

Standard deviation



Standards in UK government software are vulnerable to the 'extend and enhance' policies of suppliers. The battle lines have been drawn, but will governments stand firm? Jason Kitcat, founder of the FREE e-democracy Project, investigates

This wasn't what was supposed to happen. Not at all. In fact it was all rather embarrassing. Nobody wanted to say anything at all. I was firing off emails vainly trying to get people who knew to answer. They kept dodging but the minutes of the March 2003 meeting were absolutely clear, discussions of item 4 resulted that: "It was agreed that in most cases 'EML [Election Markup Language] does not guarantee interoperability'"

It is two years since the Organisation for the Advancement of Structured Information Standards (OASIS) announced the creation of its Election and Voter Services Technical Committee (EVS TC). Proposed by the trinity of Election.com, Accenture and Microsoft, the committee had a difficult time gaining acceptance in the e-voting community. The founding companies were all intimately connected financially and it felt like there was little chance that other vendors' interests would be given a fair hearing. But, all credit to Gregg McGilvray, Election.com's CTO and EVS TC's chairman, he recognised this issue and voluntarily stood down. In no time the Office of the e-Envoy (OeE) saw the opportunity to step in and take the reins of the standardisation process, OeE's Anwar Choudhury was elected chairman unopposed.

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OeE were on a tight schedule, Robin Cook MP (then Leader of the House) had committed the UK to being the first country in the world to conduct a general election over the Internet. But somehow OeE had seen the risk of being locked in to one e-voting vendor, either through hearing reports of the astronomical maintenance fees being charged in the US voting market or through a more general insight into the technology world. With huge gusto OeE civil servants pushed meetings, teleconferences and email discussions with the aim of agreeing an XML-based standard, Election Markup Language (EML). They had a deadline to meet.

De facto or de jure

Standards are a peculiar but important part of the technological framework that inhabits the strange world of Information Economics. This emergent school of thought

has been electrifying academics for some time, but only hit the mainstream through 'New Economy' bluster such as "information wants to be free" and "atoms to bits" proclamations spearheaded by prophets such as Nicholas Negroponte. If we brush away the intellectual litter left by the hyperactive carnival of the dot-com bubble, we can examine the real insights Information Economics offers. Only then can we begin to understand why standards are attracting increasing attention from thinkers, governments and vendors.

Standards are a set of specifications that groups agree on so that products are compatible, interface with each other or meet a minimum quality requirement, such as for vehicle emissions. The problem is that it's so very difficult to get parties to agree on the specifications. Manufacturers want to lock customers into their proprietary solutions and so improve profits, user groups want as little lock-in as possible and technical groups want to ensure their technique or system is used in lieu of others. It makes for conflicting pulls on standards and rowdy meetings. Often the result is that standards are so watered down to please everyone that they become virtually worthless.

Despite all this standards do get produced and some are even quite effective. *De facto* standards are negotiated by the market process, so Windows is seen by many as a *de facto* standard for desktop computers through its success in the market, just as Zip disks were seen to be the new standard for medium size data storage. No formal body ratified those standards, nor were users and firms consulted, but their huge popularity rendered them effective standards. *De facto* standards can be very useful in easing users' everyday technological lives but they are open to manipulation and of course don't often represent the best technological solution, merely the most commercially popular. They work through the bandwagon effect (what academics call 'positive network externalities' and popularised as Metcalfe's law) whereby the larger the network of users the more valuable the product, thus one fax machine is useless but two can be used and a million are incredibly handy. It is because they recognise the power of the bandwagon that Netscape gave away their browser and Real gave away their player - they wanted to kick-start the positive feedback effect which could lock the market into their *de facto* standard.

The alternative lies in *de jure* standards which are developed through formal processes in standards bodies such as IEEE or BSI. These bodies have a weight of authority and often take adherence to standards seriously. Furthermore, their drafting processes explicitly engage and consult with stakeholders such as governments, suppliers, users and interest groups. This way not only does the standard gain legitimacy through broad buy-in but it is more likely to meet the needs of the community and not a small subset of suppliers.

Clearly, the size of this community often depends on the type of standard being discussed. There are only a small number of players for underlying technologies such as semiconductors, so motherboard plug standards have fewer stakeholders than end-user standards for common requirements such as web accessibility. The attention a standard garners, whatever the size of the target community, ❧

will depend on the effectiveness of the initial 'pitch' to the stakeholders, but more importantly the weight of the backing organisations. If a government mandate is implied, or legislation referring to the standard is imminent, you can bet that lobbyists will be lunching standardisation geeks within an inch of their pocket-protected lives. A similar standard from an unknown association is not going to get the geeks a latte, let alone lunch.

