

Open Source Software Impact and Support for IT Industry in Sudan

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Abstract

The use of open source software (OSS) is increasingly spreading by the day throughout the world. Although OSS is spreading in Sudan, the country is still way behind on international standards. This paper therefore justifies this statement and discusses the current uses of OSS in Sudan. It also suggests solutions that will catalyze the spread of OSS in Sudan.

1. Introduction

Sudan is still lagging in the use of OSS. This is mainly due to the fact that most OSS is based on the Linux operating system and up to this point Linux has a comparatively small popularity among the IT industry in Sudan. Most users prefer the use of Microsoft Windows based operating systems, due to its simplicity and the wide availability of third party applications and development tools. The term “wide availability” has to be clarified because the reader might raise a number of questions when bearing in mind that Sudan is classified as a third world developing country and is under strict embargo rules and regulations. The answer to these questions is that all Microsoft software as well as third party applications in all categories and forms is available in pirated form for a nominal cost.

The lack of proper Linux training is also another reason that contributes to the Linux unpopularity problem. When available, Linux training is very expensive compared to training offered for Microsoft Windows. Another reason that contributes to the Linux unpopularity problem is that Microsoft Windows together with third party applications are available in localized form with full support of the Arabic language. The localization

and arabization of Linux is still an ongoing project with numerous efforts, thus presenting immature standards and an unstable platform for development. This clearly discourages software development that supports Arabic.

Finally, one last reason that may have also contributed to the Linux unpopularity problem is that the Sudanese culture is under the misconception that any product that comes for free or is available for public use without charges will not be as good and secure as other competitor products.

The next section addresses the issue of introducing the reader to the current impact of OSS on the Sudanese IT industry, referring to the Information Technology and Network Administration (ITNA) at the University of Khartoum as a case study. Section 3 proposes solutions to the Linux and thus OSS unpopularity problem.

2. Current Impact of OSS on the Sudanese IT Industry

As mentioned in the previous section the current impact of OSS on the Sudanese IT industry will be studied via the use of the ITNA at the University of Khartoum as a case study. This is due to the fact that it represents a large portion of the use of OSS in Sudan. As the name suggests the ITNA provides IT and networking services to all of the University. It was formally established in 2003 and is completely based on OSS. The University of Khartoum's network is completely administered by Linux servers making most of the available network services. Examples of such services among many others are DHCP, OpenDNS [1], OpenLDAP [2] and OpenSwan [3]. The ITNA also created Linux mail servers (which serve the whole of the University) via the use of OSS such as: Postfix [4], Procmal [5], Courier-imap [6] and finally Squirrel Mail [7] as a mail client. It has also made use of the Apache web server [8] to host the University's website [9]. The ITNA also provides Voice over IP services (VOIP) via the use of the asterisk, the open source PBX and telephony platform [10].

In addition to networking services the ITNA has developed a number of information systems of which the human resource, payroll, registration and examination results systems are examples. All of the developed information systems make use of the MySQL open source database [11] and php server scripting language [12]. This also applies to the

University's website which makes use of these open source technologies in addition to Joomla [13], which is an open source content management system and portal engine.

As clearly illustrated the ITNA of the University of Khartoum adopted a completely open source approach and as previously mentioned it represents a large portion of OSS use in Sudan. The ITNA case study also strongly emphasizes that currently the use of OSS in Sudan is currently limited to the education sector of the Sudanese IT industry. Minimal OSS has been used in the research sector since 2003. OSS such as MPI [14] and Globus [15] has been used to create a number of clusters and grids. In addition a number of OSS population genetics packages have been used. The remaining sectors of the Sudanese IT industry made nominal use of OSS and clearly need a breakthrough in order to steer towards OSS. Solutions to this problem are discussed in the following section.

3. Catalyzing the Spread of OSS in Sudan

It is obvious to suggest that one main approach of spreading OSS in Sudan is to raise awareness. This awareness could be raised by some sort of open source community or body. This body should address a number of issues of which the illegal use of pirated software should be a main issue. This will automatically trigger the need for an open source substitute presented by Linux and other OSS. In conjunction with these activities, the suggested open source body should customize the Linux kernel creating a localized and arabized Sudanese Linux distribution available under the GNU Public License (GPL) [16].

The open source body should also support OSS through professional training centers that should provide Linux training from novice to professional on the operating system and all other open source third party applications, focusing on the arabized edition of OpenOffice [17] and Mozilla Firefox [18]. This will provide an enormous encouragement since the average user uses the PC to simply create documents, spreadsheets and browse the web. Training and technical support should also be provided to developers acquainting them with the necessary tools (MySQL, php, etc.) to push forward in the huge task of developing Arabized software packages for the customized Linux kernel.

4. Conclusion

This paper started by proposing that currently the impact of OSS on the Sudanese IT industry is nominal. It then justified this statement by providing reasons and proposes solutions. The proposed solutions strongly emphasize the establishment of some form of open source community and body which will be completely in charge of spreading the use of OSS in Sudan through raising public awareness, customizing the Linux kernel to suit Sudan and supporting OSS through training centers and technical support.

The predicted outcome of the proposed solutions is nationwide public awareness and education of OSS as well as a large proportion of the IT industry switching over to OSS. Should the proposed solutions be implemented it is predicted that there will come a day when the vast majority of the Sudanese IT industry will be using OSS.

5. References

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