

Linux Distros



Back to history



1969 Ken Thompson and Dennis Ritchie of Bell Laboratories developed the UNIX operating system

Refer to Video lecture 01



1985 Richard Stallman started FSF (Free Software Foundation). Later FSF started developing the “Hurd” kernel

universal freedom to study, distribute, create, and modify computer software
GNU project (GNU is Not UNIX)

See also:

<https://www.youtube.com/watch?v=cGVdCGxh1IY>

GNU General Public License (GPL)



1991 Linus Torvalds released the first Linux kernel



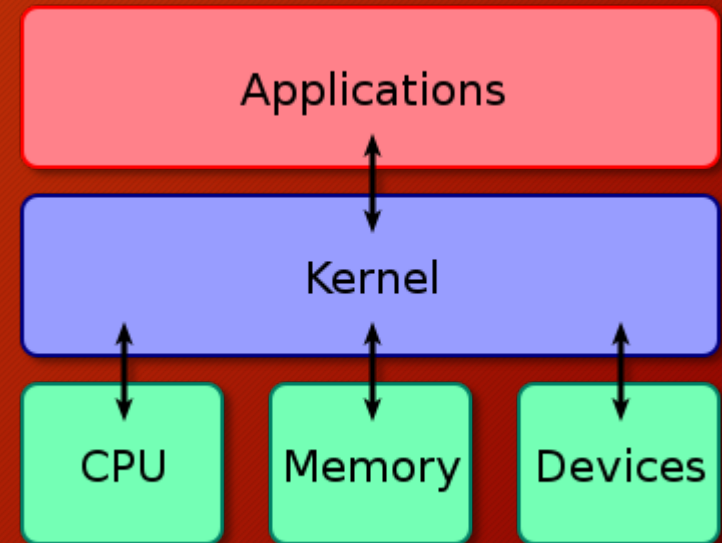
The GNU project adapted Linux kernel instead of “Hurd”

GNU/Linux

- GNU was developing a kernel called “Hurd”, but the project was stalled
- GNU started using Linux kernel instead
- Technically there is no “Linux OS”, only the Linux kernel
- The correct term for full operating system is GNU/Linux OS

Kernel

- Kernel is the code that manages the hardware
- Abstracts the hardware layer from the applications
- Provides an interface for applications to interact with hardware
- Manages time-sharing, multi-tasking, I/O, memory, and devices

