Licensing & Paradigms

System and Network Administration

Revision 2 (2020/21)

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What is FOSS

What is Free and Open Source Software?…

==> SHOW AND SHARE THE RECIPE

▶ written `Free Software`
▶ written `Open Source` alone
▶ written `open-source something` as an ajective
▶ FOSS to be politically correct with both communities…

Who is leading the movement(s)?…

==> A fundamentalist – morality come first

And a realist – efficiency comes first

Schools of thoughts / Paradigms

fundamentalism vs. realism

- ▶ FSF GNU RMS (socialists)
- ▶ OSI ESR (elitists)
- ▶ Linus Torvalds (not into politics)
- ▶ BSD freaks (anarchists & despots)

preliminary note

Most known distros

```
Debian / Ubuntu
Fedora / Redhat / CentOS
```

All are **GNU/Linux**

```
Linux -- the kernel
GNU -- the userland
```

RMS

- ~1980 (27 years old), works at MIT/AI lab
  - wants to fix the driver of the Xerox printer
  - software used to be free/open, it was the default
  - he faced a non-disclosure agreement
- GNU's Not Unix, Sep 1983 – no UNIX(tm) code
- wrote Emacs
- January 1984, quits MIT/AI lab
- FSF, Oct 1985

- ▶ talks at parliements
- ▶ paranoid & activist
- ▶ refuses any binary blob incl. firmwares
- ▶ Coreboot is not enough –> Libreboot
- ▶ *what about micro-codes?*
- ▶ against Intel Management Engine "backdoor"
- ▶ against DRM but not necessarily against TPM

Thinkpad X200 with Libreboot

Trisquel

no binary blob at all (but cpu micro-code)

- ▶ RMS was right about Intel ME
- ▶ Ermolov and Maxim Goryachy @Positive Technologies

Intel Management Engine https:
//en.wikipedia.org/wiki/Intel_Management_Engine#Disabling_the_ME
https://github.com/corna/me_cleaner

Classical learning curves for some common editors

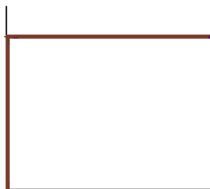Learning curves

ESR
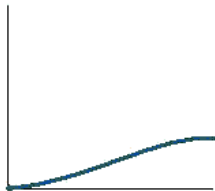
- likes guns and liberty
- The New Hacker's Dictionary, 1996
- Fetchmail in 1996
- The Cathedral and the Bazaar, Oct 1999

In short

- the bazaar is advocated
- goes with evolution of SCM and the GIT story

Open Source Initiative in 1998

▶ –> Free Software for business and not for moral terms
▶ Jon "maddog" Hall, Larry Augustin, Eric S. Raymond

The Unix Koans of Master Foo

e.g.

Master Foo and the Script Kiddie
<http://www.catb.org/~esr/writings/unix-koans/script-kiddie.html>

Master Foo and the Unix Zealot
<http://www.catb.org/~esr/writings/unix-koans/zealot.html>

The Jargon File

e.g.

September that never ended <http:
//www.catb.org/~esr/jargon/html/S/September-that-never-ended.html>

- no defcon / no blackhat / no memes at that time
- this is *old school* Unix culture

Linus Torvalds

About SecureBoot

Guys, this is not a dick-sucking contest.

If you want to parse PE binaries, go right ahead. If Red Hat wants to deep-throat Microsoft, that's your issue. That has nothing what-so-ever to do with the kernel I maintain. […]

Monkey (Dsniff)

```
(___)
(○○)
 \/--------\
    ||        |  \
    ||---W||    *
```

Хорьки

BSD systems

NetBSD community * peaceful people * research projects (rumpkernel, NPF, KLEAK)

OpenBSD community * radical despot (de Raadt) * no compromise on software transparency * SSHD, PF, SMTPD, CVSD, OSPFD, BGPD

FreeBSD community * got drivers incl. some ASICs * eventually HPE official support

DragonflyBSD community * older FreeBSD (4.x) plus some research (HAMMER2) * performance competes with FreeBSD

Developers, hackers and sysadmins

▶ monkeys - not just a developer
▶ cows - with care and wider aim
▶ dragons - senior developer (implicitly C or Rust)
▶ weasels - admin

Gilbert Fernandes, The tao of the cow
<http://gilbert.fernandes.pagesperso-orange.fr/tao_of_the_cow.txt>

ASCII art

▶ EBCDIC art (large IBM computers)
▶ Kenneth Knowlton at Bell Labs in the mid-1960s

Who else from Bell Labs?…

==> some other Kenneth

```
    ____/|
   \ o.O|    ACK!
    =(_)=  THPHTH!
      U
```

==> on some DEC PDP by yet another Ken (Olsen):
   Norm, I can beat these guys at their own game.

