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Re : **Comments on the role of Open Source Software in Trinidad and Tobago (2006 – 2008)**

For the attention of the Executive Manager, ICT Policy and Stakeholder Engagement

The Trinidad and Tobago Computer Society (TTCS) is writing to express our concerns on "The role of Open Source Software in Trinidad and Tobago (2006 – 2008)" available on Fastforward's website at http://www.fastforward.tt/media/release_detail.asp?id=4972

We solicited comments from our mailing list (http://tech.groups.yahoo.com/group/ttcs_announce/message/549) , and also created a wiki page for anyone to add and edit comments at http://ttcsweb.pbwiki.com/Role+of+Open+Source+Software+in+TnT which we also announced to our list (http://tech.groups.yahoo.com/group/ttcs_announce/message/551).

We held three public meetings :
http://tech.groups.yahoo.com/group/ttcs_announce/message/552
http://tech.groups.yahoo.com/group/ttcs_announce/message/554
http://tech.groups.yahoo.com/group/ttcs_announce/message/555
where members met to discuss the document and make comments which was posted to the TTCS wiki and to compose this response.

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Title of Consultative Document	The role of Open Source Software in Trinidad and Tobago (2006 – 2008)

Section 6 – Background

The "Background" section of this document is unfortunately based on a misunderstanding of software licensing. There is reference to the ***"widespread use of licenced software packages in the office places"***. This is an incorrect statement. **All software**, including open source software, is licensed. The only exception is public domain software. Software can be licensed in a variety of ways: Proprietary licenses, Open Source licenses and the special case of Public Domain.

Proprietary Licenses

From http://en.wikipedia.org/wiki/Proprietary_software :

Proprietary software is software that has restrictions on using and copying it, usually enforced by a proprietor. The prevention of use, copying, or modification can be achieved by legal or technical means. Technical means include releasing machine-readable binaries only and withholding the human-readable source code. Legal means can involve software licensing, copyright and patent law.

Proprietary software can be sold for money as commercial software or available at zero-price as freeware (http://en.wikipedia.org/wiki/Freeware). Distributors of proprietary software have more control over what users can do with the software than non-proprietary software.

Open Source Licenses

Open Source Software (OSS) is software for which the human-readable source code of the program can be freely downloaded and altered to suit individual/customised needs. There are many types of Open Source Software. The difference lies in the way altered versions of the software can be distributed, so if you customise the software for your own needs, then decide to distribute it, you may be bound by specific terms.

You can do the following with open source software:

- install the software on any number of machines in any environment (home or commercial) without purchasing licence fees for each machine.

- obtain and modify the source code and distribute modified versions of the program together with the modified source code. Open source licenses differ in how such source code can be distributed or licensed for others to also modify the source code.

Some examples of open source licenses :

- GPL - GNU General Public License : http://www.gnu.org/copyleft/gpl.html
- LGPL - Lesser GNU General Public License : http://www.opensource.org/licenses/lgpl-license.php
- BSD - Berkeley Software Distribution : http://www.opensource.org/licenses/bsd-license.php
- MIT - Massachusetts Institute of Technology : http://www.opensource.org/licenses/mit-license.php
- MPL - Mozilla Public License : http://www.opensource.org/licenses/mozilla1.1.php

Public Domain software

From http://en.wikipedia.org/wiki/Public_domain :

Software can be considered to be in the public domain if its author does not claim proprietary rights over it, if its author has specifically released it as such or if it is specifically excluded from existing intellectual property laws.

Proprietary rights are founded in national law so it is possible for software to be in the public domain in one jurisdiction but not another.

Section 6 - Background - Paragraph 4

The definition of "*open standards*" is incorrect. From http://en.wikipedia.org/wiki/Open_standards :

Open standards are publicly available and implementable standards. By allowing anyone to obtain and implement the standard, they can increase compatibility between various hardware and software components, since anyone with the necessary technical know-how and resources can build products that work together with those of the other vendors that base their designs on the standard (although patent holders may impose "reasonable and non-discriminatory" royalty fees and other licensing terms on implementers of the standard).

