

Open Standards and FOSS

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Presentation Will Cover

Presentation focuses on open standards from the FOSS perspective

- What are open standards?
- Benefits and examples of open standards
- Open standards and patents
- How open standards and FOSS affect each other
- FOSS, open standards and governments

What is a Standard?

A standard is a framework of specifications that has been:

- approved by a recognised organisation – standards setting organisation

or

- is generally accepted and widely used throughout by the industry

Standards Setting

Several ways:

- De jure
 - created by a formal committee e.g.
IEEE 802, ISO 10918, ITU-T X.25
- De facto
 - created through widespread usage e.g.
PDF, FAT, Hayes modem commands
- Industry-driven
 - intermediate between de jure and de facto e.g.
OpenDocument, SOAP, UDDI

Standards Setting Organisations

- De jure e.g.
 - ISO - International Organisation for Standardisation
 - ITU - International Telecommunication Union
 - SIRIM - Standards and Industrial Research Institute of Malaysia
- Industry-driven e.g.
 - IETF – Internet Engineering Taskforce
 - W3C – World Wide Web Consortium

Acceptance of Standards

- Usage of standards in most cases voluntary
- Publication of a standard no guarantee of acceptance, e.g.
 - X.400 messaging protocols suite (ISO/ITU-T standard)
- Sometimes de facto standards more popular e.g.
 - SMTP mail protocol(IETF standard)

Open Standards

Attributes of Open Standards

Truly open standards are:

- Openly developed
- Openly maintained
- Openly modified
- Openly accessible
- Openly implemented

Ref: Summary of the Policy Dialogue on Open Standards, Regional Conference on Open Standards: the Key to an Open ICT Ecosystem, 2006, Bangkok

<http://wiki.nectec.or.th/ext/PolicyDialogue/WebHome>

Definition of Open Standards

Different definitions from different organisations with different viewpoints and objectives

Some Definitions of Open Standards

What are open standards?

The Open Standards Policy, IT Division, Massachusetts, USA defines open standards as:

Specifications for systems that are publicly available and are developed by an open community and affirmed by a standards body

<http://www.state.ma.us/itd/openstandards.htm>

Some Definitions of Open Standards

The **European Interoperability Framework** (EIF) for pan-European e-Government services provides a framework to facilitate the interoperability of the e-Government services of the European Union member states. It defines open standards as having following minimal characteristics:

- *the standard is adopted and maintained by a not-for-profit organisation*
- *the development of the standard occurs using an open decision-making process and does not preclude any party from it*
- *the standard is published and is available either free of charge or for a nominal fee*
- *the published standard must be available for all to copy and distribute it either free of charge or for a nominal fee*
- *any patents present in the standard are to be irrevocably available on a royalty-free basis*

<http://europa.eu.int/idabc/en/document/3473/5585#finalEIF>

Some Definitions of Open Standards

Bruce Perens - an open standard is more than just a specification; the principles behind the standard and the practice of offering and operating the standard are what make the standard open

Principles of open standards:

- *Availability - available for all to read and implement.*
- *Maximize End-User Choice - create a fair, competitive market for implementations, no vendor/group lock-in*
- *No Royalty - free for all to implement*
- *No Discrimination - do not favor one implementor over another for any reason other than the technical standards compliance of a vendor's implementation*
- *Extension or Subset - may be extended, or offered in subset form*
- *Predatory Practices - may employ license terms that protect against subversion of the standard by embrace-and-extend tactics*

<http://www.perens.com/OpenStandards/Definition.html>

Some Definitions of Open Standards

Organisations like **ANSI**, **ITU-T** and **BSA** also have their definitions on what constitute open standards. Essentially they recognise that:

- *open standards have to be publicly available for implementation*
- *all interested parties should be able to participate in development*
- *essential intellectual property rights (IPR) may be included so long as these IPR can be made available under non-discriminatory terms and a reasonable fee or for no fee at all (RAND terms)*

<http://public.ansi.org/ansionline/Documents/Standards%20Activities/Critical%20Issues%20Papers/Open-Stds.pdf>

<http://www.bsa.org/usa/policy/loader.cfm?url=/commonspot/security/getfile.cfm&pageid=22407&hitboxdone=yes>

<http://www.itu.int/ITU-T/othergroups/ipr-adhoc/openstandards.html>

Open Standards

In general all agree on the following characteristics:

- Readily accessible for all to read and implement
- Developed by a process that is open and relatively easy for all to participate in
- No specific vendor/group tie-in

Main disagreement is in whether to consider standards that contain RAND-encumbered patents as open or not!!

