

Linux 101

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KTH

2021

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.



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



Mac or IBM PC?

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



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.



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

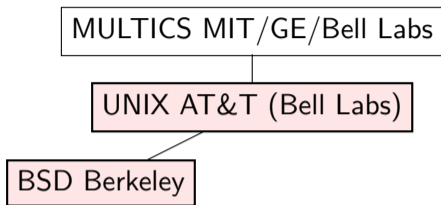
MULTICS MIT/GE/Bell Labs

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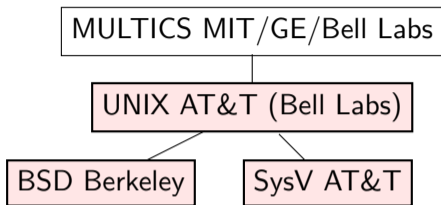
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UNIX AT&T (Bell Labs)

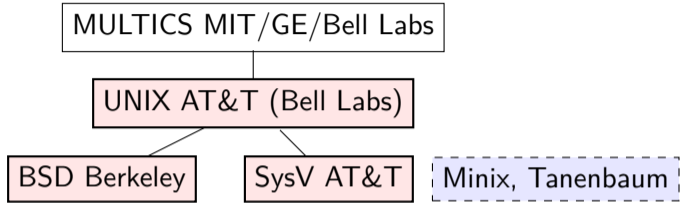
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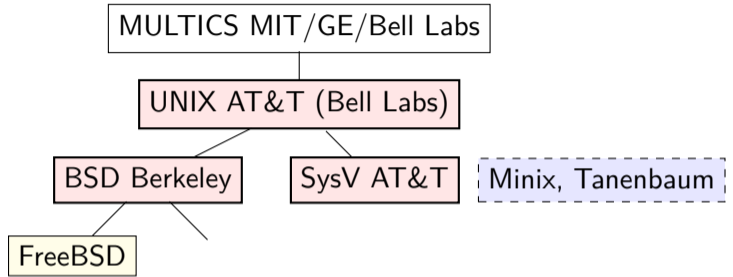
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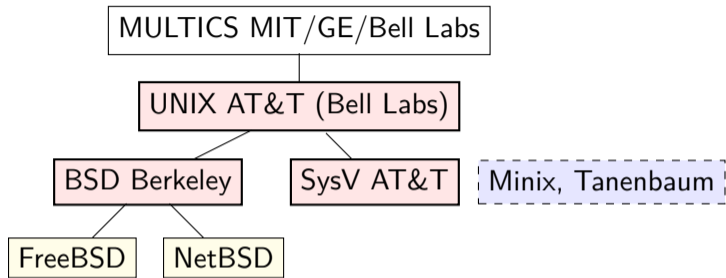
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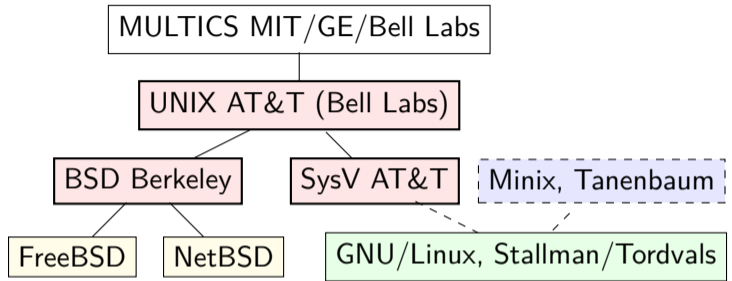
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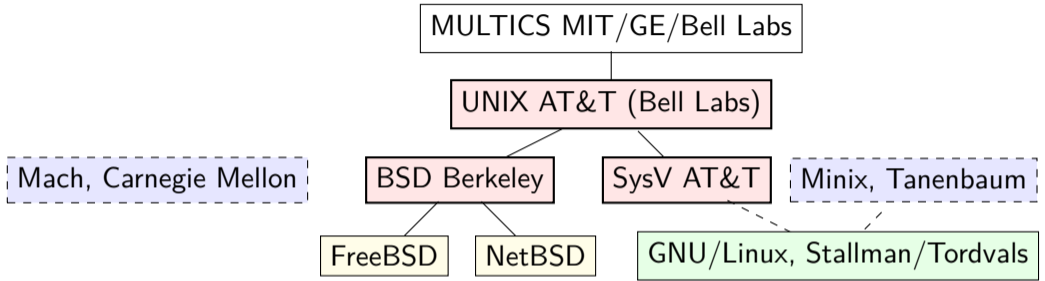
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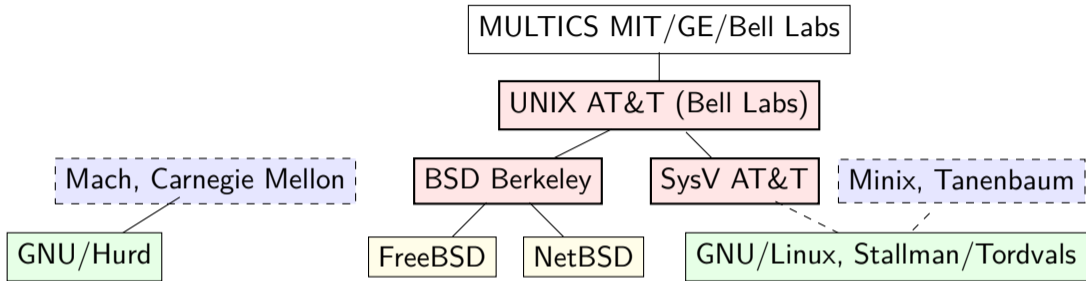