Open standards which can be implemented by anyone, without royalties or other restrictions, are sometimes referred to as ***open formats***.

Section 6 - Background - Paragraph 5

"The argued advantage of licenced or closed source products is inimically tied to . . . the ability to seamlessly integrate with the commercial packages which public servants and consultants may already be using"

Yes, there are problems with integration. But this is true of all software. Open source approaches these issues by promoting **open document formats** (**ODF**) to improve integration. See a discussion of this issue at Wikipedia at http://en.wikipedia.org/wiki/OpenDocument and an analysis of the software which supports ODF at http://en.wikipedia.org/wiki/OpenDocument_software.

Integration problems still exist because of the refusal of large proprietary software vendors to co-operate with existing standards or to release the information necessary for Free and Open-Source Software (FOSS) producers to co-operate with their standards. Proprietary software vendors have created this situation in order to "protect their turf". Reference: the judgement by the European Commission against Microsoft concerning this sort of behaviour: (http://tinyurl.com/4ds4f).

FOSS producers have responded by reverse-engineering the closed formats and protocols. For example: OpenOffice.org (a open source office productivity suite for creating/editing documents, spreadsheets and presentations) both reads and writes Microsoft Office formats. The Samba networking suite provides connectivity between Windows networks and non-Windows networks. Some commercial vendors provide at least partial support for FOSS software by providing binary-only drivers, e.g. ATI and Nvidia provide video drivers for Linux systems.

Section 7 - Open Source Software - Threat or Promise?

"Trinidad and Tobago plans to become a knowledge-based society by 2008"

Is FastForward planning to roll out OSS right across the public sector in 2008? If yes it needs to rethink this activity immediately!

A proper implementation of Open Source Software requires more than one year to plan and execute. A rushed implementation will only serve to alienate end users and generate unwarranted criticisms against OSS in the public sector.

Section 7.1 - The common threats of Open Source Software (OSS)

Re: Security threats

The real security threat is the lack of properly trained personnel to configure, maintain and use computer systems, regardless of whether it is open or closed source. Access to source code does not make a computer system any more secure for the person/company using it. Poorly configured software, (proprietary and/or open source software) is always vulnerable to security threats.

There is always a need for adequate numbers of properly trained personnel to administer such systems.

Section 7.1.2 - The economic threat

"open software is not truly free and will actually cost the government/ corporate body more in training and support".

In Trinidad and Tobago the majority of training available to citizens, focuses on proprietary software. This is merely a response to the demand which exists for it. To suggest that open source in particular has problems with training, is a red herring.

Local training centres responded to the need for training with/for/on proprietary software and once Free/Open Source Software (FOSS) becomes more popular/is implemented in the public and private sector, these institutions will respond to the demand by introducing FOSS courses into their curriculum.

Section 7.1.3 - The development opportunity

The open source development model has been discussed in depth in Eric Raymond's essay "The Cathedral and the Bazaar" at

http://catb.org/esr/writings/cathedral-bazaar/cathedral-bazaar/.

The main idea is that program modifications are accepted into the main core of source code based solely on their intrinsic merits, not on any other considerations. For example: Is the modification valid? Does it introduce bugs? Does it eliminate bugs? Does it add a useful feature? Contributions that are of little or low value are discarded. Open source projects which do not attract a community, end up as 'orphan code'. Only projects which are seen as of great value, attract sufficient numbers to ensure their survival.

This approach may seem disconcerting at first glance, but it is the willingness to abandon a project and start in a new direction (known as 'forking the code'), that leads to the high value of open source versus closed applications. Open source project leaders care passionately about the value of their code. They reject modifications which they see as reducing the quality of the finished product. Some projects like FreeBSD and Apache, are relentless in their hunts for bugs. Consequently, the stability of these systems approaches the highest standards for software on the planet.

