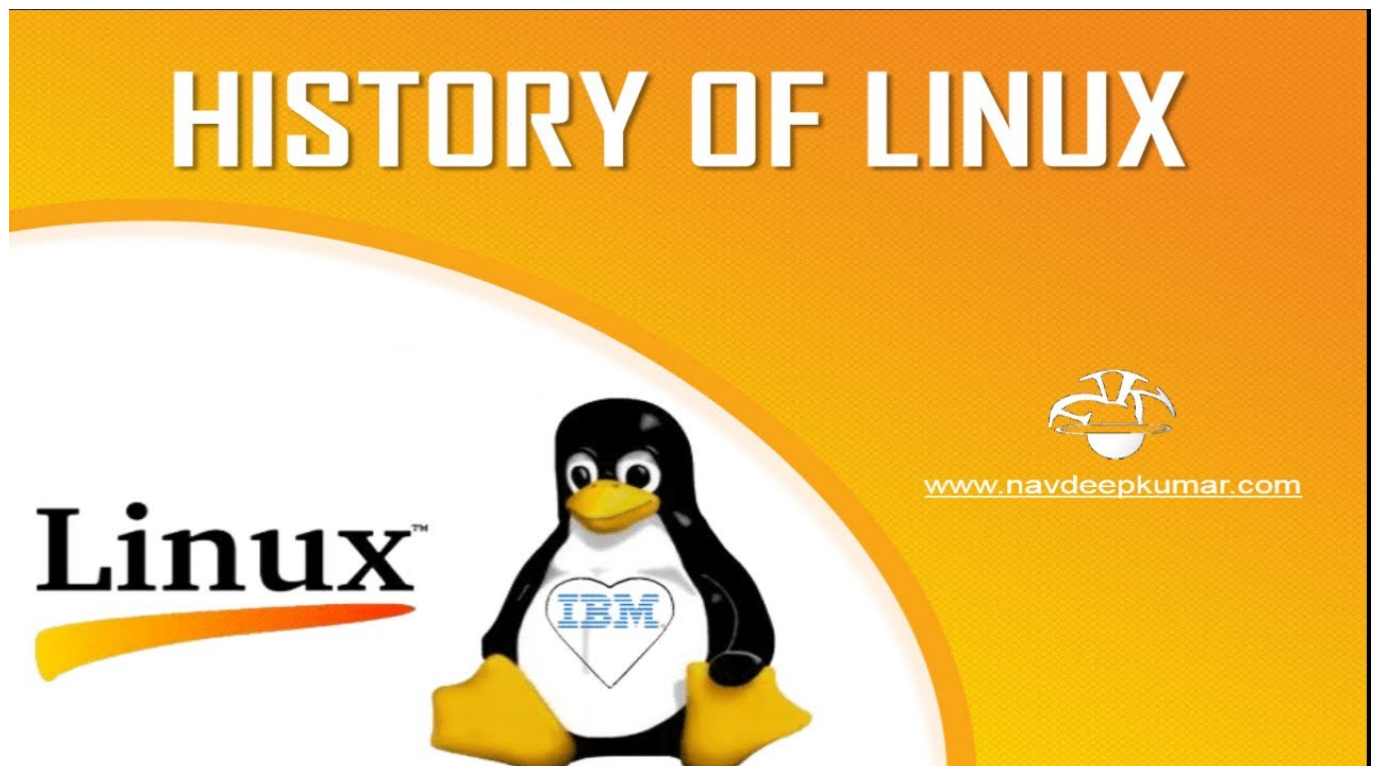
What is Linux?



Linux is the best-known and most-used open source operating system. As an operating system, Linux is software that sits underneath all of the other software on a computer, receiving requests from those programs and relaying these requests to the computer's hardware.

Today, Linux systems are used throughout computing, from embedded systems to virtually all supercomputers, and have secured a place in server installations such as the popular LAMP application stack. Use of Linux distributions in home and enterprise desktops has been growing.

Short history of linux



Evolution of Computer :

In earlier days, computers were as big as houses or parks. So you can imagine how difficult it was to operate them. Moreover, every computer has a different operating system which made it completely worse to operate on them. Every software was designed for a specific purpose and was unable to operate on other computer. It was extremely costly and normal people neither can afford it nor can understand it.

Evolution of Linux :

In 1991, Linus Torvalds a student at the university of Helsinki, Finland, thought to have a freely available academic version of Unix started writing its own code. Later this project became the Linux kernel. He wrote this program specially for his own PC as he wanted to use Unix 386 Intel computer but couldn't afford it. He

did it on MINIX using GNU C compiler. GNU C compiler is still the main choice to compile Linux code but other compilers are also used like Intel C compiler.

He started it just for fun but ended up with such a large project. Firstly he wanted to name it as 'Freax' but later it became 'Linux'.

He published the Linux kernel under his own license and was restricted to use as commercially. Linux uses most of its tools from GNU software and are under GNU copyright. In 1992, he released the kernel under GNU General Public License.