(when referring to IBM consultants on mainframes)

- ASCII ribbon campaign
- Warlording vs McQuary limit
    - max sig block size: 4 lines of at most 80 characters each

```
--
                ASCII ribbon campaign ( )
                 against HTML e-mail    X
                                       / \
```

```
--
              /"\
              \ /  ASCII Ribbon Campaign
               X    against HTML e-mail
              / \
```

Questions on FOSS?

Intellectual property

- Copyrights
- Patents
- Trademarks
- Trade secrets

Legal disputes

Unix Wars, late 1980s and early 1990s

▶ UNIX System Labs (SVR4) vs. BSDesign, 1992

SCO vs Novell, 2003

Successful forks

e.g.

- MySQL –> MariaDB

International copyrights

Universal Copyright Convention (UCC), 1973 – Russia is there

▶ protects the reproduction of the work, not the idea
▶ 50-**70**-100 years after creator's death

Berne Convention, 1886 – Russia NOT there

▶ no registration required
▶ *fixation* required for USA & Canada
▶ no *fixation* required for France, Spain, Australia

and retroactively

▶ Russia adopts Berne Convention in 1994

License Types

- **no license**: copyrighted by default
  - send the work to yourself by post
- **proprietary**: evil worm
- **copyleft**: protective worm
  - GPL v1 v2 v3
  - LGPL
- **lax permissive**: do what the freak you want
  - ISC MIT BSD
  - Apache License
- **public domain**: just like the air you breath

Copyleft / Four Principles

FSF's four essential freedoms

▶ The freedom to run the program as you wish, for any purpose (freedom 0).

▶ The freedom to study how the program works, and change it so it does your computing as you wish (freedom 1). Access to the source code is a precondition for this.

▶ The freedom to redistribute copies so you can help others (freedom 2).

▶ The freedom to distribute copies of your modified versions to others (freedom 3). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

GPL v1 (1989)

- ▶ not-only-binaries
- ▶ the *who's more restrictive* competition
- ▶ already a worm

GPL v2 (1991)

- ▶ no compromise with patents
- ▶ all obligations need to be met
- ▶ GNU Library Public License (LGPL)

GPL v3 (2007)

- ▶ better definition of "source code"
- ▶ tackling hardware restrictions
- ▶ fighting more against patents
- ▶ license compability

GPL Compatible licenses

- ISC/OpenBSD
- X11/MIT
- 2-clause BSD (FreeBSD)
- 3-clause BSD
- Apache License v2
- BDL (Sleepycat)
- MPL (Mozilla)
- WTFPL v2
- Public Domain

GPL Incompatible licenses

- EVERYTHING incl. Open Source Licenses with advertisment clause
- 4-clause BSD license
- OpenSSL license (competes with GNUTLS^^)

Lax-permissive / Non-copyleft

▶ ISC/OpenBSD
▶ X11/MIT
▶ BSD

–> MacOS X Darwin, Windows TCP/IP stack, …

ISC/OpenBSD

Copyright <YEAR> <OWNER>

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– past issue with UW

X11/MIT

3-clause aka modified BSD

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Intel ME & Minix

Ipso-facto the most wide-spread OS in the world…

Quoting AST
> *[…] the Berkeley license provides the maximum amount of freedom to potential users.*

https://www.cs.vu.nl/~ast/intel/

Apache License, Version 2.0

> *include certain patent termination and indemnification provisions.*

…layer counselling required

Some Recommendation

▶ X11/MIT for short programs
▶ Apache 2.0 for larger programs
▶ and GPL if you really, really have to

unless…

Public Domain

CC0 1.0 Universal (CC0 1.0) Public Domain Dedication
https://creativecommons.org/publicdomain/zero/1.0/

e.g. sabotage/LICENSE

What about patents?…

Patents

- disclose the innovation to the public
- exclusive right to use or resell during ~20 years
- *the royal road to богатство*
- IU/Tormasov has a few of those but probably does not use it

And trademarks?…

Trademarks

The redhat-logos package (the "Package") contains files of the Red Hat "Shadow Man" logo and the RPM logo (the "Logos"). Red Hat, the Red Hat "Shadow Man" logo, RPM, and the RPM logo are trademarks or registered trademarks of Red Hat, Inc. in the United States and other countries.

```
rpm -e redhat-logos
(...)
```

Then YUM –> point to CentOS

Would that be legal?…

==> no problem, as binaries are GPLed too

Trade secrets / Confidential

- chemical agents in consumer products
- in-house industrial schematics, …

Questions on intellectual property?

Open Hardware

- boards
- cpus
- laptops

Open hardware laptops

https://www.pine64.org/

http://rhombus-tech.net/