

# Linux 101

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KTH

2020

# Some history - way back



BESK - KTH 1953, 512 word memory

- - 1960
- Large single job machines, batch processing
- Operating system often only libraries to handle hardware.

also long time ago



PDP-10 - KTH 1970 ca, 256 Kiword  
memory

- 1970 - 1980
- Multiuser systems, minicomputers (very large)
- Time sharing, virtual memory, hard drives, ...
- Birth of Unix and C

# before you were born



Mac or IBM PC?

- 1980 - 1990
- The personal computer.
- Manual switching between programs.
- MS-DOS, Mac OS, ..



# The \*nix war



AIX, HP-UX, Solaris, Ultrix ...

- 1980 - 2000
- Unix flavors become the leading operating systems for everything but personal computers.
- Everyone wants a standard - their own.

at the same time



Gnu is Not Unix

- 1983 -
- Providing a free (as in speech, not beer) operating system with everything you could need.
- Everything was in place ... the kernel will soon be ready.

*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. : :*

*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 :-).*

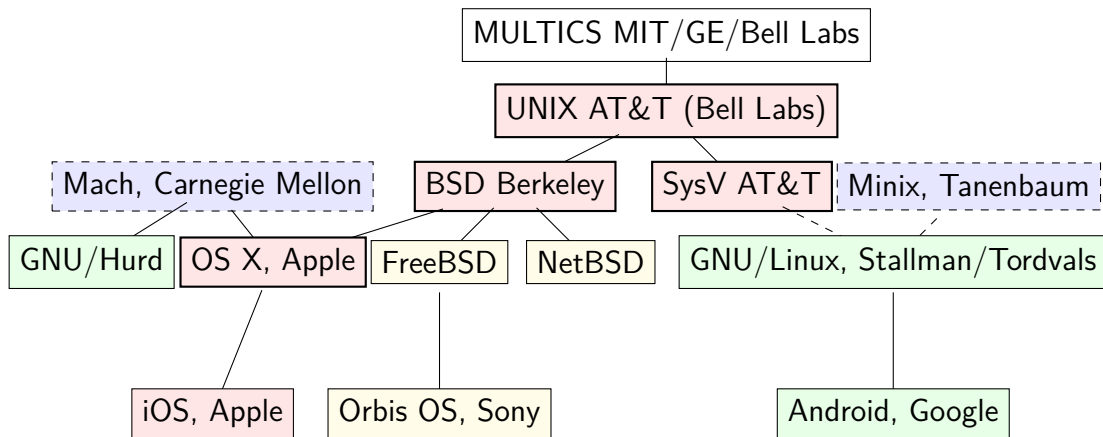
*- Linus Torvalds*



Linux - the kernel for GNU

- 1993 -
- Linus Torvalds
- A monolithic system targeting the Intel 386 CPU.
- Linux was born and became the kernel for GNU.

# The Unix Family



.. left out a hundred other systems.

# Even more

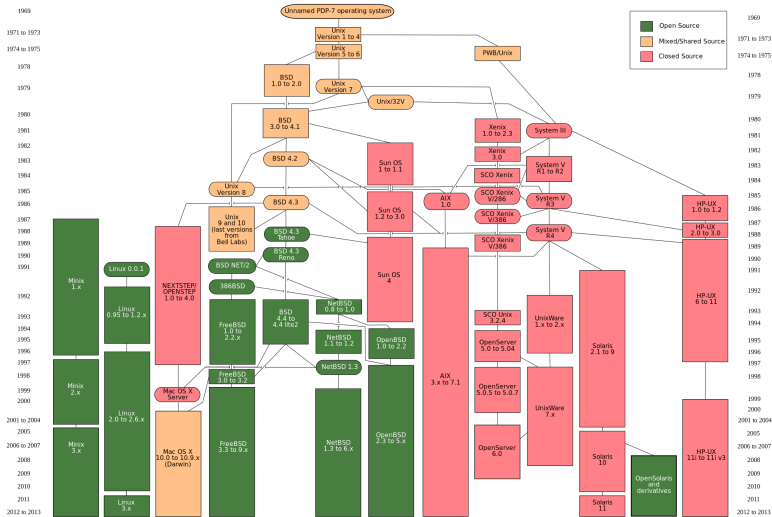
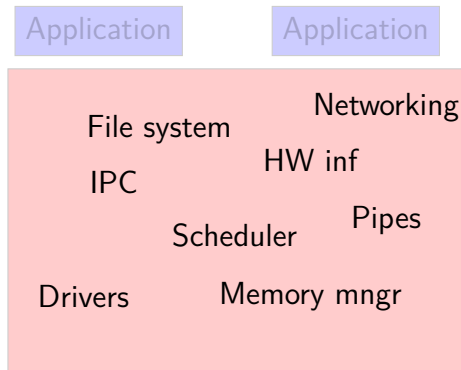
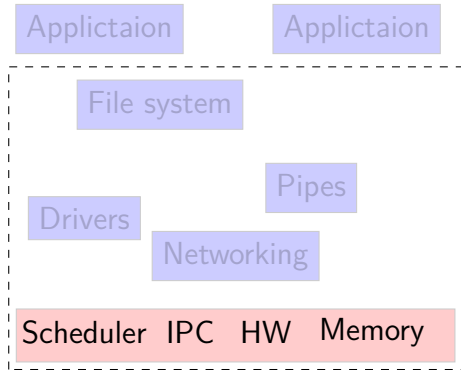


Figure: from [www.levenez.com/unix/history.html](http://www.levenez.com/unix/history.html)

# Monolithic vs Microkernel



One large monolithic kernel.  
Linux, BSD, MacOS, ....



