Open Source Software: Prominent Face of Open Source Initiatives in Digital Environment with Reference to I T.

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ABSTRACT

Open source software is software that is distributed along with its source code. This is usually done free and it is done with the purpose of allowing the improvement of the software be driven by the general user and developer base. This way, the software can definitely apply to user needs and interests as well as draw closer to perfection in the most efficient way possible. Many organizations have adopted the open source philosophy in order to produce the premier software of their markets and many nonprofit organizations have coalesced in support of open source software. Even governments have heralded their support of open source software and some have even gone as far as to initiate mandates that render the distribution of open source software all but compulsory.

INTRODUCTION

Open source refers to a program or software in which the source code (the form of the program when a programmer writes a program in a particular programming language) is available to the general public for use and/or modification from its original design free of charge. Open source code is typically created as a collaborative effort in which programmers improve upon the code and share the changes within the community. The rationale for this movement is that a larger group of programmers not concerned with proprietary ownership or financial gain will produce a more useful and bug-free product for everyone to use. The concept relies on peer review to find and eliminate bugs in the program code, a process that commercially developed and packaged programs do not employ.

The basic behind the Open Source Initiative is that when programmers can read, redistribute and modify the source code for a piece of software, the software evolves. Open source sprouted in the technological community as a response to proprietary software owned by corporations. Proprietary software is privately owned and controlled. In the computer industry, proprietary is considered the opposite of open. A proprietary design or technique is one that is owned by a company. It also implies that the company has not divulged specifications that would allow other companies to duplicate the product

The Open Source Initiative (OSI)

Open Source is a certification standard issued by the Open Source Initiative (OSI) that indicates that the source code of a computer program is made available free of charge to the general public. OSI dictates that in order to be considered "OSI Certified" a product must meet the following criteria:

- ➢ The author or holder of the license of the source code cannot collect royalties on the distribution of the program.
- ➢ The distributed program must make the source code accessible to the user.
- ➢ The author must allow modifications and derivations of the work under the program's original name.
- ➢ No person, group or field of endeavor can be denied access to the program.
- ➢ The rights attached to the program must not depend on the program's being part of a particular software distribution.
- ➢ The licensed software cannot place restrictions on other software that is distributed with it.

TERMS AND CONDITIONS OF OPEN SOURCE SOFTWARE

1. Free Redistribution

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

2. Source Code

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed

3. Derived Works

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

4. Integrity of The Author's Source Code

The license may restrict source-code from being distributed in modified form only if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

5. No Discrimination Against Persons or Groups

The license must not discriminate against any person or group of persons.

6. No Discrimination Against Fields of Endeavor

The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

7. Distribution of License

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

8. License Must Not Be Specific to a Product

The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

SOME SUCCESSFUL OPEN SOURCE PROJECTS

Sendmail

Sendmail is an open source mail transfer agent (MTA) used for routing and delivery e-mail. The original version of Sendmail was written by Eric Allman in the early 1980s. It is estimated that Sendmail is installed on 60 to 80 percent of the Internet's mail-server computers.

Apache Web server

Often referred to as simply Apache, a public-domain open source Web server developed by a loosely knit group of programmers. The first version of Apache, based on the NCSA

httpd Web server, was developed in 1995. Core development of the Apache Web server is performed by a group of about 20 volunteer programmers, called the Apache Group. However, because the source code is freely available, anyone can adapt the server for specific needs, and there is a large public library of Apache add-ons.

Linux

(Pronounced lee-nucks or lih-nucks). A freely distributable open source operating system that runs on a number of hardware platforms. The Linux kernel was developed mainly by Linus Torvalds. Because it's free, and because it runs on many platforms, including PCs and Macintoshes, Linux has become an extremely popular alternative to proprietary operating systems.

GNOME

Acronym for GNU Network Object Model Environment. (Pronounced guh-nome) GNOME is part of the GNU project and part of the free software, or open source, movement. GNOME is a Windows-like desktop system that works on UNIX and UNIX-like systems and is not dependent on any one window manager. The current version runs on Linux, FreeBSD, IRIX and Solaris. The main objective of GNOME is to provide a user-friendly suite of applications and an easy-to-use desktop.

ADVANTAGE OF USING OPEN SOURCE SOFTWARE

1. **The availability of the source code and the right to modify it** is very important. It enables the unlimited tuning and improvement of a software product. It also makes it possible to port the code to new hardware, to adapt it to changing conditions, and to reach a detailed understanding of how the system works. This is why many experts are reaching the conclusion that to really extend the lifetime of an application, it must be available in source form. In fact, no binary-only application more than 10 years old now survives in unmodified form, while several open source software systems from the 1980s are still in widespread use (although in many cases conveniently adapted to new environments). Source code availability also makes it much easier to isolate bugs, and (for a programmer) to fix them.