One often overlooked advantage of open source software is the ability to add features as needed without waiting for the software vendor. This can be done even before the developmental capacity is built, but once this capacity is built, customising of software will be a value added, knowledge based activity that can occur in Trinidad and Tobago.

Section 7.3. - Reliability

This section refers to the paper “Fuzz Revisited” which is the report generated from a study conducted eleven years ago on the reliability of FOSS applications. The author(s) of “The role of Open Source Software in Trinidad and Tobago (2006 – 2008) A Consultation paper” should seek a more recent study to support their statements.

Section 8 - Key points of consultation

Key point 1 - From your understanding, do you agree with the above analysis?

In theory, the use of FOSS by the Government of Trinidad and Tobago is desirable but more research on the impact of FOSS on the public sector of Trinidad and Tobago as well as more detailed planning is required for its implementation to be successful.

Key point 2 - Do you think fastforward, the NICT Plan should encourage the use of open source software, and accept the associated 'risks' when very sensitive information is at stake?

The phrasing of this question suggests that there are "risks" that are unique to FOSS. There is risk associated with the use of any software be it proprietary, open source or public domain.

"Very sensitive information" can easily be compromised by poorly configured/administered systems and/or inadequately trained personnel regardless of the type of software used (be it proprietary, open source or public domain).

The software "risks" are similar (between proprietary, open source or public domain software) so the NICT plan should not be afraid of using open source software in this area.

Key point 4 - What do you think should be the primary goals guiding decisions for or against the use of open source software in Trinidad and Tobago?

Goals for guiding the decisions for the use of open source software in Trinidad and Tobago:

- Encouraging the growth of a "home-grown" software industry.
- Encouraging the expansion of the local ICT industry.
- Creation of employment (programmers, administrators, technicians, trainers, etc.) in the local ICT industry.
- Avoiding vendor "lock-in".
- Avoiding critical/sensitive data being trapped in proprietary formats.
- Reduction of the costs associated with licensing fees.

Key point 5 - Given the above data, and your understanding of the current state of the ICT sector in Trinidad and Tobago, is there a potential to develop numerous niches and cost saving strategies through the implementation of OSS?

Yes there is a potential to develop numerous niches and cost saving strategies however, FOSS is not a "cure-all" so appropriate research and planning is needed in order to realise its full potential.

Key point 8 - Considering the points above, and your contributions to key points 5 and 6 above, what role if any do you think the Government of Trinidad and Tobago should play with regard to the open source industry, as opposed to the proprietary software industry, in the country?

Government's initial focus should be on ensuring proper public policy is in place. These policies should include that public documents adhere to open formats and not be tied to proprietary formats, and are secured against theft, loss or unauthorised access.

This short term policy will help ensure the smooth introduction of Open Source software. The long term policy would be one which eventually replaces the proprietary software currently being used with FOSS.

Key point 9 - Should Government look primarily at formal (direct) or informal (non-direct) approaches to the question of software models (proprietary or open) within the ICT sector?

Government has to utilise a mix of direct and non-direct approaches to the question of software models within the ICT sector.

Conclusion

With the stated initiative of capacity development and wider developmental opportunities, the use of Free and Open Source Software (FOSS) by the Government of Trinidad and Tobago (GOTT) would be the best choice. By adopting OSS, the GOTT can legally pursue this objective without fear or foul of licensing costs.

FOSS meets the needs of government and business users and home users. It promotes open formats. Open formats ensure data longevity (the ability to access data several years into the future) and avoid vendor lock-in. Many FOSS are multi-platform meaning such software can run on proprietary operating systems such as Microsoft Windows® and MacOS® X as well as open source operating systems such as Linux and FreeBSD. Such multi-platform open source applications can thus be deployed in existing IT infrastructures without requiring significant hardware and software changes.

Many modern business applications typically require installation on individual computers connected on a Local Area Network (LAN). However significant software development is taking place today which allows users with a standards-based web browser to access a website which offer many if not all of the features of stand-alone applications. This trend is collectively known as "Web 2.0" Many such Web 2.0 websites are programmed with FOSS and run on web servers running FOSS. This could mean significant cost savings when compared to proprietary applications installed on each machine on a LAN. It is also possible for a business idea to be developed by locals for a "Web 2.0" site which could be used by anyone in the world with Internet access.

