Linux 101

Johan Montelius

KTH

2019
Some history - way back

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

BESK - KTH 1953, 512 word memory
also long time ago

1970 - 1980

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

PDP-10 - KTH 1970 ca, 256 Kiword memory
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)

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
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. : : :

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- Linus Torvalds
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
- UNIX AT&T (Bell Labs)
- BSD Berkeley
- SysV AT&T
- Minix, Tanenbaum
- FreeBSD
- NetBSD
- GNU/Linux, Stallman/Torvalds
- Mach, Carnegie Mellon
- GNU/Hurd
- OS X, Apple
- iOS, Apple
- Orbis OS, Sony
- Android, Google
- .. left out a hundred other systems.
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Even more

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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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Linux, BSD, MacOS, ....

A minimal kernel.
Minix, Mach, L4 ... (Windows/NT)
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- **Slackware**: you’ll learn a lot
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Ubuntu, Kubuntu, Lubuntu,....

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Share of Top500 Super Computers
What’s next
What’s next
the elephant in the room
the elephant in the room
Linux - give it a try

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- Install a *virtual machine* on top of your regular system.
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