As technology becomes increasingly pervasive the impact standards will have on our lives can only increase. Thus it becomes ever more vital that standards don't merely emerge from manufacturers paying lip-service to avoiding lock-in through the creation of limited compatibility standards. Unfortunately, despite the good intentions of many involved in the technology sector, standardisation is becoming increasingly commercialised. Standards bodies are being portrayed as slow and unresponsive to new trends. Market driven standards are still seen as lacking in legitimacy and accountability. Thus many new standards are being developed in consortia such as W3C or OASIS.

Consortia are in many ways a compromise, they are usually legal entities defined as being not-for-profit but funded by the membership fees paid by their members who are generally suppliers, few others can afford to join. To be attractive to these suppliers members have a great deal of control over the standardisation process and the processes themselves are 'streamlined' to eliminate much of the consultation with users and other groups. In many observers' views the consortia offer the veneer of respectability and authority over a virtually market-driven approach to standardisation. Some consortia recognise this and once they have agreed on a standard internally they submit it to fast-track approval at a more established body such as IEEE. But others, including OASIS, argue that they are open (anyone can read the email list archives and download minutes of meetings) and offer serious formal standardisation procedures while providing accountability to members. That may be the case but if you can't pay, you can't vote, ensuring that supplier interests are kept at the forefront.

Standards and open source

So where does the Open Source (or FLOSS as some now prefer, see glossary) community fit into all this? Initially, projects such as GNU/Linux informally worked off existing standards, such as UNIX/POSIX, or decided to make a clean break from historical solutions. Others, such as Samba and OpenOffice.org, struggled to provide compatibility with *de facto* standards subject to change without notice and set by powerful corporations including Microsoft. The informality of many Open Source standards' compliance became somewhat a stumbling block as GNU/Linux began to move into the corporation. The huge diversity of distributions alone were giving developers serious headaches as differing file locations made program installation and compatibility excessively complicated. Enter the Linux Standard Base (LSB) Project which makes explicit references to the POSIX standards when possible but focuses on providing a cross-platform standard architecture for all Unix-based operating systems. Several distributions, including Mandrake, Red Hat and SuSE, have already complied with the standard, and many more are proclaiming their desire to do so.

The LSB work falls under the aegis of the Free Standards Group (FSG) which was formed in May 2000 by the LSB Project and the Li18nux (now Openi18n) internationalisation project to provide structure and funding to their work along with other nascent standardisation activities. In fact

FSG is a consortium funded primarily through its commercial members which include HP, IBM and Intel. So is this just another attempt by suppliers to control standards? Possibly, but membership has been structured so that individuals and groups can waive payment by contributing to the group's work and corporate members are limited to a minority number of seats on the board. As a result a variety of user groups and interest groups are members, hopefully providing balance to the proceedings. Certainly the group tries hard to be open, membership is not required to participate, so anyone can access minutes, documents, draft specifications which are all covered by the GNU Free Documentation License.


"The more open the standards, the more easy it is for new players to enter the market bringing innovation and enhanced competition with them"

Richard Allan, Liberal Democrat IT spokesman

When challenged on the FSG's openness Scott McNeil, their Executive Director, was quick to deny corporate control saying "the problem isn't that the Free Standards Group [is] controlled by large IT suppliers, but that we don't have the money to do a marketing campaign to show our openness." He was keen to express why FSG's work was different from other bodies "since the standards (specifications, software, tools, test suites, documentation, etc.) we create are all available under open source licenses and are based on free and open source software, we deliver something that no club or private standards consortia can: Standards with no built-in dependencies." So far the LSB standard has gained considerable acceptance showing that FSG's open approach which addresses corporate and user interests might be the way to go.

We don't just see *de jure* standardisation like the FSG's work in the open source community, in fact it's a relatively new occurrence. Some would say that the core motivation behind open source development is the competitive drive which has resulted in major *de facto* battles such as that between KDE and GNOME. Each project espouses a certain technical and licensing philosophy and is keen to be seen as the definitive desktop environment for GNU/Linux. Neither has succeeded in becoming overwhelmingly dominant over the other in the way that The GIMP or Sendmail have been in other areas. Few doubt that the competition has been good for the quality of desktop environments generally, but the price has been paid by application developers who often struggle to maintain compatibility between KDE and GNOME, particularly if they want to make use of any of their more advanced object-oriented features. In a sense both are trying to lock application developers into their platforms by providing easy development with exciting functionality, in the same way Microsoft does with Windows and its Visual Studio, though I'm not sure they'd like to admit it!

