UNIX and Free Software

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Topics

- UNIX

- Linux

- GNU Project

Unix

- Multics (Second System Syndrome) (MIT, GE, Honeywell)
- Bell Labs (1969, 1970)
- Simpler times
- C Language (1973)
- The UNIX Epoch

Ken and Dennis

Figure 1: Ken Thompson (sitting) and Dennis Ritchie next to PDP-11

Unix philosophy

- Write programs that do one thing and do it well.

- Write programs to work together.

- Write programs to handle text streams, because that is a universal interface.

Interface

```
MAN(1)                          Manual pager utils                          MAN(1)

NAME
       man - an interface to the on-line reference manuals

SYNOPSIS
       man  [-c|-w|-tZ]  [-H[browser]] [-T[device]] [-adhu7V] [-i|-I] [-m sys-
       tem[,...]] [-L locale] [-p string] [-C file] [-M path] [-P pager]  [-r
       prompt] [-S list] [-e extension] [[section] page ...] ...
       man -l [-7] [-tZ] [-H[browser]] [-T[device]] [-p string] [-P pager] [-r
       prompt] file ...
       man -k [apropos options] regexp ...
       man -f [whatis options] page ...

DESCRIPTION
       man is the system's manual pager. Each page argument given  to  man  is
       normally  the  name of a program, utility or function. The manual page
       associated with each of these arguments is then found and displayed.  A
       section,  if  provided, will direct man to look only in that section of
       the manual. The default action is to search in all  of  the  available
       sections, following a pre-defined order and to show only the first page
       found, even if page exists in several sections.
```

Commands

- Terminals!

- But very very slow!

- Pipes

```
man, ls, cd, cat, cc, dd, dc, wc, rm, cp, ed, sed, grep

cp thesis.txt ~/Documents/

makewords thesis.txt | lowercase | sort | uniq | missmatch
```

Licencing

- Free until "Version 4" due to monopoly

- "Version 5" educational institutions, "Version 6" for companies

- System III, System V

- Berkley Software Distribution, Microsoft Xenix, Sun Microsystems SunOS

UNIX Wars

- Commercial "System V", breakup of Bell System (1983)

- Richard Stallman founds GNU Project

- X/Open (1984)

- System V Interface Definition SIVD (1985)

- POSIX (Portable OS Interface) (1988)

- POSIX triumphs (1995)

GNU Project

- GNU is Not Unix

- Free not as inexpensive but as freedom

- GNU Manifesto

- Use, Share, Study, Modify

Richard Stallman

GNU Project

UNIX Descendants

- BSD

- Linux (OSX)

- Darwin

- Android

- OpenSolaris

Linux

Figure 5: Tux - The Linux mascot

Inception

- Developed by Linus Torvalds

- Kernel based on Minix (1991)

- Wanted his own UNIX

- First release - 176.250 SLOC (1992)

- GNU/Linux

- Linux today is basically everywhere

Linus Torvalds

Figure 6: Linus Torvalds at Aalto

Thank You

Thank you for your attention!

... and use free software!