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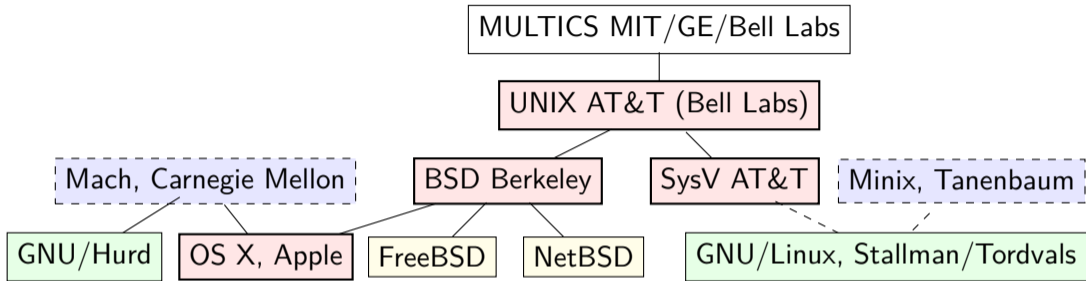
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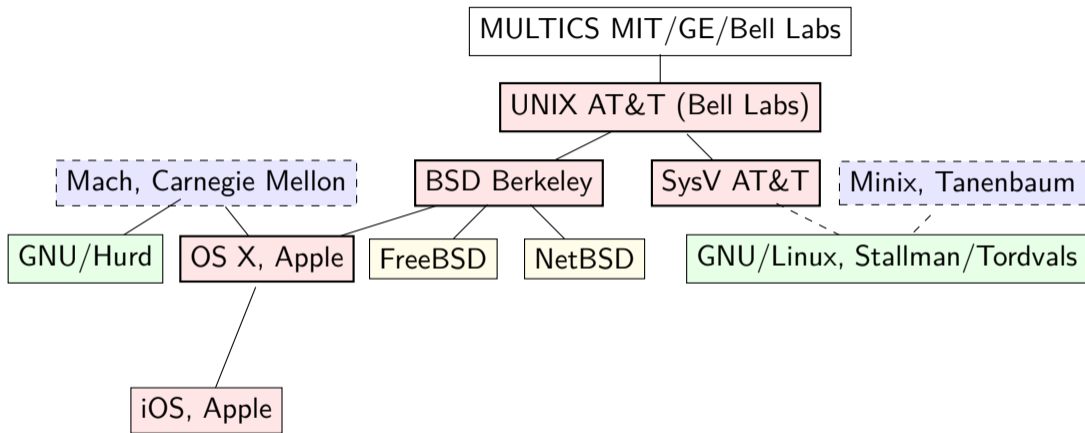
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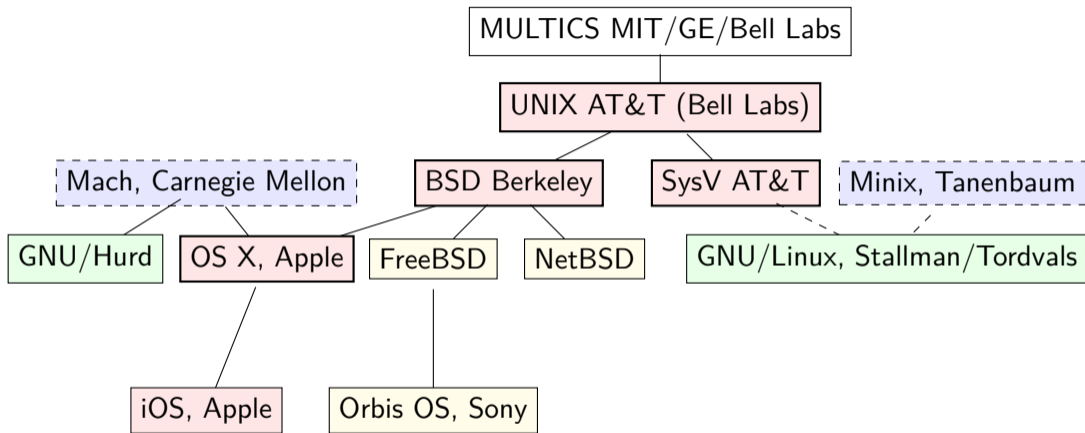
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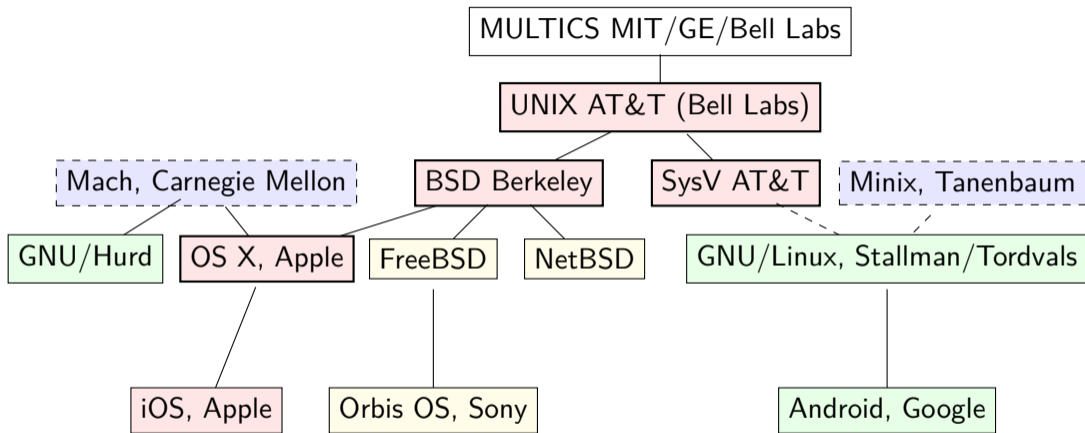
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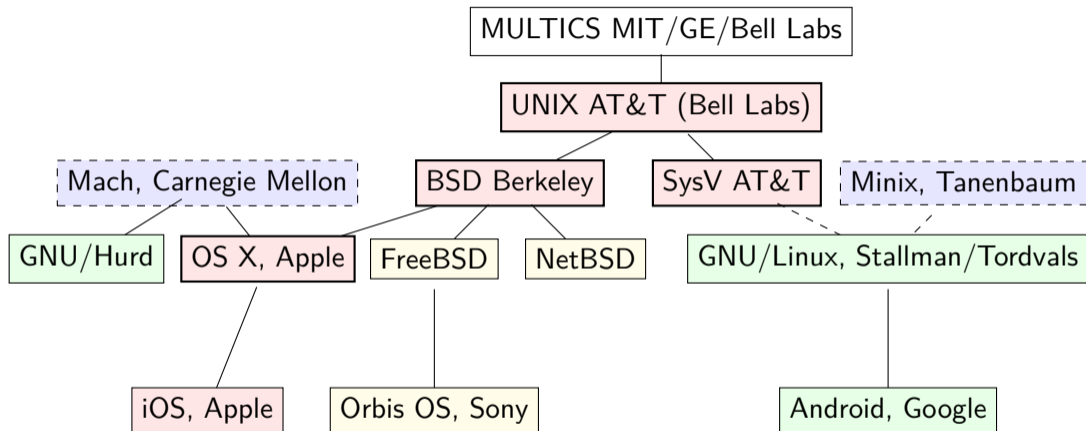
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The Unix Family