FOSS offers significant cost savings when compared to proprietary software. This should be considered especially if computers are to be deployed to communities and schools throughout Trinidad and Tobago.

The discussion of the use of open source and open standards raises some very important issues which have either not been raised in this paper or have been mentioned only in passing. We believe that these areas deserve greater focus:

- Industry development
- Training
- Integration with other software (for example: the use of open source applications on proprietary operating systems like Microsoft Windows®).
- Patents and copyrights
- National Security

As the Government seeks to formulate an appropriate FOSS policy for Trinidad and

Tobago, policy-makers should consider the following :

- FOSS is not a "cure-all".
- FOSS cannot make in-efficient systems efficient.
- Implementation requires long-term commitment, success will not be achieved overnight.
- Temporary setbacks should not be used as an excuse to return to the use of proprietary software.
- Proper research is necessary to avoid unrealistic expectations.
- End users require proper training in order for them to operate efficiently when using Open Source applications.
- Government must implement educational policies which will help citizens to obtain the required FOSS-related skills.

There are numerous examples to illustrate both the successful implementation of FOSS at the public sector level and the failure of FOSS at that level. Policy-makers should examine both sets of examples and seek to learn from the successes and avoid repeating the mistakes/errors/poor quality decisions that caused the failures.

Implementing FOSS at at the public sector level is unique to every country. One size does not fit all. Policy-makers cannot simply copy an existing plan from another country and hope that it will work with out problems in Trinidad and Tobago. A properly customised plan is needed in order to avoid failure.

A proper Open Source policy can be formulated and eventually implemented as long as expectations are kept within check and relevant options are considered before making a decision.

Examples of such options include:

- Cost of implementation.
- Time taken to deploy.
- Security.
- Ease of learning.
- Cost of training.
- Cost of hardware.
- Cost of proprietary software used for similar purposes.

Useful links

- The Four Freedoms : http://www.gnu.org/philosophy/free-sw.html
- The Open Source Initiative (OSI) : http://opensource.org/
- The Open Source Definition : http://opensource.org/docs/definition.php
- Testimony by Mr. Tony Stanco, Esq., Associate Director, Open Source and e-Government, Cyber Security Policy and Research Institute, The George Washington University to the Provided to the New York City Council's Select Committee on Technology in Government New York, New York : http://www.egovos.org/Resources/Testimony
- The Villanueva letter to Microsoft : http://www.theregister.co.uk/2002/05/19/ms_in_peruvian_opensource_nightmare/ . A shorter URL : http://tinyurl.com/3abgv
- Peruvian Congressman refutes Microsoft's "Fear, Uncertainty and Doubt" (F.U.D.) concerning free and open source software : http://www.opensource.org/docs/peru_and_ms.php
- Original Spanish version of Dr. Edgar David Villanueva Nuñez's reply: http://www.opensource.org/docs/peru_to_ms_spanish.php
- Public Sector and Open Source : http://www.publicsectoross.info/index.php
- Brazil adopts open-source software : http://news.bbc.co.uk/1/hi/business/4602325.stm
- Article re: Bruce Perens' "Sincere Choice": http://www.sfgate.com/cgi-bin/article.cgi?file=/gate/archive/2002/08/29/osgovt.DTL . A shorter URL : http://tinyurl.com/17xx
- Information and Communication Technologies for Development: “the sustainable use of ICT to enable poor and marginalised communities to use the potential of ICT to transform their lives” : http://www.gg.rhul.ac.uk/ict4d/
- An essay showing the advantages of Open Source Software with quantitative data: http://www.dwheeler.com/oss_fs_why.html
- A collection of Open Source software for Microsoft Windows® compiled by the Trinidad and Tobago Computer Society : http://ttcsweb.org/osswin-cd/