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SOME IMPORTANT ISSUES IN FREE AND OPEN SOURCE SOFTWARE

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ABSTRACT

In 1983 Richard Stallman founded the free software movement. According to the founder this type of software respects user's freedom and social solidarity of development team called community in FOSS terminology. Whereas proprietary softwares take away the user's freedom and keep the users helpless. In free and open source software the concept of sharing the source code is used. Here all the participants are connected through internet. FOSS has grown now in a full fledged software development methodology thruought the world. This methodology cuts down or reduces the cost of software. Also no country of the world wants to waste crores of rupees on softwares which are proprietary as they have an option to divert to this new category of software. But all want to be safe by getting acquainted with various issues related with free and open source software. Therefore the main aim of this article is to highlight the important issues related with free and open source software.

Keyword: *FOSS, free and open source software, proprietary software, participants, Richard Stallman.*

I. INTRODUCTION

FOSS is acronym for free and open source software. This type of software provides four types of freedoms which are:

1) Freedom to run the program as you wishes, for any purpose.
2) Freedom to modify the program according to user's own needs.
3) Freedom to redistribute copies.
4) Freedom to distribute modified versions of the program

Examples of Proprietary Softwares are all paid softwares whose source code is not provided to users for changing like MS Windows, MS Office, iTunes, Microsoft Internet Explorer, Adobe Photoshop and Adobe Flash Player, Google Earth, Mac OS X, Skype, WinRAR, Oracle's version of Java and some versions of Unix and all such Softwares.

Examples of FOSS i.e. free and open source softwares are : Linux, Android smart mobile operating system , BOSS/Linux Bharat operating system solution, Ubuntu,Open Office, neo office, k office, PHP, google chrome browser, Mozilla Firefox, pdf creator, bit torrent distributed file sharing, apache web server, mysql, Python, Java, HTML, CSS, JavaScript , vlc media player etc.

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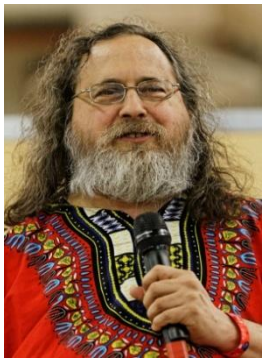

Richard Stallman

American Software Freedom Activist and Programmer

Some issues related to free and open source softwares are following:

The word open source is representing the software development process that depends on the generally those developers who are sitting at far flung locations from one another, which may be connected through internet on web sites like www.sourceforge.net or some any other technique of sharing of resources. Accessibility of source code is the main characteristic of free and Open Source Softwares. Its code can be used for any personal purpose for free. The users of the Open Source Softwares are always free to modify or improve the system for personal use or even to distribute the modified code to other users. Physically distributed developers may be connected on internet for development, but it's not a strict requirement. In Open Source Software methodology the software is developed by team of programmers/developers. A prototype system is released on the Internet, which can be accessible freely and system's source code can be studied, modified and redistributed.

II. OBJECTIVES

Aim of this article is to highlight the issues related to free and open source softwares. As open software is developed by physically dispersed developers, it may affect the overall quality, reliability and cost and such many other attributes. These are the areas which still need to be worked upon. We have performed a thorough review of the literature to identify the issues that arise, as reported in the literature and also gave repeated thought for new issues which were out of sight from other researchers till now. This paper presents and discusses the various issues in available findings as well as authors' new ideas. Researchers can discuss the potential causes and solutions for these problems as well as benefit from provided references to literature on OSS challenges as input for future research.

III. RESEARCH METHODOLGY

The research methodology used for here is analytical. In this approach, facts and information already available on secondary sources has been used and analyzed to make a critical evaluation of the material.

IV. IMPLICATIONS

In recent years, open source software development has become an important field in the software engineering discipline. Software engineers generally should be able to evaluate open source software solutions, integrate with open source products or libraries, and contribute to enhancements to open source projects. This paper will be helpful in throwing light on the problems which goes side by side in development process.