2. **The right to redistribute modifications and improvements to the code**, and to reuse other open source code, permits all the advantages due to the modifiability of the software to be shared by large communities. This is usually the point that differentiates open source software licences from ``nearly free'' ones. In substance, the fact that redistribution rights cannot be revoked, and that they are universal, is what attracts a substantial crowd of developers to work around open source software projects.

3. **The right to use the software in any way**. This, combined with redistribution rights, ensures (if the software is useful enough), a large population of users, which helps in turn to build up a market for support and customization of the software, which can only attract more and more developers to work in the project. This in turn helps to

improve the quality of the product, and to improve its functionality. Which, once more, will cause more and more users to give the product a try, and probably to use it regularly.

5.   Flexibility and Freedom In a business context, software flexibility is about being able to choose solutions suitable for the needs of the users. Many commercial software products will claim flexibility as a built-in feature and some will undoubtedly be correct. Our view is that that flexibility should really mean business flexibility, so that as requirements in the business change, solutions should not be unreasonably constrained by software. In particular, we view this as being especially important in the area of infrastructure components — the architecture of the IT solution rather than any one package.

6.   Cost most current Open Source projects are also available free of royalties and fees, leading to the confusion around the commonly used term `free software'. Regrettably the English language does not have separate concepts for free-of-charge and free as in unconstrained; other languages are better equipped to describe the difference between `freedom' and `free of charge' (*libre* vs. *gratis*). Proponents of free software licences tend to emphasise liberty over cost although in practice the main open source projects are free in both senses of the word.

From a business perspective the purchase cost of software is only one factor; total cost of ownership (TCO) is what really matters. Other things being equal, the solution with lowest TCO is usually the most desirable one. Arguments in favour of low TCO for open source software include:

> ➢ Possibly zero purchase price
> ➢ Potentially no need to account for copies in use, reducing administrative overhead
> ➢ Claimed reduced need for regular upgrades (giving lower/nil upgrade fees, lower management costs)
> ➢ Claimed longer uptimes and reduced need for expensive systems administrators
> ➢ Near-zero vulnerability to viruses eliminating need for virus checking, data loss and downtime
> ➢ Claimed lower vulnerability to security breaches and hack attacks reducing systems administration load
> ➢ Claimed ability to prolong life of older hardware while retaining performance

OPEN SOURCE SOFTWARE IN THE FIELD OF INFORMATION TECHNOLOGY

Application software

- 7-Zip : file archiver
- Blender : 3D graphics editor
- Eclipse : development environment comprising an IDE
- GIMP : graphics editor
- LibreOffice : office suite
- Mozilla Firefox : web browser
- Mozilla Thunderbird : e-mail client
- NASA World Wind : virtual globe, geobrowser

Operating systems

Ubuntu is a popular open-source computer operating system, and a form of Linux.

- FreeBSD : operating system derived from Unix
- Linux/GNU : family of Unix-like operating systems
- OpenSolaris : Sun Microsystems's discontinued operating system derived from Unix
- Symbian : real-time mobile operating system

Programming languages

- PHP : scripting language suited for the web
- Python : general purpose programming language
- Java2plateform standard edition : it provide cross platform capability.
- Perl : perl is a high level programming language.

Server software

- Apache : HTTP web server
- Drupal : content management system
- MediaWiki : wiki server software, the software that runs Wikipedia
- MongoDB : document-oriented, non-relational database
- Moodle : course management system or virtual learning environment
- RenovatioCMS : content management system

- WordPress : blog software

Relational Database management Software (RDBMS)

- **Abria SQL Lite :** Abria SQL Lite provide all the tools needed to develop web database applicationsin a quick and easy installation.
- **MYSQL :** MySQL is a relational database management system (RDBMS) based on SQL (Structured Query Language). First released in January, 1998, MySQL is now one component of parent company MySQL AB's product line of database servers and development tools.
- **PostgreSQL:** PostgreSQL is an Object-Relational Database Management System (ORDBMS) that has been developed in various forms since 1977. It began as a project named Ingres at the University of California at Berkeley. Ingres itself was later developed commercially by Relational Technologies/Ingres Corporation.

CANCLUSION

Using open source software offers various advantages, such as the ability to reduce costs and development time, or to avoid being dependent on a single vendor. It is therefore to be expected that more and more companies and institutions will start using open source software. There are however some risks associated with doing so. Being forced to release some or all of the software of a commercial product as open source software may greatly reduce its value.

It is therefore recommended to carefully study the license agreement and to make an assessment of the risks associated with these conditions. One should always check whether the own application is clearly separated from software under the GPL. And of course compliance with the license conditions need to be checked.

With a careful application of the license conditions, it is possible to benefit most from using open source software while minimizing the risk.

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