Linux Today :

Today, supercomputers, smart phones, desktop, web servers, tablet, laptops and home appliances like washing machines, DVD players, routers, modems, cars, refrigerators, etc use Linux OS.

Linux distribution

Other operating systems like Microsoft combine each bit of codes internally and release it as a single package. You have to choose from one of the version they offer.

But Linux is different from them. Different parts of Linux are developed by different organizations.

Different parts include kernel, shell utilities, X server, system environment, graphical programs, etc. If you want you can access the codes of all these parts and assemble them yourself. But its not an easy task seeking a lot of time and all the parts has to be assembled correctly in order to work properly.

From here on distribution (also called as distros) comes into the picture. They assemble all these parts for us and give us a compiled operating system of Linux to install and use

- **Slackware:**



Slackware is a Linux distribution designed for maximum simplicity and stability. Throughout the era of Linux use, Slackware has been a popular choice for durable results and a codebase that does not have a lot of fragility or inherent interdependence problems

- **Debian**



Debian has its existence since 1993 and releases its versions much slowly than Ubuntu and mint

This makes it one of the most stable Linux distributor.

Ubuntu is based on Debian and was founded to improve the core bits of Debian more quickly and make it more user friendly. Every release name of Debian is based on the name of the movie Toy Story.

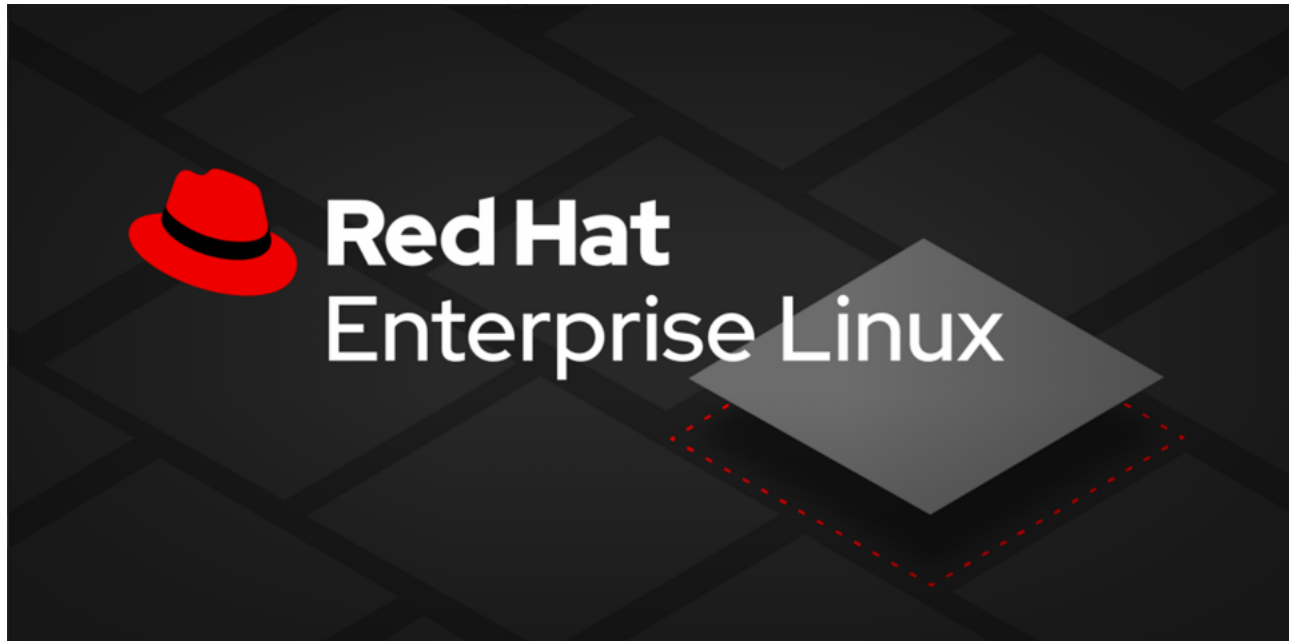


Ubuntu: It came into existence in 2004 by Canonical and quickly became popular. Canonical wants Ubuntu to be used as easy graphical Linux desktop without the use of command line. It is the most well known Linux distribution. Ubuntu is a next version of Debian and easy to use for newbies. It comes with a lots of pre-installed apps and easy to use repositories libraries



Kali Linux: Kali Linux is mainly used for advanced Penetration Testing and Security Auditing. Kali contains several hundred tools which are geared towards various information security tasks, such as Penetration Testing, Security research, Computer Forensics and Reverse Engineering.

