Merits and Demerits of Open Source Software

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Abstract - Open source software (OSS) is one of the fastest growing movements towards the less budget and cheaper software. Within the technical development of the world, yet we have seen that OSS will become a viable alternative to proprietary software. The rise of open source software offers the possibility of use of a software according to the need and also to modify as per requirements. In this research paper, we describe the various merits and demerits of open source software. Today there is a great need of us to aware about the benefits of the use of open source software. The merits of open source software can be helpful to aware & familiar to use by the common man. The demerits of open source software shows us the another face of OSS coin. We should take efforts to overcome the demerits of OSS.

Keywords - open source, enterprise, incompatible, vendor, proprietary, distribution.

I. Introduction

Open source software is a software whose source code is publically distributed in a wide geographical area and available at no cost. The open source software is a collaborative effort by the group or a team of developers with the use of internet. Because of the availability of source code one can easily modify and use software accordingly to their need. Today with the fastest growing of software industry, a large no of the software developed everyday, which includes many open source software as an alternative to the proprietary software. Open source software has many merits those force us to use the open source software rather than proprietary software and the demerits aware us to do some efforts to overcome them.

II. Merits

The use and development of open source software are due to various reasons includes philosophical and ethical. Today open source software plays a critical role for every organization. The Open Source community has attracted very bright and motivated developers, which are often disciplined. In addition, these developers are not part of corporate cultures where the best route to large salaries is to move into management; hence some Open Source developers are amongst the most experienced in the industry. So the quality of open source software sometimes exceeded from proprietary software. There are many other merits of using open source software which are as under:

A. Availability of Source Code and Right to Modify:- Open Source Software are always available with its source code in binary or executable format and users or programmers has to modify that source code according there requirements. It enables the 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. One can easily isolate bugs and fix them. Some experts are reaching to the conclusion that the availability of source code extends the lifetime of an application.

B. Right to Redistribute Modifications:- 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. Usually it is the point that differentiates the open source software license from free software. In fact, the redistribution rights are universal and they...
cannot be revoked that attract developers to work around open source projects.

C. Right to Use Software in Anyway:- There is no one with the power to restrict in a unilateral way how the software is used. This to improve the quality of the product, and to improve its functionality. When a proprietary software vendor decides not to upgrade some software product for some old platform, customers can only stick to the old version of the software, or switch to another product. If open source software is used, customers can also fund some development for the desired platform, or look for other vendors to provide the upgrades (of the very same product).

D. Lesser Software Cost:- Most of the open source software projects are available with any cost. 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 favor 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

E. Secure Future:- When an individual or a company use a proprietary software then they have to relies on the developer for the upgrades and continued development. If the developer decides to discontinue development of the software, there is no one who has right to take source code and continue develop it. This has happened many times, and this problem is rectified by the recent mergers in the software market, that usually lead to ``cannibalization'' of some software product to allow just one or two to get to the market. Open source software effectively protects against this, because if the group or company that originated the code decides to stop development, it is always possible to fund another software group to continue the maintenance and improvement, without legal or practical limitations.

F. Possibility of Forking:- A "fork" is a subdivision of the code base in two different parts, each managed by a different group. Fork happens for technical or license reasons, for example because a particular release is made under a non-free license, the previous one is used as a base for subsequent free releases. Technical motivations are common, because there are sometimes many different way to perform a task, and it is not possible to decide which is better. So if the two camps cannot reach a consensus and the user base is large enough the code splits in two and both continue development. If the reasons for the split are overcome, usually the two camps agree on a reunification. A recent example is the decision to reunify the compilers gcc and egcs, and to make one of them (egcs) the new base compiler. Forking is sometimes considered a disadvantage that has to manage not only one code, but two. But the main point about forking is that it introduces several levels of competition within the model. For instance, before forking, several programmers can work harder to keep everybody happy integrating as many well-engineered features as possible, to prevent a fork by people whose needs are not addressed. After a fork, both branches tend to compete for the user base with very similar products: only good quality and quick improvement can maintain them in the market.

G. Lesser Hardware Cost:- Open source solutions are easily portable and compressed; it takes lesser hardware power to carry out the same tasks when compared to the hardware
power it takes on servers, such as, Solaris, Windows or workstations. With this less hardware power advantage, you can even use cheaper or older hardware and still get the desired results.