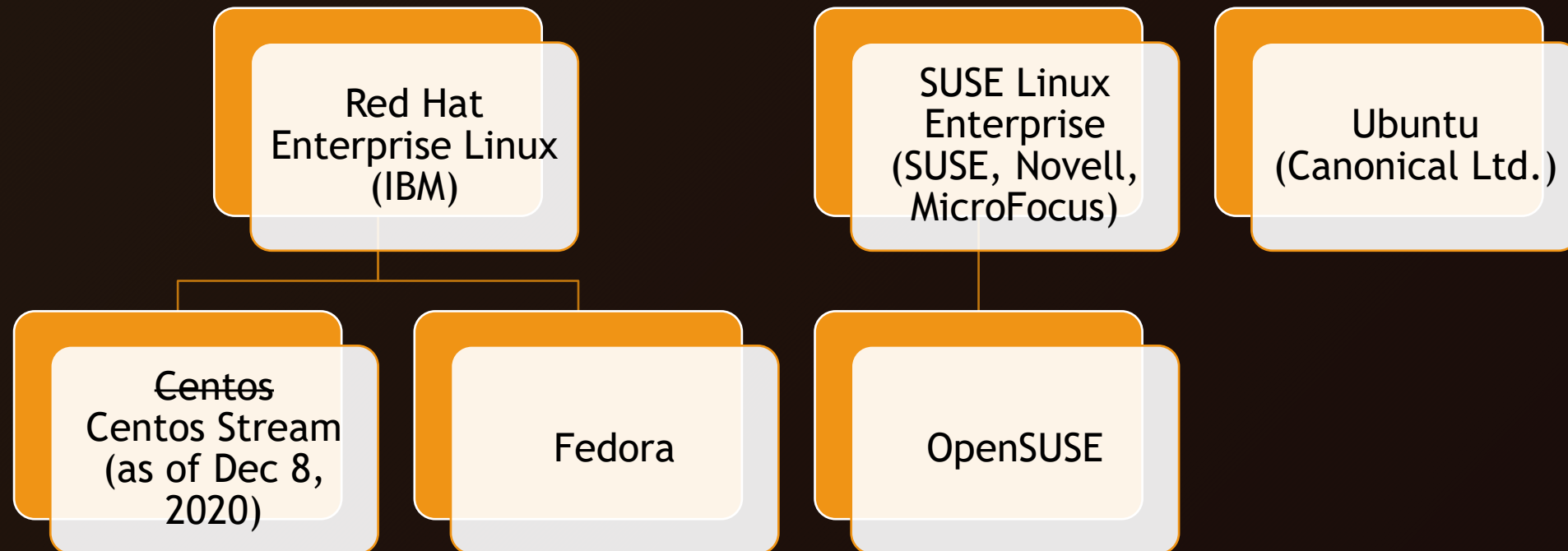




Linux Distro

- Operating system made from Linux kernel, and a collection of other software
 - Linux Kernel
 - GNU Tools and Libraries
 - Package management
 - A Windows system and Desktop environment
 - Documentation
 - Additional Software
- Commercially backed, or entirely community driven
- Look at:
https://en.wikipedia.org/wiki/Linux_distribution#/media/File:Linux_Distribution_Timeline.svg

Examples of Commercially backed Linux



Examples of community supported Linux

- Debian (the Debian Project)
- Arch Linux
- Gentoo Linux (Gentoo Foundation)

Debian



Entirely free and open-source software



Branches: Stable, Testing, Unstable



Package Managers: Debian Package Management System (dpkg)



User learning curve: Intermediate to advanced (server/cloud admin)

Ubuntu



Based on Debian



Free Software + some proprietary device drivers



Deployment types: Desktop, Server, Cloud, IoT, Ubuntu for Windows Subsystem for Linux (WSL)



Flavours: Kubuntu, Lubuntu, Ubuntu Budgie, Ubuntu MATE, Ubuntu Kylin, Ubuntu Studio, Xubuntu



Package Managers: GNOME Software, dpkg (APT as front), Snappy, Flatpak



User learning curve: beginner to advanced (server/cloud admin)

Linux Mint



Based on Ubuntu

Uses the same package management system
Same software packages as Ubuntu



Package Management: dpkg



More “light weight” than Ubuntu



Aimed at Desktop and Laptop



User learning curve: beginner to intermediate

Red Hat Enterprise Linux (RHEL)



Has strict rules to restrict free re-distribution since 2003(still provides source code for free)



Now owned by IBM



Package management: Redhat Package manager (RPM)



Aimed at Enterprise and Servers



User learning curve: intermediate to advanced

Fedora



Released by Redhat in 2003 after RHEL became commercial only (was no longer free)



Community driven support by the Fedora Project



Aimed at Desktop/Workstation



Various free software licenses, plus proprietary firmware files



Cutting Edge, but Less stable than RHEL and Ubuntu LTS

Updates and development from Fedora is ported into RHEL after development and testing is completed



Package manager: DNF (standard tool); dnfdragora and GNOME Software (front-ends); RPM (package system); Flatpak



Learning curve: beginner to advanced

~~CentOS~~ CentOS Stream



Free version of RHEL (mostly GNU GPL)
As of 2021 no longer provides stable version



Binary Compatible with RHEL



Red Hat without Commercial support option
Testing branch for RHEL, Unstable version only



Package manager: Yum, and RPM



User learning curve: Intermediate to advanced

AlmaLinux

(Sponsored by CloudLinux Inc)



Fork of RHEL (as of 2021) by (mostly) former CentOS developers



Binary Compatible with RHEL



Community Driven Development



Package manager: Yum, and RPM



User learning curve: Intermediate to advanced

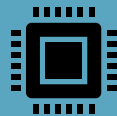
Gentoo



Free Software



Package manager: Portage



Compile the entire OS from source code locally for the specific computer system to ensure maximum performance



User learning curve: Advanced

Arch Linux



Free software, NOT
endorsed by GNU

Default kernel contains
non-free proprietary
blobs



Customizable, lightweight



Can run on desktop, laptops and many other
devices (RaspberryPi)



Package manager: Pacman



User learning curve: Advanced (use this if you
want to be a hardcore Linux user)

SUSE Linux Enterprise/OpenSUSE



Originally free, created
by German based
company SUSE

Popular on desktop and server
GUI control panel called YaST



Purchased by Novell

SUSE Linux Enterprise
(Commercial)
OpenSUSE (Community
supported)



Is now owned by Micro Focus



Package Management: RPM, Zypp



User learning curve: beginner to advanced