V. FOSS ISSUES

There are many issues in free and open source software like Cost of softwares, Location of Participants, Quality Features, available Licensing Options, Security Features of FOSS, Innovation of developers/participants, Service

Facilities provided by software company/software developers. But author realises that much more important issues are like how developers meet their financial requirements or are the sources of finance sufficient to meet the requirements of expenditures made to develop the softwares of new type i.e. under study, who will adopt the free and open source softwares and how, who will motivate the new users to use FOSS and in case of complaints or need of change in software if user is not in position to change or modify the software who will be stakeholder for this service.We will handle or discuss the later three issues one by one.

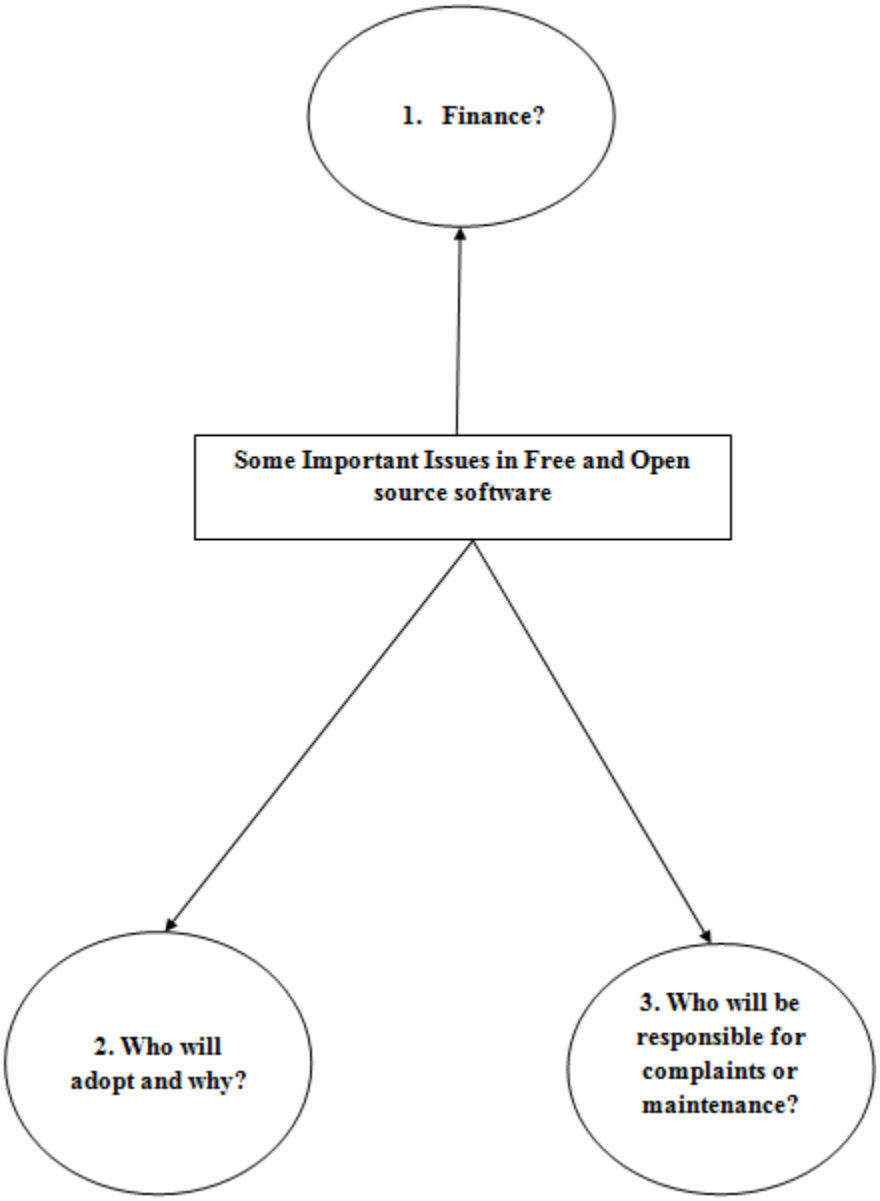

Figure 1.1: FOSS Issues

1. Finance

Most OSS programs do not cost anything to get or they have a relatively nominal acquisition cost. However the literature on FOSS clearly mentions that the term "free" in the phrase "free software" is based on "freedom" and not on price. OSS programs incur cost in form of money when they are implemented in the real place for use. Licensing cost is nearly always incurred when OSS is implemented. Therefore when calculating costs cost for maintenance

