Open Source Software: Overview, Legal and Business issues

Timo Tuunanen

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Open Source?

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OS history and definitions

- Is based on software culture in 60’s – 70’s
- Some important OS milestones
  - 1984 Richard Stallman founded Free Software Foundation
  - 1991 Linus Torvalds started Linux -project
  - 1998 Netscape Navigator goes Open Source
- Open Source is defined in Open Source Definition (OSD) http://www.opensource.org/docs/definition_plain.php
- Free Software is another term used. Free Software means basically the same but their interpretation is slightly tighter.

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Open Source definition in brief

- Licensees are free to use Open Source software for any purpose whatsoever
- Licensees are free to make copies of Open Source software and to distribute them without payment of royalties to a licensor
- Licensees are free to create derivative works of Open Source software and to distribute them without payment of royalties to a licensor
- Licensees are free to access and use the source code of Open Source software
- Licensees are free to combine Open Source and other software
- Open Source is about the licenses (and development model)

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Open Source projects

- There is a huge number of OS projects
  - http://sourceforge.net/ includes over 75 000 active projects
  - http://freshmeat.net/ includes over 38 000 active projects
- Majority of the contribution and developers are concentrating on most popular software
- Projects are done by the OS community
  - Project leaders
  - Core developers
  - Active developers
  - Random developers
  - Bug fixers
  - Bug reporters
  - Readers
  - Passive users (for example in case of Apache 99%)

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Open Source characteristics

- Number of developers in projects
  - Almost half of the projects have only one developer
  - 15 % 2-3 developers
  - 20 % 4-10 developers
  - 10 % 11-20 developers
  - 5 % more than 20 developers
- Programmers develop programs for other developers
- Over 80% of the software less than 50 000 LOC
- 60 % of the projects less than one year old
- More than 80 % of the software licensed under GPL or LGPL
- Different programming languages often used within one software

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Open Source characteristics cont.

- Documentation level varies
  - README (15%)
  - Man pages (45%)
  - API description or user documentation (40%)
- Most common projects (Linux, Apache, Mozilla..) however ARE NOT typical OS projects

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Type of OS software available

- 2/3 of the OSS is horizontal
  - Horizontal = programs that are used for creating other programs or system programs (In Sourceforge under: Internet, system, software development, database or security -sections)
- Only 1/3 of the programs are vertical applications
  - Vertical = programs that end user just uses

- Programs that “home user” can use, are likely to be found as OS
- Business software is less common

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OS quality and warranty

- Quality varies, but there is no evidence that OS method would produce better or worse quality software than commercial methods
  - Most common OSS however is generally high quality
- OS applications come without warranty.
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Open Source Motivations

- Private developers
  - Internal motivations
    - ”Coding is fun”
    - Learning
    - Altruism
    - Community membership
  - External motivations
    - Reward in the future
    - Personal needs
    - Recognition
- Foundations
  - Political, philosophical and commercial motivations
- Companies
  - Commercial motivations including time-to-market, image building, ”let the others do the work”, ...

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Intellectual property rights (IPR)

- IPR’s
  - Copyright (expression)
  - Patents (idea)
  - Trademarks
- In case of software a difference between expression and idea is often unclear

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Copyright

- All software is automatically covered by copyright
  - as long as work is copyrightable
- Copyright holder has the following rights to his work (covered by the international copyright laws)
  - Exclusive right to make copies
  - Exclusive right to prepare derivative works
  - Exclusive right to distribute copies of the original or derivative works
  - In case of literature, music, movies etc. you have an exclusive right to display the work publicly
- Other people/companies don’t have these rights and they are not allowed to perform these actions without copyright holders permission

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Copyright cont.

- “As to copyright, a single sentence is generally accepted to be too short to qualify for copyright protection. Still, at the same time, a haiku is likely to be protected even though it's easy to write single sentences that are longer than haikus.” Arnoud Engelfriet, debian-legal@lists.debian.org, 7.10.2005
- In case of software one can’t say the LOC that qualifies for copyright protection

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Patents

- Far more complicated to obtain than copyright
- Patent holder rights
  - Right to exclude others from making products embodying your patented invention
  - Right to exclude others from using products embodying your patented invention
  - Right to exclude others from selling or offering for sale products embodying your patented invention
  - Right to exclude others from importing products embodying your patented invention

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Trademarks

- Purpose is to differate from other products
- Can be owned, sold and licensed
- OS licenses don’t license trademarks
  - If you want to use Linux trademark in your product the license must be obtained from Linux Mark Institute

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License

- License is simply a permit to do something that is not legal otherwise (Driving license / Software license)
- Software license describes copyright and patent holders promise to use their intellectual property
- Open Source licenses guarantee certain rights to the user (see Open Source Definition)
- Open Source Initiative approves OS licenses. Approved licenses can be found from: http://www.opensource.org/licenses/
- By contrast commercial software licenses give users a limited right to use the program

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Open Source licenses

- License types
  - Academic licenses (for example BSD and MIT)
  - Reciprocal (for example LGPL ja MPL) licenses
    - Extreme cases are viral licenses (for example GPL)
  - Standard licenses
  - Content licenses (for example AFL)

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License comparison

Criteria	*Free Distribution*	*Free Use*	*Open Source*	*Reciprocal*	*Viral*	*Network usage*
Shareware	*X*					
Freeware	*X*	*X*				
BSD	*X*	*X*	*X*			
LGPL	*X*	*X*	*X*	*X*		
GPL	*X*	*X*	*X*	*X*	*X*	
OSL	*X*	*X*	*X*	*X*	*X*	*X*

