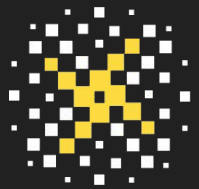
from zero to ${0##*/}

an introduction to bash scripting and HPC

alberto sartori



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Machine Learning for the Natural Sciences

introduction to linux

why linux?

https://top500.org/statistics/overtime/

$ history

1969 Unix by Ken Thompson and Dennis Ritchie

$ history

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1983 GNU project by Richard Stallman

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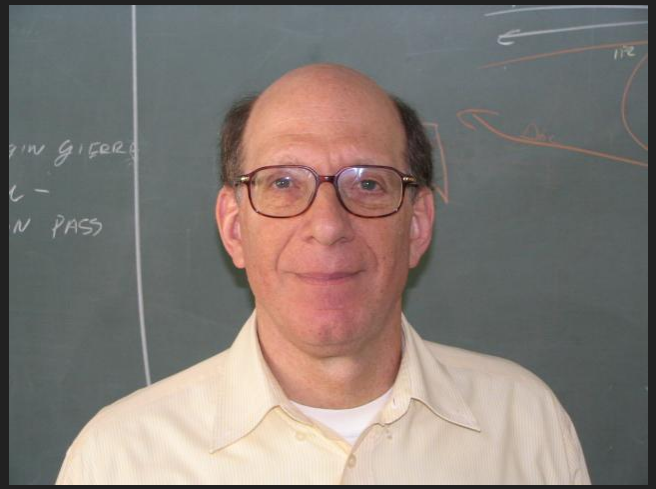


$ history

1969 Unix by Ken Thompson and Dennis Ritchie

1983 GNU project by Richard Stallman

1987 MINIX by Andrew Tanenbaum

1991 Linus Torvalds posts on the MINIX user group

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. This has been brewing since april, and is starting to get ready. I'd like any feedback on things people like/dislike in minix, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) among other things).

I've currently ported bash(1.08) and gcc(1.40), and things seem to work. This implies that I'll get something practical within a few months, and I'd like to know what features most people would want. Any suggestions are welcome, but I won't promise I'll implement them :-)

Linus (torvalds@kruuna.helsinki.fi)

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 hard disks, as that's all I have :-(.

-Linus Torvalds

the reply from Tanenbaum

the reply from Tanenbaum

I still maintain the point that designing a monolithic kernel in 1991 is a fundamental error. Be thankful you are not my student. You would not get a high grade for such a design :-)

the re

I still m ic
kernel in ou are
not my st uch a
design :-

$ history

1992 The Linux kernel is relicensed under the GNU GPL. The first Linux distributions are created.

1993 the kernel is adapted to the GNU environment. Slackware is released for the first time. The Debian project is established.

1994 Torvalds releases version 1.0 of Linux. Commercial Linux distribution makers Red Hat and SUSE publish version 1.0 of their Linux distributions.

1996 linux kernel 2.0 is released.

linux is not unix

linux is unix-like but:

- no commercial development process

- in a constant flow

linux features

- portable: can work on very different types of hardware
- scalable: run on supercomputers and tiny devices as well
- open source

linux features

- multi-user
  - multiple users can access system resources (memory, network, …) at the same time
  - each user has a name and a number (uid)
  - a user can be in one or more groups (gid)
  - files are owned by a user and a group
  - permissions are given to “user”, “group”, or “other”
  - root can do everything but one thing

linux features

- multi-user
- multi-tasking
  - multiple applications can run at the same time

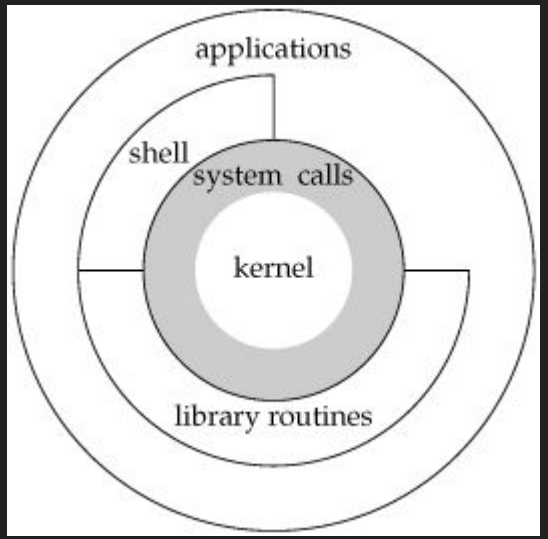
linux features

- multi-user
- multi-tasking
- hierarchical file system
  - upside down tree starting at /
  - $ man hier
  - pseudo filesystem
    - /proc/cpuinfo
    - /proc/meminfo
    - /proc/sys

linux features

- multi-user
- multi-tasking
- hierarchical file system
- everything is a file. If it is not a file, is a process

how to use linux?



whetting your appetite

https://linux-training.be/