.. left out a hundred other systems.

Even more

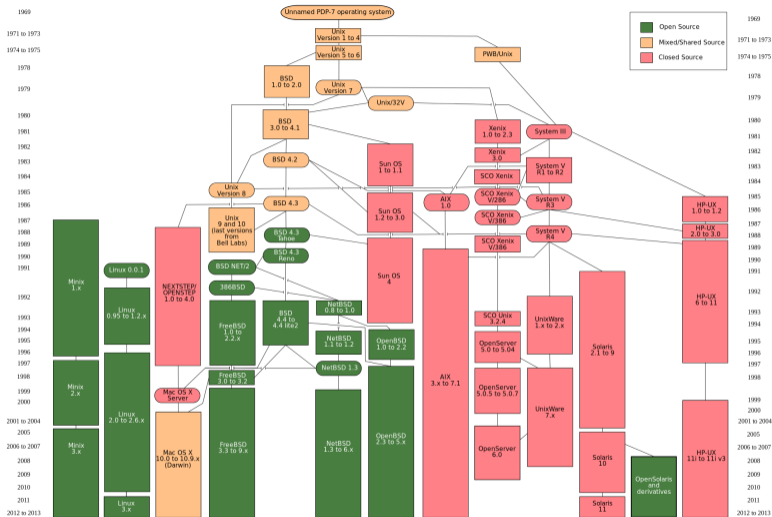
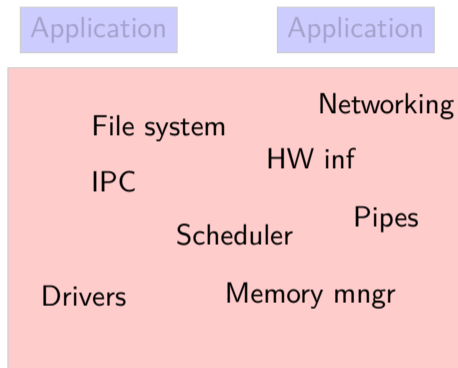


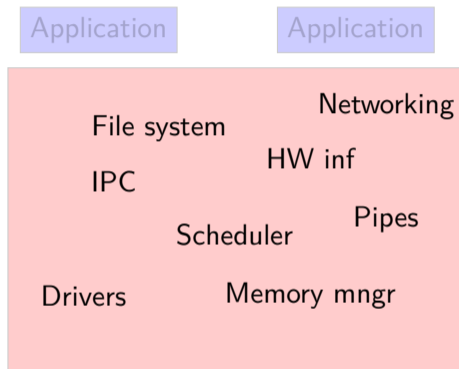
Figure: from www.levenez.com/unix/history.html

