SEOC2: Open Source Software

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What is Open Source?

- Open Source Software (OSS) is an umbrella term for software which conforms to the following ideals:
  1. Free redistribution.
  2. Open source code.
  3. Non-restrictive licensing.
- OSS projects which comply with the Open Source Definition (OSD) may be certified by the Open Source Initiative (OSI) founded in 1997.
- OSS can also be considered a methodology for highly-distributed large-scale software development.

Advantages of OSS

1. Avoidance of reinventing the wheel - piracy is a non-issue.
2. Improved software reliability - more eyeballs = less bugs (Linus' Law)!
3. Better software security - security through obscurity is a myth!
4. Faster software development.
5. Committed developer base.
6. Lower overheads.

Disadvantages of OSS

1. Difficult to make money from OSS (support, documentation, distributions).
2. Less interesting tasks tend to get less work, e.g. documentation!
3. Long release cycles.
4. Projects tend to assume a high level of technical competence.
5. Possible scalability issues.

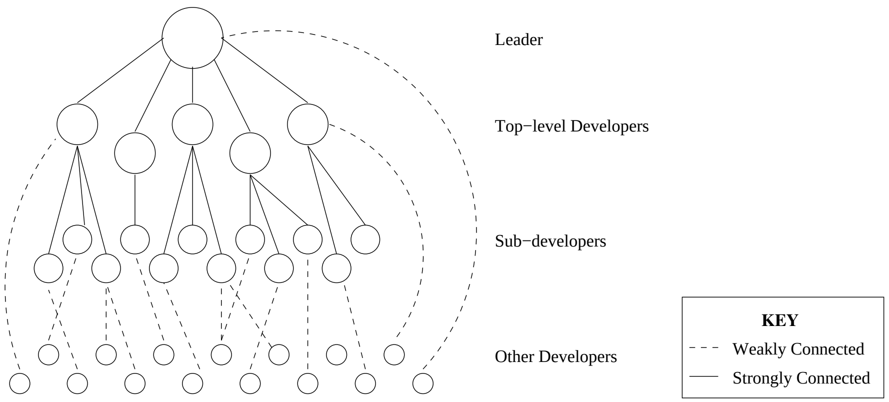
OSS Success Stories

- The Internet and the WWW (Microsoft did **not** invent it!)
- Apache - the most popular web server in the world.
- Linux and *BSD - now more popular than MacOS.
- Sun Open Office - a complete free replacement for MS Office!
- SourceForge (approaching 15,000 hosted OSS projects!)
- Mozilla ???

Linux

- An implementation of a UNIX-like operating system kernel - main competition MS Windows.
- Final code is controlled completely by Linus Torvalds who operates a "benevolent dictatorship".
- No code revision tools are used - patches are submitted and controlled by Linus.
- Two versions of the code-base are maintained at the same time - the *stable* branch and the *development* branch.
- Developers synchronise entirely by e-mail and mailing lists.

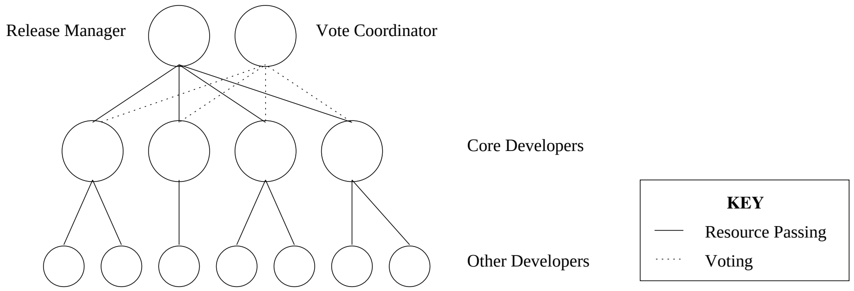
Linux Development Environment



Apache

- Extremely successful web server product (60%) - main competition MS IIS.
- Development is co-ordinated by a team of core developers - no central leader.
- All major decisions are voted upon by the core developers - $3+$, $0-$ required.
- Selection of core-developers is a form of meritocracy.
- Code revision is controlled by a Concurrent Versioning System (CVS) database.
- Bug tracking via GNATS database (though not used much).
- Developers synchronise via e-mail, mailing lists, web and newsgroups.

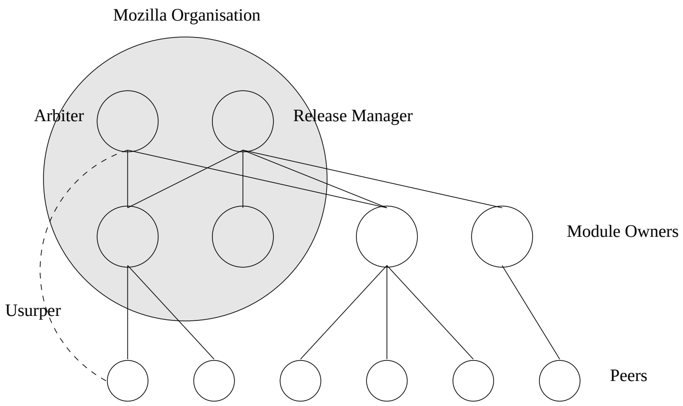
Apache Development Environment



Mozilla

- OSS Version of Netscape Communicator - main competition MS IE.
- Netscape Communicator is still a Netscape/AOL commercial product.
- Development is co-ordinated by the Mozilla Organisation (MO).
- The MO operates a "benevolent dictatorship" like Linux.
- Code revision is controlled by CVS, and bug-tracking by Bugzilla.
- There has been no stable release of Mozilla (yet).

Mozilla Development Environment



Further Reading

1. The Open Source Homepage - `http://www.opensource.org/`
2. The Cathedral and the Bazaar (and other OSS advocacy documents) - `http://www.tuxedo.org/`
3. The Risks of Closed Source Computing - `http://www.osopinion.com/Opinions/AlanCox/AlanCox1.html`
4. SourceForge (OSS archive) - `http://sourceforge.net/`
5. Slashdot (OSS advocacy forum) - `http://www.slashdot.org/`