H. High Quality Software:- Open source software is mostly high-quality software. When you use the open source software, the source code is available. Most open source softwares are well-designed. Open source software can also be efficiently used in coding. These reasons make open source software an ideal choice for organizations.

I. No Vendor Lock-in:- IT managers in organizations face constant frustration when dealing with vendor lock-ins. Lack of portability, expensive license fees and inability to customize software are some of the other disadvantages. Using open source software gives you more freedom and you can effectively address all these disadvantages.

J. Integrated Management:- By using open source software, you can benefit from integrated management. Open source software uses technologies, such as, common information model (CIM) and web based enterprise management (WBEM). These high-end technologies enable you to integrate and combine server, application, service and workstation management. This integration would result in efficient administration.

K. Simple License Management:- Open Source Software is licensed under various open source licenses like GNU General Public License and Barkeley’s License etc. These licenses provide us ability to install it several times and also use it from any location. We shall be free from monitoring, tracking or counting license compliance.

L. Constantly developed by thousand of developers:- The international development community for the larger open source software brands has become vast indeed. This system of multi-contributors means there is any requirement and problem that comes up has already been through by someone, somewhere and a solution is available.

M. Abundant Support:- We will get ample support when you use open source software. Open source support is mostly freely available and can be easily accessed through online communities. There are also many software companies that provide free online help and also varied levels of paid support. Most organization that creates open source software solutions also provides maintenance and support.

N. Scaling and Consolidating:- Open source software can be easily scaled. With varied options for clustering, load balancing and open source applications, such as email and database, we can enable our organization to either scale up and achieve higher growth or consolidate and achieve more with less.

O. No “black-boxes” are possible:- By having the source code available with open source software, it is possible to perform a thorough inspection and verify the correctness of the algorithm and the implementation scheme used. This is also possible in part even with closed source or nearly free licenses. The difference lies in the fact that users are allowed to modify everything they find appropriate to suit their needs. With binary only products no inspection is possible, with closed source or nearly free licenses inspection is possible, but modifications are forbidden, so the inherent advantage of having source code available is rendered ineffective.

P. Reliability:- Reliability means the absence of errors or bugs which cause incorrect operation, data loss or sudden failures. If an error occurs in proprietary software, a defect report needs to be filed and then there will be a delay before the vendor determine when or whether to issue an updated release. If an error occurs in open source software, it tend to be fixed within hours, using a process that is undoubtely assisted by the availability of source code. Developers discover error and fix it and also report to maintainers as well as
release an updated version of the software on their own authority.

Q. Stability:- In a business environment software is mostly a necessary tool to do a job. When a job changes then there is need to alter the software that is being used to assist the task. The vendors need a stable revenue stream to be able to keep their business going whilst their customers have not the slightest desire to change or upgrade any product that is working well enough to suit their needs. In today’s Era, no business is static and software is often changes to meet the new requirements. A choice to use Open Source software can provide a counter to the need to upgrade for the vendor’s commercial purposes but cannot protect every user from any change. Having access to the source code can allow a business to choose to support itself on an old version where necessary and we believe that in general it gives more options and choice to the users. Nonetheless, some upgrading and maintenance effort will always be needed. Putting the choice in the hands of the users rather than the suppliers is hard to criticize.

R. Less conflicting priorities due to market pressure:- Usually open source software is delivered “when it is ready”, and when the development team feels that its quality is good enough. This means that software usually does not need as many service packs, updates and such, reducing the maintenance cost. Of course this could be turned into disadvantage if a product is indefinitely delayed, or if some feature is missing one release after another. But in this case, the competition between projects may help. If a project starts failing to meet the expectations of its users, it often happens that a new project is forked, using the same code base, to fill this gap. This happens especially if a market exists for some new features, or for better quality versions of the application.

S. Provides new forum democratic action:- As individuals and companies decide where to make improvements in the system, the collective desires of the community determine the overall direction of progress, and yet without compelling anyone. People with opinions about what direction is best can advise others to join in, request help, and in this way influence the overall direction of progress, but without any elections in which the majority overrule the minority.