will also be added. This is done by computing the total cost of ownership or as a return on investment, over a fixed period of time. Potential costs for any software selection include initial license fees, installation costs, license upgrade fees, staffing costs, support/maintenance costs, indirect costs (such as downtime and training), transition costs (such as data transition or upgrades), and the costs of any necessary hardware, initial cost as well as maintenance cost. These costs may include expensive hardware, other software that is required but sold separately, fees of support, and any other/additional fee if any for up gradation which is not possible otherwise by other means like by company's own engineers. Howsoever there must be other methods of this type which may help the developing community in bearing the cost of development of software applications.

2. Who will adopt, why and how

Who will inform the user that the free open source software is also a good option to choose? Either it will be reaching them via mouth to mouth publicity but in such communications problems of the new category of softwares will also be communicated. Or these problems or risks may be many times outspoken means over explained and quality off such softwares may be under estimated and no one or less number of new end users may be prepared to do a new use or to experiment over these new softwares. However sometimes the shortcomings may be ignored but in this case also why users of old softwares will leave the use of that old traditional software or proprietary softwares. Then who will develop in the user confidence to use new softwares. Who will be the stakeholders? Who will advertise or who will convince the user? Because in case of proprietary softwares the software developing company is the sole stakeholder, advertiser and motivator to the end user for increasing the company's user base and hence the sale and hence the profit and income. But in case of free open source softwares who will perform all these roles and functions. After long literature study it comes to light that governments of various countries took this responsibility because state can take financial benefits by saving their huge expenditures on proprietary software and preferring softwares of this new category. The govt of many countries did so and became world leaders in adoption of FOSS; But Indian Govt in nearly 2005 woke up and started working on adoption. But in spite of developing its own operating system based upon Linux named Bharat Operating System Solution and spending huge amount of finances could not make it a replacement of windows in India. Govt also implemented framework for OSS adoption but could not be that much successful. The framework also appeals the academician to perform research in such areas as a consequent the author performed the same.

There are risks involved in adopting OSS. The researchers and governments of many countries have identified several important criteria to consider evaluating free and open source softwares. Organizations which are using Open Source Softwares considered stability and economics the important features in their decision to adopt it.

3. Who will be responsible for complaints or maintenance?

Many times the users may like programs or softwares and start using them regularly. But suddenly when their requirements undergo a change due to change or up gradation in the system and they are not in position to change or modify the source code they contact the OSS developers in such a case the software developers must be available to execute the modification in the system under use otherwise the clients will be helpless and no one will prefer to leave the use of traditional softwares i.e. proprietary softwares and will not like to shift to free and open source software category. And, before deciding to test and adopt any OSS, answering the following questions is of value: are support services available? Is documentation of software easily understandable and followable for new users of software? How much is experience of software developing persons? What is expertise level of these developers? Developers and their programs and their documentation should be such a type that it may be very easy for a new end user to understand the program and modify it to their own needs very easily. Many times when the users are not in a position to change or modify the source code. It is good thing that a program is being maintained and its maintenance will be continued in time to come also. Of course, predicting the future is very difficult. However, if a program is being maintained regularly, it is more probable that the program you choose today will be useful tomorrow. Track record of the community also serves as a guarantee for future services.

When Open Source programs are made available to the users but are then never maintained; depending on such programs is risky. And the end user will not use them after a little time of their use. They will use those programs

which are to which the developers are always keeping on updating. In general, it is evident that the software must be always under development or updating/maintenance? Therefore same developers should be always active.

VI. CONCLUSION

The issues of great concern to FOSS comprise distributed development i.e. communication and co ordination overhead, ownership issue and adoption of OSS i.e. does OSS community provides support for updating of OSS , speed of development,OSS frequent releases problem, cost, reliability longevity, licensing issue, sources of Income. But out of these issues, who will adopt, why and how and who will be responsible for complaints of maintenance are of utmost importance. They must be taken full care of for smooth and steady growth of free and open source softwares. These issues need more and more depth of clarity of their respective solutions which needs more and more attention and further research.

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