Table by Mikko Välimäki

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Academic licenses

- Origins of these licenses are at universities
- Most common academic licenses: BSD, MIT, Apache
- Idea is to give the software to the users and let them use it any way they want
- Permission to re-license the software.
- Derivative works can be closed source (commercial) software
- Typical requirements are
  - Copyright information can't be removed
  - Names of the organizations that produced the software can't be used when promoting the software
  - In binary distributions, the copyright holders must be mentioned in documentation

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Reciprocal licenses

- Derivative works must be distributed under the same license as the original work
- In GNU world, a term Copyleft is often used: http://www.gnu.org/copyleft/copyleft.html
- Viral licenses require that all software that use the original work must be licensed under the same license
- LGPL and MPL are reciprocal but not viral licenses
- GPL is viral license

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GPL and LGPL

- GPL is the most common Open Source license
- Copyleft is the most important idea behind GPL license
- Iterpretations about GPL can be found from GNU web pages: GPL FAQ http://www.gnu.org/licenses/gpl-faq.html
  - According to GNU, programs that link GPL libraries must be under GPL license
  - Software compiled using GPL compiler can be licensed under any license
  - Same distribution (for example CD) can contain both GPL and otherwise licensed programs
- LGPL, Lesser General Public License (formerly Library General Public License)
  - Permits linking. A software that links against LGPL libraries can be licensed under any license

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License compatibility

- Licenses must be compatible in order to create works that contain software that is licensed under different licenses
- List of GPL compatible and incompatible licenses can be found from FSF web pages: http://www.fsf.org/licensing/licenses/index_html#SoftwareLicenses
- Known GPL incompatible licenses
  - Mozilla Public License (MPL)
  - Xfree 86 1.1 -license
  - Original BSD license
  - Apache license

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Mozilla Public License (MPL)

- MPL (and NPL) license is somewhere between BSD and GPL
- Reasons behind MPL creation can be read from Mozilla web pages: http://www.mozilla.org/MPL/FAQ.html
- MPL is high-quality, professional legal accomplishment in a commercial setting
- Acts as a basis for many other OS licenses
- License itself is long and difficult to understand (at least for software developer) but it's reciprocity provisions can be presented shortly: "If you create and distribute a Modification to one of the files containing Original Code or previous Modifications, those files must be released as Modifications under the same MPL license"

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Open Source business

- How do I make money out of Open Source?
  - Services
  - Books and seminars
  - Combining OS and commercial software
  - Support and consulting
  - Custom software development
  - Dual licensing
  - Development tools
  - Consumer devices
  - ...

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Potential and pitfalls

- Potential
  - OS provides a very rich base of existing software
  - OS is getting more and more popular
  - Maintenance may be done by someone else
  - Freedom from other companies
  - Quick time-to-market
- Pitfalls
  - Legal issues must be taken care of
  - Quality of each package must be examined
  - Old development and product processes must be enhanced
  - Trade secrets may become public

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Different approaches for Open Source usage

- Use OS as basis and combine it with proprietary software from someone else (Montavista, Trolltech)
  - Easiest and quickest way to start
- Use OS as basis and build your own software on top of it. Distribute derivative works only if someone asks for them
  - Requires more work, but full control achieved
- Be part of OS community: Take responsibility of some OS packages and keep only the critical components closed
  - Full control
  - Others benefit from your work
  - Easiest maintenance and control over OS packages
- In most cases some sort of combination is the best solution
  - However selection of approach is probably the most important decision if OS is used in product development
- Usually forking is not recommended (fork = using existing OS component and developing own version of it)

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Company development process using Open Source

- Using Open Source should not differ from using any 3rd party component
  - Functionality of the component must be evaluated
  - Quality of each component must be ensured
  - It must be made clear that the component doesn't infringe patents or trademarks
  - In Open Source world the license check must be also conducted
- As an addition, designated engineers must follow the development process of key components
- Usually only stable packages should be selected

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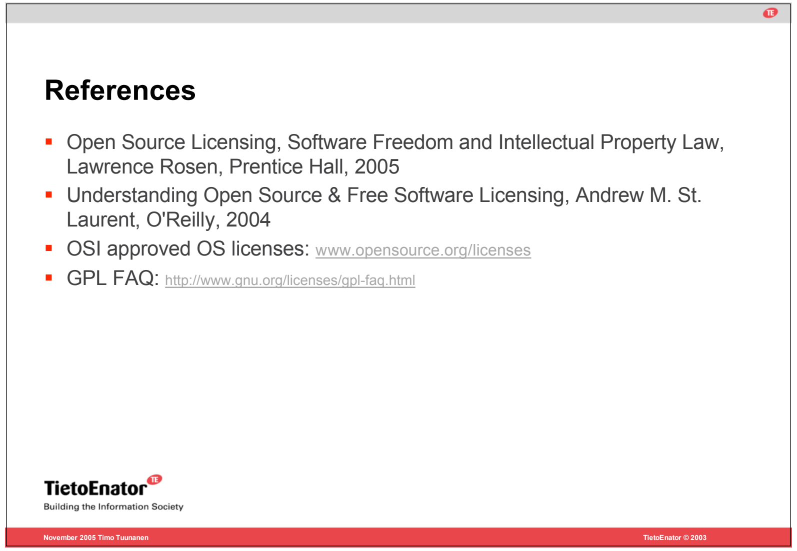

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