FOSS-friendly organisations and FOSS groups insist that any patents present in the standard are to be irrevocably available on a royalty-free basis

Level of “Openness”

- Open + royalty free
- Open + RAND* + royalty free
- Open + RAND + royalty

most open



least open

* *Reasonable and Non-Discriminatory licensing – used when patents are included in an open standard*

Benefits of Open Standards

Benefits

- No technology, vendor lock-in etc.
- Helps interoperability among different types of systems
 - improves data interchange
 - need not use same software to read/write files/data
 - protects against obsolescence
- More choices for customer
 - more vendor can participate
 - mix-and-match possible
 - vendor replacement easier

A Word on Interoperability

- Standards promote interoperability
 - Open *as well as* proprietary standards can help
- Products and technologies from a single source can also achieve interoperability
- Multiple incompatible open standards may be available for same area
- In practice, islands of interoperability result from lack of open standards

A Caution on De Facto Standards

Created through widespread usage. Some dangers:

- Be careful of de facto standards that are not publicly published and freely available for implementation. Can result in vendor lock-in.
- In documents exhibited for the court case, Iowa Comes v. Microsoft, Microsoft itself admits to trying to lock customers in through widespread usage of its own specifications and protocols.

<http://www.iowaconsumercase.org/>

A Caution on De Facto Standards

The Iowa Comes v. Microsoft case - quote taken from one of the documents from Microsoft made public:

<http://www.iowaconsumercase.org/011607/3000/PX03096.pdf>

“Our mission is to establish Microsoft's platforms as the de facto standards throughout the computer industry. ...

Every line of code that is written to our standards is a small victory; every line of code that is written to any other standard, is a small defeat. Total victory, for DRG [Developer Relations Group], is the universal adoption of our standards by developers, as this is an important step towards total victory for Microsoft itself: 'A computer on every desk and in every home, running Microsoft software.'”

- Effective Evangelism

A Caution on De Facto Standards

The Iowa Comes v. Microsoft case – quote taken from one of the documents from Microsoft made public:

<http://www.iowaconsumercase.org/011607/2000/PX02991.pdf>

“One thing we have got to change is our strategy allowing Office documents to be rendered very well by other peoples browsers is one of the most destructive things we could do to the company.

We have to stop putting any effort into this and make sure that Office documents very well depends on PROPRIETARY IE capabilities.

Anything else is suicide for our platform. This is a case where Office has to avoid doing something to destroy Windows.

...”

- Bill Gates

National Considerations

- Important that data of country and citizens
 - stored in file formats and databases accessible now and in the future
 - accessible by several readily available software
- No over-reliance on foreign technologies
- Applications, databases and services nation-wide interoperable
- Possibility of participation by smaller local vendors in big government ICT projects
- Ease of localisation

Embrace, Extend and Extinguish (EEE)

Some vendors try to take advantage of open standards using EEE tactics

Embrace

- Support of an open standard
- Implement it in products

Extend

- Adds in proprietary enhancements in implementation
- Not interoperable with basic implementation
- If vendor's product widely used others forced to implement the proprietary enhancements to interoperate

Embrace, Extend and Extinguish (EEE)

Extinguish

- Enhancements to the standard so widely used that it effectively becomes the de facto standard
- Vendor has hijacked the open standard and made it proprietary since the enhancement is proprietary and under control of vendor only

The open standard has become a proprietary one and its "openness" has been extinguished!!