A minimal kernel.  
Minix, Mach, L4 ... (Windows/NT)

# GNU/Linux distributions

The kernel will not get you far, you will need: drivers, file system, network, security, codecs, window manager, compilers, browsers, office, games . . .

You can, but few do, download and compile exactly the components that you want . . . few people do that.

- **Debian**: the base for many - Ubuntu, Mint . . . most popular
- **Fedora**: used by Linus, Red Hat commercial version, CentOS . . .
- **Mandriva**: a.k.a Mandrake, Red Hat offspring, KDE, Intel only
- **openSUSE**: supported by Novell, second most popular distro
- **GenToo**: BSD like, professional users
- **Arch Linux**: for advanced users, Antergos, KaOS, Manjaro
- **Slackware**: you'll learn a lot

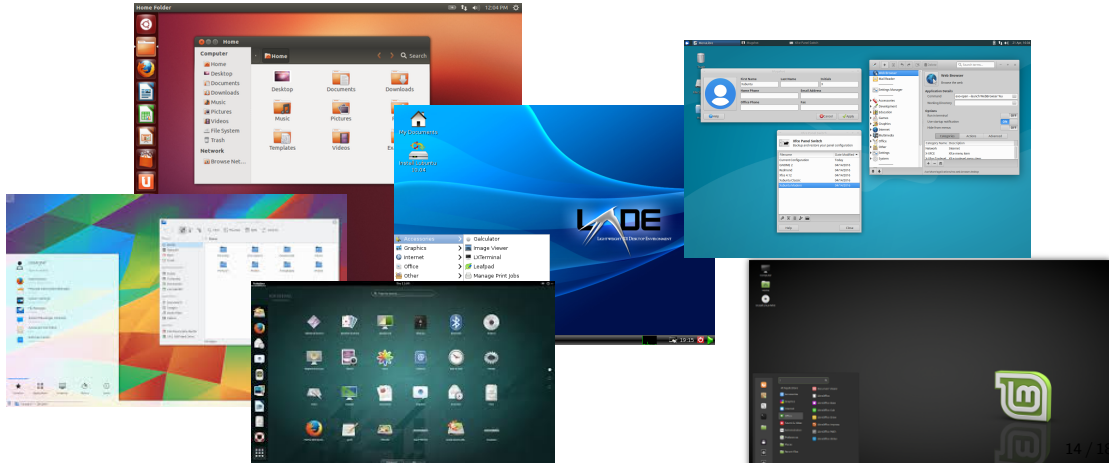


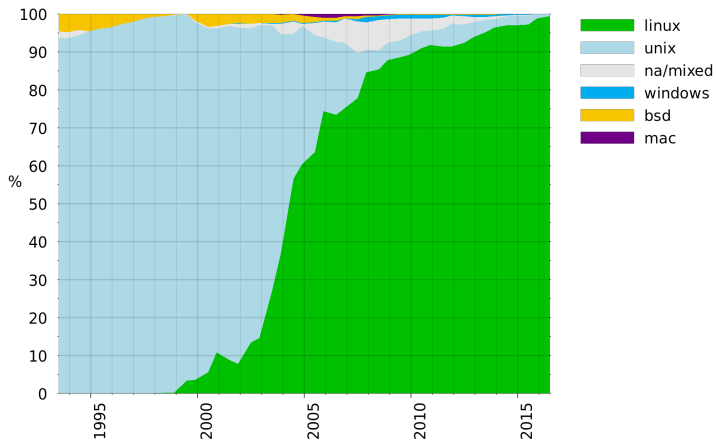


- Supported by Canonical
- Based on Debian packages.
- Two regular releases a year :04 and :10
- LTS - five year support, released every second year
- Things work and are easy to maintain.

# Ubuntu, Kubuntu, Lubuntu,....

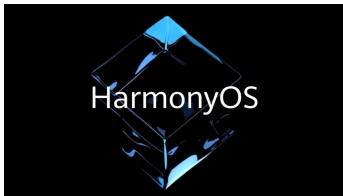
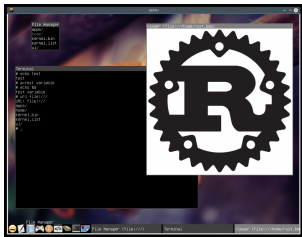
Which version of Ubuntu to choose is very much a choice of desktop environment.



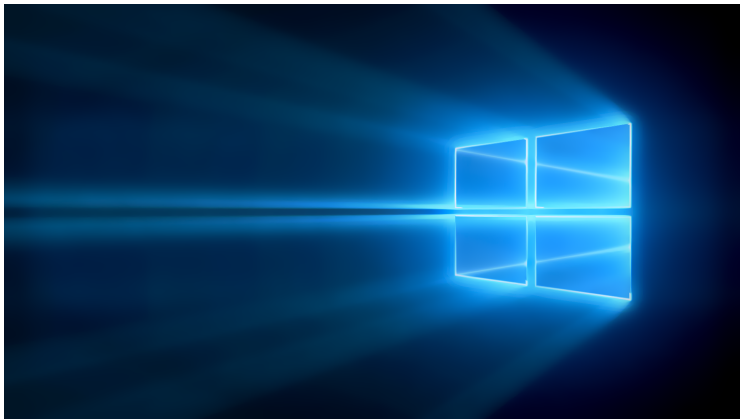


Share of Top500 Super Computers

# What's next



# the elephant in the room



# Linux - give it a try

Three options:

- Install a *virtual machine* on top of your regular system.
- Take an old laptop and boot it from scratch.
- Join the good side.