Monolithic vs Microkernel

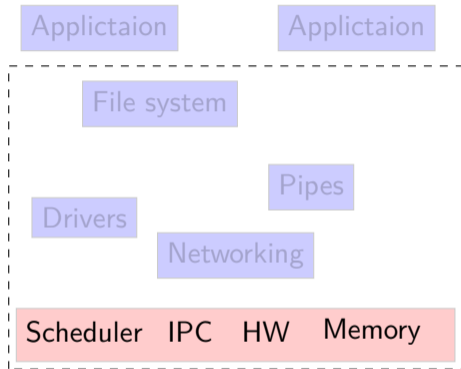


One large monolithic kernel.
Linux, BSD, MacOS,

Monolithic vs Microkernel

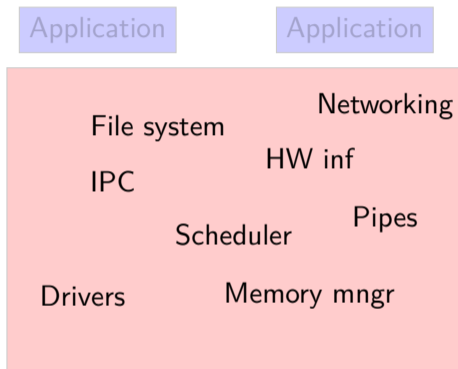


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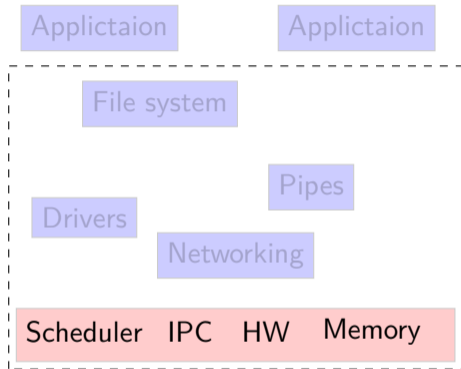


A minimal kernel.

Monolithic vs Microkernel



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Linux, BSD, MacOS,



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

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- **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,....

