



LINUX

INTRODUCTION

In the era of technology our most of the computation is done on Linux systems. Linux powers most of our supercomputer and majority of our servers are running on linux . In short Linux is everywhere.

So what is linux ?

Linux is a UNIX like system.

Now what is UNIX?

UNIX is a group of multitasking , multi-user operating system developed at Bell Laboratories by Dennis Ritchie, Ken Thompson and others in late 1970's.

* Multi user OS mean that more than one person use the system with different id's



KEN

Dennis

What's special about UNIX ?

UNIX was developed around some characteristics which are also kept in mind while developing linux systems

they are :

- Simplicity

Most of the useful utilities of UNIX are very simple and as a result they are precise and simple to understand

- Focus

It's a good practice to create multiple small modules that do some specific task and combine them to do more demanding task rather than creating a big module handling every thing

- Reusable Components

The core of application are available as a library with well documented libraries and with simple but flexible programming interface .

- Filters

Many UNIX application can be used as filters, that is they transform their input and produce output .

- Open File Formats

The most popular UNIX programs use configuration files and data file that are plain ASCII text or XML. It make it more user-friendly

- Flexibility

The program created are easy to understand and flexible as we don't know how user is going to use that so never assume that you know all what user might want.

Now we understand what is linux it's a freely distributed implementation of a UNIX-like kernel (the low level core of an operating system) .

The Linux project was started by Linus Torvalds in 1991 with the aim to create a free operating system kernel . And till date everything about linux kernel is handled and updated by Linus . We can get the whole source code of linux kernel on GitHub.

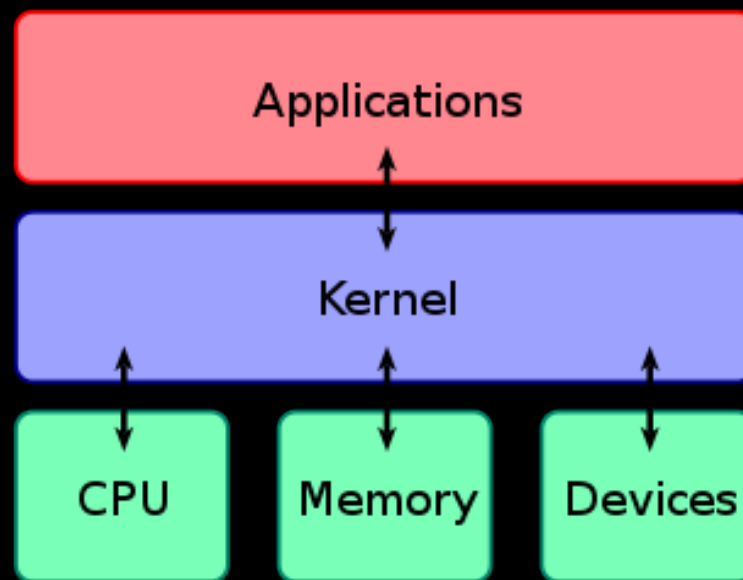


Linus Torvalds

What is a kernel?

Kernel is program that interact with hardware and software.

Or we can understand kernel is the joining of hardware and software



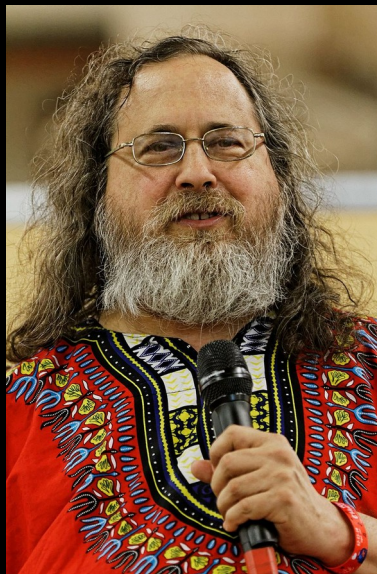
so linux is just a kernel .

Many Distribution of Linux uses client side software developed by GNU , Gnome ,KDE etc . They provide software for client side for example shell which is needed to write and execute any command or the gcc compiler that is used to compile c programs

What is GNU project ?

GNU is combination of open source computer software .

It was publicly announced on September 27 1983 and was started by Richard Stallman with the goal to provide completely free and open source operating system



Richard

Linux by definition is also a operating system as it serves the base purpose of operating system . But it don't have any client side software.

For ex consider alpine linux it's a linux for embedded systems which don't use any GNU software .

Gnome and KDE are also like GUN , creating free software and desktop environment .

Even Android also use linux kernel.

So is android just a linux OS in smartphones?

The answer is both yes and no. As the base kernel is same.

If we run a static program on both the result will be same

But if we run a dynamic program the result will be different.

As in most distribution GNU's c library is used to get work done,

but in case of android Google writes it own c library called

Bionic . Hence both results differ as they both are not binary compatible with each other.

* Binary compatible mean a system can run same executable code and produce same results

So to conclude we can say linux is a kernel which in combination with different open source software , built a operating system known as distribution that a normal user can use. For example Ubuntu , kali linux , linux mint , redhat linux and many more .

Thank you

— inv3ntor