III. Demerits

The main reason to the use of open source software is that it is cheaper and availability of source code for further modifications and reuse. Although the budget plays a great role to the development and enhancement of an individual’s business or organizations large scale business and today open source software is also the best tool for lower budget organizations. But the decision of adopting open-source software should not be taken just on the basis of the low-cost involved and availability of full source code. It entails a detailed analysis and understanding of the requirements before switching to open source to get full benefits of it. So before stating using open source software we also have to go through its various limitations. Various demerits of open source software are described below:

A. Not straight forward to use:- The main disadvantage of open-source software is not being straightforward to use. Open-source operating systems like Linux cannot be learned in a day. They require effort and possibly training from our side before we are able to master them. We may need to hire a trained person to make things easier, but this will incur additional costs.

B. Less no of applications:- There is a shortage of applications that run both on open source and proprietary software; therefore, switching to an open-source platform involves a compatibility analysis of all the other software used that run on proprietary platforms. In addition, there are many ongoing parallel developments on open source software. This creates confusion on what functionalities are present in which versions.
C. Hardware Incompatibility:- Many of the latest hardware are incompatible to the open-source platform, so it is also a big limitation of the use of open source software. We have to rely on third-party drivers.

D. Most OSS are not reliable:- Most of the developers and promoters of open source software believe in an obscure, idealistic world where software companies do not sell commercial software. Although big multinational companies like IBM and Sun Microsystems are backing the open source software movement there are no great financial stakes involved and the motivation mostly originates from a prevalent anti-Microsoft feeling. So there is no clear-cut discipline in this field and everything is emotion driven. Hence most of the applications are not reliable and you cannot run critical business operations on them.

E. Less support exist for OSS:- Once we decide to use open source software we are on our own. We agree that there is a lot of help is available on the Internet and many self-motivated forums that can help us install and run open source software; but there is no qualified support available. We have to figure out on our own efforts that how to install and use applications without sabotaging our data and hardware. For instance, almost every person exhorts us to ditch Windows and switch to Linux; many have lost their years of data trying to make the shift. No help documents and manuals are made available since the software is being changed every second week.

F. Incompatibility with present day gadgets:- Another great problem is that most of the open source applications are incompatible with the present day gadgets. For instance if we use some open source operating system we can forget about the cool plug and play hardware that we have been using for so many years. Sometimes people can’t even get their modems working with open source operating systems.

G. No guaranty of updates:- There is no guaranty of updating of Open Source Software. Since we are not paying for the open source software nobody is bound to give us regular updates. We can get stuck with the same old version for years without ever getting an update.

H. Difficult to know the current state of software:- Open source software is come with its full source code. The availability of source code is the advantage of OSS and also disadvantage. Every person who has a little knowledge about the software can upgrade and change the software according to their requirements with its source code. Sometimes there are so many changes in software that it is difficult to know about the present state of the software. There is also not much advertising for open source software, so it is difficult to know about the existence of the project and if exist, its current status. For the general public, some more education is still needed before the regular user can approach these services and get a solution to her software problems in terms of open source software.

I. Many significant problems connected to intellectual property:- In Open source software, there may be significant problems connected to intellectual property. Now a days, various countries are accepting software patents. If a particular software to solve a particular problem is patented, the OSS community can be considered responsible of intellectual property contravention. Various open source software are already addressing this issue. Source code of a software is not an executable device, it is a mere description of how a computer execute, and therefore uphold the idea that source code is not by itself covered by patent law even in countries where software patents are accepted. In any case, it still leaves problems for the users, who need the executable programs.

J. Disclosure of trade secrets:- Because of the availability of source code it disclosing how the software works. This includes disclosure
of algorithms and how a device with a unique design might function. Revealing this information to others may cause duplication and loss of financial advantage.

K. Loss of revenue through traditional state:-
There is source code is also available with open source software and also fully licensed. So it is unlikely that consumers will pay a large amount for a CD or license. Revenue must instead be garnered through support agreements and OEM customization.

IV. Conclusion
In this research paper we try our best to show all the merits and demerits of open source software. No doubt open source software has more merits than demerits. The merits of open source software are so many that they can easily overtake the market of proprietary software. The demerits are not so complex that they cannot be removed or many efforts need to be done. If developers of open source software do their efforts towards overcoming the demerits during the software development then the demerits will not be a part of open source software and open source software will be adopted by every organization or even individual and technology/services of many types become cheaper for the common man.

References