

UNIX and Free Software

Nikola Tasic

Metropolitan University

June 27, 2022

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 system[,...]] [-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] regex ...

`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 | mismatch`

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



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



Thank You

Thank you for your attention!

... and use free software!