Applications, Advantages And Disadvantages Of Open Source Software/Freeware

Abstract:

Open-source software or freeware has become today's center of attention all around the world. It is gradually getting more and more useful in several industries, organizations and sectors. The related sectors which thrive for new development, they are more attracted to open source software. "Why would anyone pay for any software when they can get it for free?" Taking this question into consideration, many organizations are launching several Open Source Software Projects. And as a result of such OSS projects in the past, those organizations have prospered a lot.

This review discusses the applications, advantages as well as disadvantages of open source software (OSS) in various sectors. The main objective of this study is to provide detailed information about the use of open source software in daily life as well as in commercial areas.

Keywords: Open Source Software; Applications; Advantages; Disadvantages; Impacts;

Introduction

As defined by the author of the article "Open Source Software", the software that has a source code available to the public for use with or without any modifications is known as open source software. This means that the OSS is license-free. The main reason behind the increase of familiarity and popularity of open source software is that it is free and can be modified by the general public. That's why they are used in variety of sectors such as advertisement, research, education, gaming, communication, and many other daily activities.

Due to the advancement of technology, many sectors are facing certain challenges. The overwhelming growth of the OSS and large connection of web technology has provided huge opportunities for professionals. They don't have to spend money on software and depend upon other proprietary software. If they don't want the software as it is, they can even modify the software as how they like. This literature review also provides some applications of widely used open-source software in various sectors. Due to the dependence upon proprietary software, open source software is introduced which are very advantageous in every sector however it has some disadvantages too. The overview of all the merits and demerits of open source software is provided in this review.

Open source is simply a better software that helps to multiply a company's development capacity. When taking into consideration of the merits of open source software, the products of open source are to be looked upon. There are a variety of open source software programs that are used in a wide range of sectors. Some of the programs has a history of being longer than much proprietary software. Most of the open source software are highly rated than the proprietary software. The goal of this review also convinces to consider using OSS when looking for software. This review focuses on the measures such as experiments and studies by

different organizations or research centers to ensure that OSS is the best option when choosing to get the software.

Literature Review

Author Thierry Carrez (2019), VP of Engineering OpenStack Foundation and OpenStack Technical Committee member, explains about all of open source benefits and why he thinks open source is necessary today in part 1 and 2 and today, open source is not enough -it is necessary, but not sufficient in part 3 in his article “OPEN SOURCE IN 2019”. According to the author, open source software’s most cited benefit is cost and availability while he considers sustainability, adapting to future needs and transparency to be a more significant benefit in his first and second part of the article. This view is the author is significant in the sense that technology is advancing in a very fast pace and it is necessary to adapt to future needs for the open source to rule over other proprietary software. Similarly, open source software should be long-lasting as people want everything that are long-lasting and transparent. Also, according to the author, OSS is very essential today but is not enough which is mentioned in third part of his article. This is significant in the sense that people are in search of advanced security which is quite less in some open source software, simple documentation manuals which can be understood by the general public and continuous development of the software.

Author of How Open Source Ate Software and Technology Evangelist at Red Hat, Gordon Haff, mentions that open source is increasingly used not because it’s cheaper- though it often is- but because it’s genuinely better software. He also adds that open source is a powerful innovation that can be noticed due to the increasing importance in many organizations both in the past and present as well as to be in future. The report also shows quantitative analysis about the increasing use of OSS in various organizational purposes like website development (45%), cloud management tools (43%), security (42%), big data and analytics (42%) and databases (41%). This report provides many valid points as it is based on the previous analysis and in the future to come.