The hunter captured by the game

Eddie Bleasdale, from the open source consultancy Netproject, characterises the split between proprietary and open source software as being between ensuring interfaces are unique (to maintain lock-in) and publishing 

interfaces to encourage collaboration: "What has not been recognised is how the IT industry 'extend and enhance' standards with the objective of locking users into their proprietary technology. Leopards don't change their spots and the same will be done with the IT industry's approach to Open Source.

"It is because of this [failure to use the open standards models] that there are a plethora of UK Government IT projects that have not been delivered on time, or to budget, that provide the features required."

He continues that "too much of UK Government IT has been handed over lock stock and barrel to the IT industry with no effective controls in place to monitor what the vendors get up to. It is akin to letting the poachers be the game keepers."

The July announcement of the Government's new Open Source Policy seemed to be a break from this less than illustrious past, with clear commitments to "avoid lock-in to proprietary IT products and services" and to "only use products for interoperability that support open standards and specifications in all future IT developments." But can a government which used Microsoft to build a Gateway site that worked only with Internet Explorer really make the cultural transformation towards open standards and open source?

Worryingly Microsoft claim the policy signals no change in the government's approach to IT. "We have no issue with the Government's policy on the use of OSS. This paper does not represent a change in Government policy in favour of open source. It simply states that Government departments have a wide range of software to consider,

including open source software. The most important point is that it states that *all* software should be judged equally and that selection should be determined by factors such as value for money," said their press officer, Georgina Hart.

The opposition benches are beginning to see the opportunities this topic provides for differentiating themselves from the government. Richard Allan MP, the Liberal Democrat's spokesman on IT, is keen to see the government fight lock-in "What is essential is that there is a properly functioning market which means that the client, in this case the Government, must be able to switch supplier if it wishes to. The power in this relationship should remain in the hands of the purchaser and not the supplier if we are to achieve best value." Mr Allan pointed out that open source and lock-in were addressed in the LibDems recent IT policy document, and added that "government should be a strong client defining the standards it expects of its contractors and encouraging a healthy market of suppliers working to these standards. The more open the standards, the more easy it is for new players to enter the market bringing innovation and enhanced competition with them."

Conservative shadow e-government Minister Greg Knight MP had a similar line: "We support more 'open standards' being used, as government would then not become tied in to only dealing with a few large vendors, who may exploit their near-monopoly. As custodians of the public purse, the government should take whatever steps are necessary to ensure that real competition is not stifled, so that projects cost less."

Possibly, but the proprietary suppliers won't take it



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lying down. They knowingly encourage what Bruce Perens calls the 'Addiction Model' of software sales, where you are introduced to the product at low cost but accessories, incompatible file formats and protocols ensure that anyone wanting to communicate with you has to buy from the same vendor, resulting in expensive lock-in. If that doesn't work then vast financial resources are brought to bear, as the recent scoop by the New York Times and International Herald Tribune on Microsoft revealed...

Slushy practices

Despite its doubtful legality, Microsoft was found to be using a slush fund to provide heavy additional discounts to government and large organisation contracts that they thought they might otherwise lose. The company made several checks with lawyers over the legality of the program, and EU officials claim that it could be a serious breach of the progressive anti-competition laws we have in place to restrain the activities of dominant firms. It is vital to Microsoft's continued success that the world appears to still be consistently choosing Windows and Office – once that illusion is shattered it will become politically much easier for switching to happen.

This discounting policy, which aimed to keep Microsoft's bandwagon rolling, was specifically targeting GNU/Linux. An internal memo from the top Microsoft sales executive, published in the International Herald Tribune, said: "Under NO circumstances lose against Linux." The same article also revealed that a Microsoft employee had attended a GNU/Linux trade show posing as consultant for a school, and that another expo had been

attended by a Microserf posing as an OEM considering switching from Windows to GNU/Linux. To top it all the IHT gained access to a confidential document titled *Open Source Software Government: World Wide Initiative* which they claims "shows a sophisticated and complex lobbying program aimed at getting governments on their [Microsoft's] side." Primarily focussed on Europe, the strategy aimed to "prevent adoption of procurement policies favouring OSS".