- **Red Hat Enterprise Linux:**

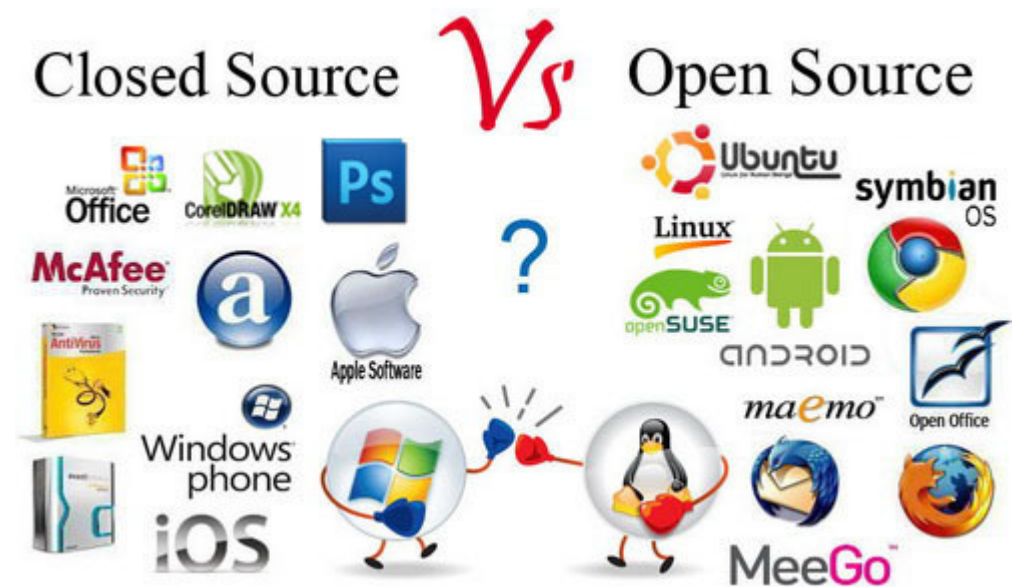


Red hat is a commercial Linux distributor. Their products are red hat enterprise Linux (RHEL) and Fedora which are freely available. RHEL is well tested before release and supported till seven years after the release, whereas, fedora provides faster update and without any support. Red hat uses trademark law to prevent their software from being redistributed. CentOS is a community project that uses red hat enterprise Linux code but removes all its trademark and make it freely available. In other words, it is a free version of RHEL and provide a stable platform for a long time.



Fedora It is a project that mainly focuses on free software and provides latest version of software. It doesn't make its own desktop environment but used 'upstream' software. By default it has GNOME3 desktop environment. It is less stable but provides the latest stuff.

Open Source VS Closed Source



Open Source	Closed Source
Open source software refers to the computer software which source is open means the general public can access and use.	Closed source software refers to the computer software which source code is closes means public is not given access to the source code.
Open Source Software in short also referred as OSS	Closed Source Software in short also referred as CSS.
The source code of open source software is public	In closed source software the source code is protected.
This code can be modified by other users and organizations means that the source code is available for anyone to look at.	The only individual or organization who has created the software can only modify the code.
The price of open source software is very less.	The price of closed source software is high.

Advantages of open source



number	Advantages of open source
1	Lesser hardware costs
2	High-quality software
3	No vendor lock in

number	Advantages of open source
4	Integrated management
5	Simple license management

Advantages of closed source



Source name	Advantages of closed source
User Friendly	Closed source software is created targeting a large audience base. Hence, they are basically easy to use. Even a person without technical knowledge will be able to use a closed source software. Additionally, there are various support services and user manuals available to enhance user experience.
Security	Since closed source software is used in a controlled environment with a group of people, it is way ahead when it comes to security. Only the providers have the authority to alter the source code. As a result, there is less risk of hacking and other vulnerabilities.
Support	Always the closed source software providers make sure that there is some level of support provided for the software. Whenever there is a problem, users can troubleshoot immediately by contacting the provider. Or else, users are left with other options such as forums and articles. In most cases, the support will be given in one business day
Testing	Always when using a closed source software, users are with the option to quit anytime, if they feel the software does not satisfy their needs. Some of the closed source software comes with the trial version so that the companies could identify whether the software provides the support the business needs.
Updates	Although an open source software is equipped with high flexible source code, still it faces difficulty in satisfying business needs. Too much of flexibility in the code can be a problem for companies. This is when closed source softwares are preferred. When an update is provided by a closed source software, the developer ensures that it is a reliable product.

The free software movement



People use free software operating systems such as GNU/Linux for various reasons. Many users switch for practical reasons: because the system is powerful, because it is reliable, or for the convenience of being able to change the software to do what you need.

Those are good reasons—but there is more at stake than just convenience. What's at stake is your freedom, and your community.

The idea of the Free Software Movement is that computer users deserve the freedom to form a community. You should have the freedom to help yourself, by changing the source code to do whatever you need to do. And the freedom to help your neighbor, by redistributing copies of programs to other people. Also the freedom to help build your community, by publishing improved versions so that other people can use them.

Sources

Number source	Software movement Source
Freedom 0	The freedom to use the program for any purpose
Freedom 1	The freedom to study how the program works, and change it to make it do what you wish
Freedom 2	The freedom to redistribute and make copies so you can help your neighbor
Freedom 3	The freedom to improve to the program, and release your improvements(and modified versions in general) to the public, so that the whole community benefits