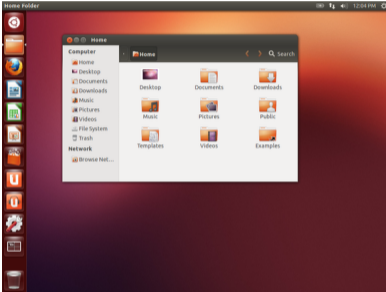
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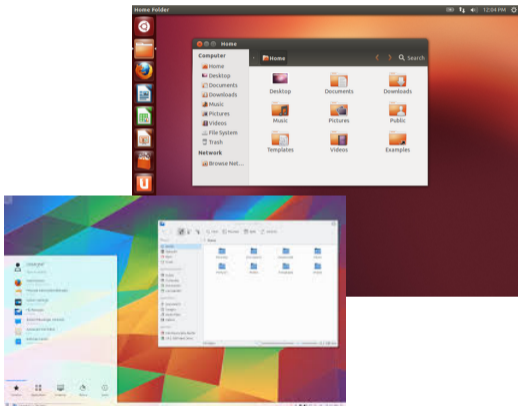
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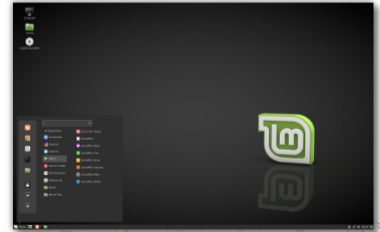
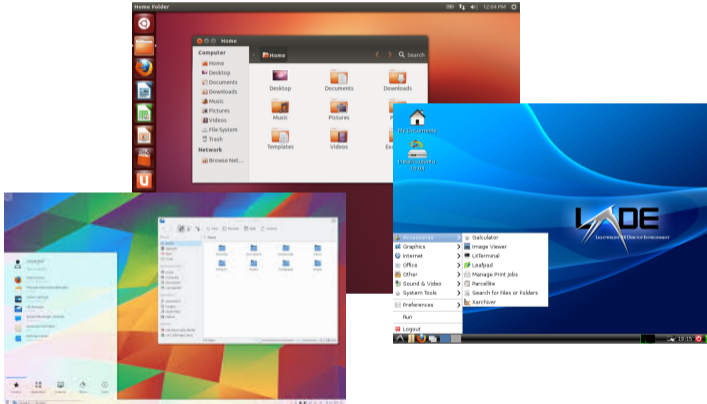
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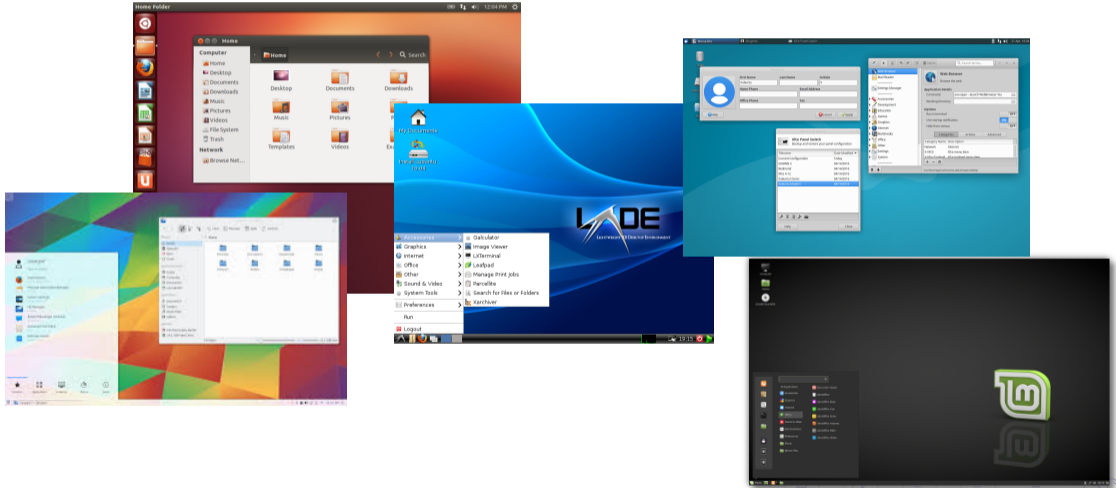
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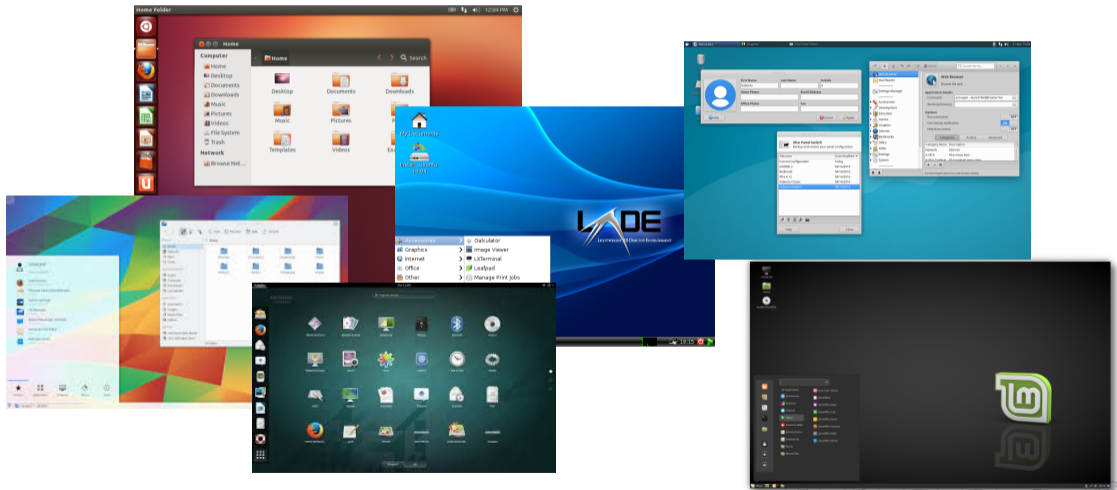
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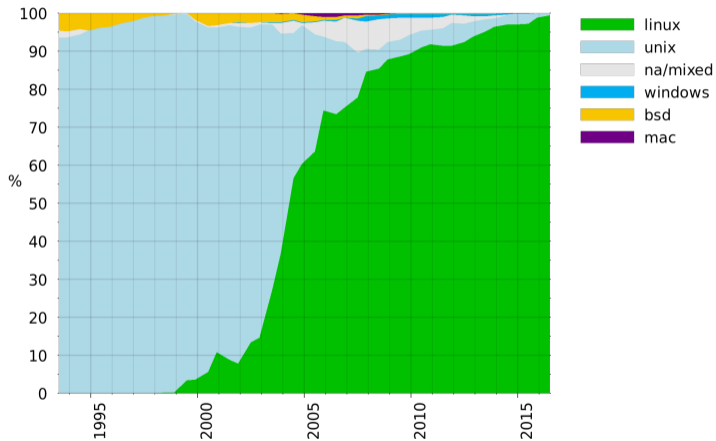
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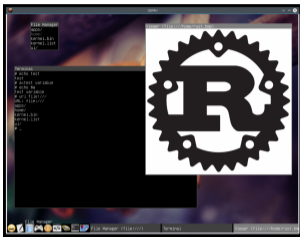