According to a study by Aswini Kumar Ray (Assistant Librarian of ITER, Siksha ‘O’ Anusandhan University) and Dr. D.B. Ramesh (Chief Librarian of Siksha ‘O’ Anusandhan University) -2017, in their article “Open Source Software (OSS) for Management of Library and Information Services: An Overview”, describes the basic features of the most popular and leading open source software used in library for different purposes including the advantages and limitations of open source software. This study is relevant to the topic in the sense that this study focuses on the applications, merits as well as demerits of OSS in a specific field i.e. library and information services. This study is not only limited to the library services but also the impacts of OSS on the daily life of people including the software cost, license management, support, quality of software and other attractive ways of getting attention to the public. This study could me more significant if it had included applications of the OSS in many other fields like business, industries and research.

David A. Wheeler (2015), an expert in computer security, provides quantitative data about using open source software as a reasonable or even superior approach to using the proprietary software according to various measures. His main goal throughout the paper is to ask people to consider using OSS when acquiring software. He mentions various scopes, challenges, terminologies, conventions, popularity, reliability, performance, scalability, security, non-

quantitative issues, unnecessary fears, usage reports, development and use of OSS in different countries in this paper. This article is relevant to the topic because it highlights a wide range of open source software/freeware and it is based upon various quantitative measures and data which is very convenient. The paper illustrates only the good sides of the OSS/FS because the author wants to convey the message that using OSS is superior to using proprietary software. He not only describes the good sides but also the unnecessary fears about the OSS i.e. explains what people fear about the OSS and criticize the bad side of the OSS.

Open Source Software

The concept of free software or open source software started in ’80s which defines OSS as not completely free, but the software may be available to the general public with some conditions. They can be easily modified or developed in a way the user likes.

At the past, proprietary software used to be dominant but nowadays, due to the advancement and many advantages of open source software over the costly proprietary software, OSS has become more dominant. Richard Stallman, a member of MIT, coined the term “free software” in 1970. Then it was replaced to OSS in 1998 by a group of individuals. The primary objective of the OSS is to make the use of software easy, be accessible to everyone, easily understandable, modifiable, and duplicable. Though it is said to be free, these may be bound by certain licenses which is done to protect the intellectual property of the commercial firms.

There are certain conditions that are to be met for software to be open source. OSD has developed ten criteria that are as follows:

1. The software should be available for distribution without any charge.
2. Source code should be made available to the public.
3. The software must be modifiable.
4. The license must be technology-neutral.
5. The license must not be specific to a product.
6. The license on software should be equal to all people.
7. There should be no discrimination against a person or group.
8. There should be no discrimination against fields of endeavor.
9. There should not be restrictions to use any other software.
10. Every software should be integrated with the author’s source code.

Despite going through a lot of challenges, open source has become popular around the world. Some of the challenges include the legal problems in publishing data, dubious studies and the reluctance of many OSS users to publicly admit it. Due to the growing use of OSS, many opportunities are provided in several sectors. Some of the applications of OSS are as follows:

Applications of OSS:

- In-office: Some open source software like AbiWord, OpenOffice and KOffice are used in offices for various purposes. Some purposes include wide variety of word processing tasks, for the KDesktop environment, presentations and so on.
- Web Designing: Many image editing software like GIMPShop, software for creating web pages like Nvu and Bluefish for editing dynamic and interactive websites use OSS for

web designing.
- Communications: Pidgin, Thunderbird and PhpBB are some OSS that are used for communication purposes.
- E-Commerce: Some OSS such as OsCommerce, VirtueMart and Zen Cart are designed for the purpose of managing an online store, shopping-cart systems and others.
- Content Management Systems: Drupal, Joomla and PHP-Nuke are some of the OSS that helps for managing content in systems based on PHP and/or My SQL.
- Operating System: OSS also provides an operating system i.e. Linux which is one of the best operating systems.

