

FOSS and the Community Development Model

Open Source Security Tools for Information Technology Professionals

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Richard Stallman and the GNU Project

- September 27, 1983 — Richard Stallman sends out the initial announcement (<http://www.gnu.org/gnu/initial-announcement.html>)
- Calls for the creation of a totally free Unix-compatible operating system
- GNU is Not Unix

Four Characteristics of Free Software

1. The freedom to run the program, for any purpose
2. The freedom to modify the program to suit your needs
3. The freedom to redistribute copies, either gratis or for a fee
4. The freedom to distribute modified versions of the program, so that the community can benefit from your improvements.

CopyLeft — the GNU General Public License (GPL)

- Structured in a way to guarantees the four freedoms
- GNU Project Website *<http://www.gnu.org/gnu/the-gnu-project.html>
- Can distribute or modify but must distribute source code along with the binary
- LGPL — to allow linking of non-free software to free libraries

Eight Years in Wilderness

- undeterred by the financial and technical difficulties he faced over the years
- created a large infrastructure of compilers, editors, and utilities
- History of the project *<http://www.gnu.org/gnu/the-gnu-project.html>

Why Free Software Matters

- Software technology is the basis of information exchange in modern society
- Free exchange of information is a fundamental right and the basis of democracy
- Essential that software be free and unencumbered as well.S
- Software be “free as in speech”
- GNU/Linux *<http://www.gnu.org/gnu/gnu-linux-faq.html>
- Free Philosophy *<http://www.gnu.org/philosophy/why-free.html>
- Digital Millennium Digital Act (DMCA) — Diebold case

- Without free software, corporations could build mechanisms into software to restrict dissemination of information
- Right to read story *<http://www.gnu.org/philosophy/right-to-read.html>

Linus Torvalds and Linux

- 1991 — Linus Torvalds second year student of Computer Science at the University of Helsinki
- Looking for something more sophisticated and useful than DOS for his 386/486 PC. Specifically, he w
- Wanted a Unix clone — begins work in April, 1991
- August 21, 1991 — Torvalds posted an announcement in a news group about his project, asking for help
- September 1991, version 0.1 of what was to become Linux was released to the world

Torvalds Two Critical Choices

- To build Linux on top of Stallman's GNU infrastructure
- To adopt the copyleft GNU GPL for the Linux software license

GPL Encourages Sharing

- Free software as development method.
- Sharing and mutual co-operation
- GPL guarantees that no one party can benefit from the sharing at the expense of others
- Whatever anyone contributes is shared equally by everyone
- No one can exploit your work at your expense
- You equally benefit from the work of others.

Contributing Factors to Linux Success

- Explosive growth of the Internet made collaboration easier
- Unix OS TCP/IP native so natural platform for Internet

Open Source and the Corporate World

- Advocates with a more pragmatic perspective than Stallman
- Open Source Initiative <http://www.opensource.org/>

The Pragmatic Freedoms

- “Free as in Beer” — economic benefit
- “Free as in Exchange of Ideas” — secure and robust
- “Free as in Market” — no vendor lock-in

Other benefits

- Customer-centric rather than marketing-centric
- Open standards mean you own your own data

FOSS Economic Model

- If developer X devotes 5 days a month to developing FOSS
- Lost \$5,000 of opportunity cost in consulting work or salary
- 20 other developers are doing the same
- Software now worth \$100,000 — 20x ROI

What about the Free Rider?

- A rational economic model requires that one only calculate the benefit to oneself
- Find bugs and test the software in varied environments — contribute to security and robustness
- Network effect - bring in new “investors”

The Linux Bandwagon

- IBM leader of the pack
- The GNU/Linux ecosystem

FOSS Field Guide

- **FOSS Field Guide** http://www.fourm.info/Tools/Tools_Item.2004-03-22.2637
- **Infoworld Field Guide** <http://www.infoworld.com/reports/32SRoss.html>