Linux Administration

What is Linux?

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What is Linux?

- Linux is an operating system, like Microsoft Windows, Apple Mac OS X or many others.
- It is a Unix-like system, following similar concepts and philosophy.
- It has been created by Linus Torvalds, from Finland, as a hobby and it's now supported and developed by many volunteers and companies around the world.
- It's free, it's free, it's secure, it's highly versatile.

August 25th 1991

comp.os.minix

Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be big and professional like gnu) for 386(486) AT clones. This has been brewing since april, and is starting to get ready. I'd like any feedback on things people like/dislike in minix, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) among other things).

I've currently ported bash(1.08) and gcc(1.40), and things seem to work. This implies that I'll get something practical within a few months, and I'd like to know what features most people would want. Any suggestions are welcome, but I won't promise I'll implement them :-)

Linus (torvalds@kruuna.helsinki.fi)

PS. Yes - it's free of any minix code, and it has a multi-threaded fs. It is NOT portable (uses 386 task switching etc), and it probably never will support anything other than AT-harddisks, as that's all I have :-(.
—Linus Torvalds

Licensing and intellectual property

- The kernel is covered by the GNU GPL v2 license. This allows everybody to run, study, share and modify the code.
- The “Linux” name is a trademark owned by Linus Torvalds.
- The Linux Foundation is a non-profit that promote open-source software (not just Linux).

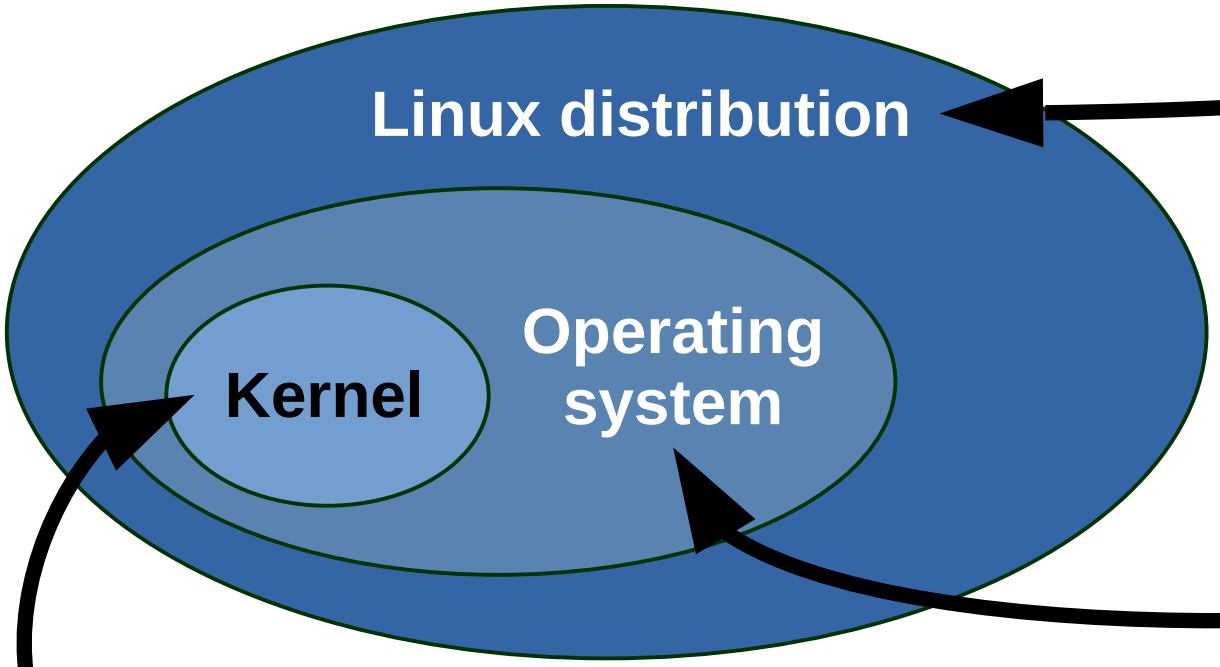
Hardware requirements

- Most Linux installation are running on the x86_64 architecture. Other architectures are also supported (x86, ARM, PowerPC, …).
- Memory requirements can be tailored to be very low (128/512 GB).
- On the other end of the spectrum, all top 500 super computers are running Linux-based system since 2017.

What is a Linux distribution?

- Linux itself is only a kernel, by itself it doesn't allow much for a end-user
- A distribution is an organized set of applications, tools and other pieces of software ready to use, on the top of a Linux kernel.

All software packaged to be used with a Linux system, from the most basic text editor to distributed databases



All utilities and software libraries needed to use the system (printing, graphical display, configuration tools)

The layer between the hardware and every piece of software, managing all resources (memory, files, network)

Software packages

- Most Linux distributions are providing Free and Open Source Software (FOSS), with limited support for proprietary applications.
- Some distributions may provide a large or narrow catalog of packaged applications.

Few Linux distributions

- Slackware
- Debian
- Ubuntu
- Red Hat Enterprise Linux (RHEL)
- Rocky Linux
- Some distributions have also different editions for desktop or server usage or even more specialized purposes.

Some specialized distributions

- Raspberry Pi OS / Raspbian: design to run on Raspberry Pi.
- Kali Linux: computer security and penetration testing.
- SteamOS: gaming.

Community-based, enterprise-grade

- Some distributions are entirely supported by volunteers and don’t provide any kind of official support.
- Few distributions are provided by businesses and will receive support and additional services.

BSD systems

- NetBSD, FreeBSD and OpenBSD are different operating systems, not related to Linux. They are descendant of the Berkeley Software Distribution Unix system.
- Similar skills and knowledge can be used to manage BSD systems.

Using Linux

- Using a Linux distribution with a graphical user interface (GUI) does not necessarily require a lot of training; it's pretty similar to other systems.
- You can also use the command line interface (CLI), also known as “shell”.
- There is usually no graphical interface on a Linux server or an embedded system, the CLI will be your only option to manage it.