Many challenges are arising due to the advancement of technology and science. In order to find the right way to the challenges, OSS can be the best solution to all those challenges. Many researches and studies have provided several merits and demerits of open source software/freeware. Some of which are:

Advantages of OSS:

- It has nothing hidden, so all its operations are clear and easy to analyse.
- Transparency helps other people to add new features to the software.
- Transparency helps them to provide suggestions for the codes and all.
- No commercial considerations.
- No intellectual property to collect license fees.
- Everything is available for everyone, which is very beneficial to all.
- Freedom to use
- No licensing fees
- License managed
- Free support
- Free from vendor Lock-in
- Good quality of software

Disadvantages of OSS:

- No continuous development
- Poor formal training
- No warranty
- Complex manual
- Software may not be secure and hack-resistant.
- Lack of support in the real-time zone.
- The software may be very complex, and they need to get training to use the open source software.
- Updates and upgrades may be very few or no updates i.e. not fixed.
- There may be some restrictions and incompatibilities with the various OSSs.
- Users may become a hostage of the “free” phrase of open source software.
- The security of OSSs may be quite risky.
- Some OSSs can be difficult to use or some may lack user-friendly features.
- Some may not be compatible i.e. extra drivers or hardware may need to run the software.

Conclusion

As a part of the growing technology, Open Source Software/Freeware has got a prime position in providing people great opportunities and making their life quite easy due to its use in daily life. There is many OSS that can be applicable in many areas and have many advantages including some disadvantages too. OSS has got a great amount of market share in many markets and organizations. It is more reliable in terms of performance, security, connectivity, cost and many other reasons. That’s why, open source software can be more suitable software to use rather than costly proprietary software while looking for software.

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Reflection on Time Estimation Exercise

At first, I randomly estimated how much time it will take to complete my assignment of ITECH 1001 Communications and Technology i.e. Literature Review on Open Source Software (Applications, advantages and disadvantages). I thought it would take lot more time to complete my task. Therefore, I made the mind map first and then started making time estimation table. With the help of time estimation task, it was easier to know how much time it will take, and I started to do the assignment considering the time estimated on the time estimation task. If this task had not been here, I would have taken a long time to complete the assignment. I found that the time estimation task could make our time more efficient in our day-to-day life. Using the

task, we can predict the time duration of our work considering the best as well as the worst-case scenarios along with our estimation. Especially for the students who must manage their studies, work and household activities can manage their time so efficiently.

Likewise, I thought it would only take some hours to research, build, write, edit and finalize each part of the group report using various sources like books, journals, websites, articles, researches and others, but it took me several hours only to research the sources and different data and combine all the sources as a review. Therefore, I thought if I did not have the time estimation exercise help me with the task and mind map, I would have ended with my incomplete assignment. Thus, the time estimation task was of great help to complete the assignment.

S.O.A.R model for this task:

- Selection: The source for the literature review that I took from are published only after various research and studies. The authors of the articles, websites and journals are well-renowned in their sector. For instance, David A. Wheeler is an expert in computer security who has published many books, articles and journals that are considered very appealing and recognised. Similarly, Author Thierry Carrez, VP of Engineering OpenStack Foundation and OpenStack Technical Committee member, has got quite a fame in the sector of writing. His works has been used as a reference in many highly recognised sectors. Due to such recognition and a wide range of research and studies, I selected the sources for the review.
- Organization: At first, I researched different sources about open-source software. I collected enough knowledge and resources to include in the review. Then made a mind map to visualize the overview of the report and estimated the time for the report and literature review to be completed. I asked a lot of help from my friends, seniors, expertise and teachers which was very helpful. Also, I organized the report with the help of various helpful YouTube videos and searched website about the way of writing a literature review and group report including the help from Moodle.
- Association: When I was done with the collection of the resources, mind map, time estimation and getting enough information about the way of writing a literature review and group reports, I associated all the resources and citations that I got and prepared the report and review. I also got a lot of help from the internet about how to inter-relate the resources and make a fine report. Though it was quite difficult in the beginning, it became easy at last due to repeated research and dedication.
- Regulate: In order to regulate the process of the review and report, I continuously looked over many samples and googled the ways of doing things in a common rate. I was in some dilemma during doing the review, but I cope with all those problems with the help of videos from Moodle and many websites.