Share of Top500 Super Computers

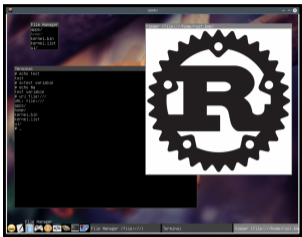


What's next

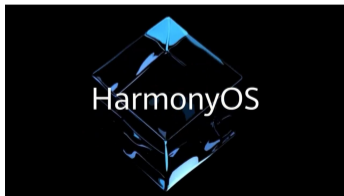
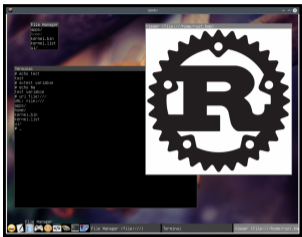
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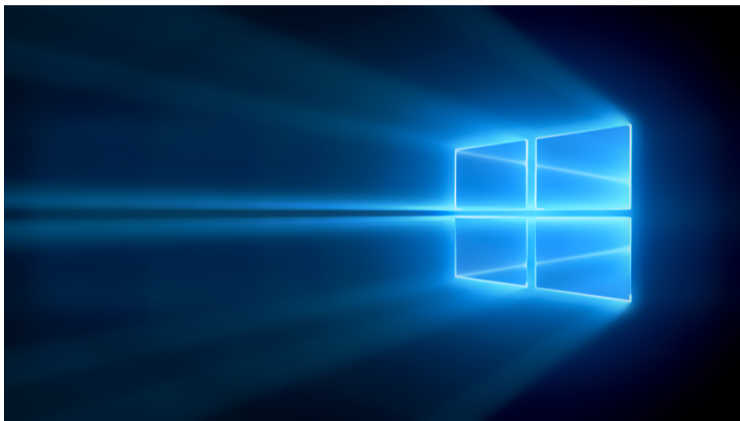


What's next



the elephant in the room

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Three options:

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- Take an old laptop and boot it from scratch.

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