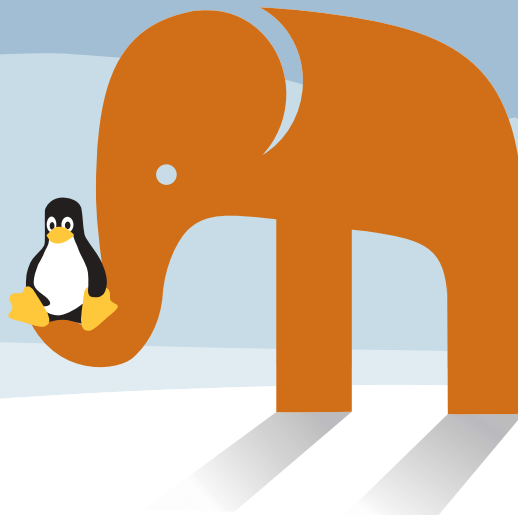
LinuxUser & Developer asked Microsoft UK about its use of lock-in and discounting with products such as Office, and a spokeswoman said: "There is no lock in. Governments, like companies, are free to make their own procurement choices. Microsoft believes that all IT purchases should be made on their individual merit. We are constantly in talks with our customers about increasing value to their businesses." Microsoft's spokeswoman refused to answer our follow-ups to this reply, but in response to our questions on Microsoft's embracing and extending of open standards, she said: "Microsoft is a strong supporter of open standards and makes a significant and ongoing contribution to their advance. The open-standards process is neutral with regard to software development; it welcomes all and favours none in its quest for the best interoperability solution."

The battle lines have been drawn, but will governments stand firm?

Lessons learned?

What had gone wrong with Election Markup Language? Why didn't it guarantee interoperability between e-voting ❧

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suppliers? OeE had started with good intentions but unfortunately several factors were working against them from the outset.

Their timing was poor, by the time the standard was underway the suppliers had already invested in their systems, protected them with patents, and put the necessary infrastructure in place. So, while it wasn't in the interest of suppliers to lose the opportunity to lock their customers in, it was technologically naïve to believe they would fundamentally rework their systems for the standard. Furthermore, because each had a proprietary security system the standard completely avoided defining any kind of security compatibility – no supplier was prepared to disclose the workings of their system, and

they couldn't easily change them. Instant result – no security interoperability.

Compromises also had to be made to cover the detail of electoral law in countries around the world – including the Swiss canton system, the US style of batching many contests onto a single ballot, and UK law which prevents secret ballots. The result was a very broad data definition language with so many optional components that compliance could never be tested. In the end the standard provided some useful structure to the government e-voting policy development, but failed to provide the desperately important interoperability which would prevent vendor lock-in.

Round one goes to the suppliers, round two?



Glossary

BSI	British Standards Institute
EML	Election Markup Language, EVS TC's output.
EVS TC	The Election & Voter Services Technical Committee of OASIS.
FLOSS	A new Richard Stallman-approved acronym to cover the Free/Libre Open Source Software community without making any one camp irate.
FSG	Free Standards Group
IEEE	Institute of Electrical & Electronic Engineers
LSB	Linux Standard Base Project
OASIS	A standardisation consortium supported by corporate membership which focuses primarily on XML-based standards. www.oasis-open.org
OeE	The Office of the e-Envoy, part of the Cabinet Office. Rumoured to be heading for a massive cut-back or even extinction. www.e-envoy.gov.uk
W3C	World Wide Web Consortium

Jason Kitcat researches e-democracy issues and can be contacted at jeep@free-project.org

Key links

Bruce Perens' Addiction Model of Software: <http://perens.com/Slides/Norway/talk.html>

Free Standards Group: www.freestandards.org

Government's OSS Policy announced: www.theregister.co.uk/content/4/26335.html

www.vnnet.com/News/1133883

LibDem IT Policy Paper: www.makeitpolicy.org.uk/PP-TOC.html

Linux Standard Base Project: www.linuxbase.org

List of LSB certified distros: www.opengroup.org/lsb/cert/cert_prodlst.tpl

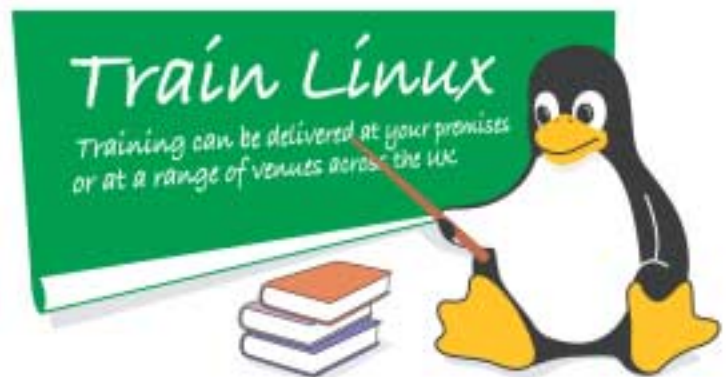
Microsoft's unconventional discounting program: www.ih.com/articles/96369.htm
http://news.com.com/2100-1016_3-1001845.html

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