Some Important Open Standards

HTML, XML – W3C

OpenDocument – OASIS, ISO/IEC

TCP/IP, HTTP – IETF

**Linux Standards Base (LSB) – Free Standards
Group, ISO/IEC**

Unicode – Unicode Consortium, ISO/IEC

802.11b – IEEE

Patents and Standards

Patents

- A set of exclusive rights given by a government to a patentee
- Patentee granted the right to prevent others from making, using, selling, offering to sell or importing the invention for a specific period of time
- Patents are usually supposedly granted for inventions that are considered to be non-trivial, new and novel
- Patent grants are territorial in nature. Patents applied for and granted in one country are not automatically recognised in another country
- Examples: Wankel rotary engine, Hume concrete pipes, Coca-Cola bottle

Open Standards and Patents

- Most standards bodies, e.g. IETF, OASIS, W3C, ISO, *prefer* no patents or irrevocable royalty-free patents in their standards
- But they do allow the inclusion of patents that can be licensed under RAND terms in their standards
- Patent policies revolve around a reasonable and non-discriminatory (RAND) policy, either with some form of royalty payment or royalty-free or a mixture of both

RAND in Standards and FOSS

- Some organisations will not consider a RAND-encumbered standard as an open standard e.g. EU's EIF project
- FOSS community - patents in open standards should be available royalty-free
 - Term RAND misleading as without non-royalty free terms it discriminates against certain FOSS licenses (e.g. GPL)

How FOSS affects Open Standards (and Vice Versa!)

Open Standards != FOSS

FOSS is software, open standards are standards

- Processes and issues involved in developing a software and a standard are different
- Proprietary software can conform to open standards
e.g. TCP/IP implementation in MS-Windows
- FOSS can implement proprietary standards
- Some argue that freedom in FOSS allows inclusion of non-standard conformance code; possible but in practice seldom happens and mainstream FOSS projects owners guard against this

Open Standards Good for FOSS

Open standards very important to FOSS

- enable interoperability (both open and proprietary standards potentially allow this)
- ensure that FOSS can interoperate well with proprietary software without former resorting to reverse engineering which may be illegal in some cases
- free access, open development and participation fits in well with FOSS ideals and principles
- help to spread usage and acceptance of FOSS e.g. Internet protocols and standards
- facilitate localisation projects

FOSS Helps Open Standards

FOSS promotes open standards

- ◆ development model encourages availability, openness, participation by all
- ◆ free and open implementations of a standard will help make it more accessible for testing, usage and modifications resulting in wider acceptance
e.g. many FOSS implementations of Internet standards from IETF help popularise the standards

FOSS, Open Standards and Governments

National Considerations

Usage of open standards very important to governments.

- Enables electronic national records and data to be stored using open data file formats
- Ensures interoperability of national ICT applications and facilitates data exchange
- Prevents over-reliance on foreign technologies/products
- Enables smaller local vendors to participate in national projects
- **Assist FOSS to flourish in a country**

Government Policies

- More and more public sector agencies all over the world have policies that require open standards
- Most e-government projects have e-Government Interoperability Framework (e-GIF) that specifies open standards
- If more countries are to insist on open standards, more vendors will be forced to open up their file formats and technology specifications

Challenges in Implementing Open Standards

- Open standards not available or not mature enough for a required technology
 - ◆ use de facto standard that is publicly published and freely available for implementation
 - ◆ encourage owner of de facto standard to submit to open standards body for adoption/adaptation as a standard
- Entrenched usage of a proprietary standard - not practical to ignore it
 - ◆ phase it out slowly, in the interim, work towards interoperability with open standards installations and/or use file format conversion tools

Summary

- Interoperability crucial in current heterogenous environment – conformance to standards needed
- Standards that are open and non-discriminatory preferred
 - ◆ no dependence on any single entity, all types of products can implement them and all interested parties can partake in their development
- Open standards not the same as FOSS
 - but in many environments, demand and usage of open standards go hand-in-hand with FOSS
- Most governments specifying open standards in their IT policies

Thank you!

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