GESMER UPDEGROVE LLP
Attorneys at Law

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CERTIFICATION AND BRANDING

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News Shorts: Everyone Has Their Own Theory on the Microsoft ODF Converter; Defense Department Calls for Greater Use of Open Source and Open Systems; EC Says No (Again) to Software Patents; Lucky Us – HD-DVD & Blu-Ray are Here; Time for a Terrorist Target Markup Language? Senator Stevens Excellent Internet Adventure; and, as always, much more...
Available at site only – www.consortiuminfo.org/bulletins/july06.php#news

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EDITOR'S NOTE

CERTIFICATION AND YOU

If you're reading this issue on line, there's a fair chance that you're viewing it on the screen of a WiFi enabled laptop. And as someone that is interested in standards, I expect that you're well aware that WiFi is a standard. But you might not know that the chipset that your laptop is using to access your wireless router (or Starbuck's, as the case may be) has almost certainly been certified by the WiFi Alliance, even though this fact is what underlies your assumption that you will be able to log on to another router almost everywhere you go.

The process of certification – testing and verifying compliance to a standard - is vital to the credibility and utility of standards, although we are typically not aware of how pervasive such programs in fact are. As a simple proof of that observation, glance at the bottom of your laptop's power source, or at the label on the bottom of the laptop itself, and you will find a scattershot pattern of small and inscrutable seals – each of which is the safety-related certification mark of a separate testing body (I count 21 on my Dell power source).

Our topic this month, appropriately enough, is therefore the important and perhaps underappreciated role that certification, and the process of building brand awareness in some certification programs, plays in the world of standards.

In my ***Editorial*** for July, I introduce the topic by highlighting both the breadth as well as the adaptability of standards and certification programs, as well as the important role that these tools are playing in addressing new and intimidating environmental challenges, such as global warming and ensuring the sustainable use of natural resources.

In this month's ***Feature Article***, I provide an overview of the techniques and role of certification and branding in the information and communications technology (ICT) sector, an area in which sufficient resources to create robust third party administered testing tools has often been lacking, requiring the creation of a spectrum of techniques that are not common in many other industry sectors.

As the ***Standards Blog*** entry for this month, I've selected a posting on a topic that I have covered in great detail for a year now: the expanding adoption of the OpenDocument Format (ODF) and the adaptation of the marketplace to a multiple document format environment. This entry focuses on an initiative announced by Microsoft early this month to fund and support the creation of a converter to facilitate the translation of documents created using its own format into documents that can be opened using ODF compliant software.

My ***Consider This*** essay returns to the certification theme, contrasting the adoption of a standardized, certified product family – WiFi enabled devices and routers – with another popular but proprietary high tech offering: the Apple iPod and iTunes environment. Each of these successful systems has generated a "lifestyle" impact, but the open standards based wireless lifestyle that is supported by the ingenuity (and marketing budgets) of hundreds of companies is exploding at an order of magnitude greater rate than its proprietary analogue in the music world.

As usual, the issue ends with ***The Rest of the News***, being a selection of what I thought were the most interesting and important stories of the last month, accompanied by a few observations on why I found them to be of interest.

A final note: The ***CSB*** is issued ten times a year, with August and December being my months to catch my breath, and spend some time on other interests. As a result, I'll visit with you next in September.

As always, I hope you enjoy this issue.

Andrew Updegrove
Editor and Publisher
2005 ANSI President's
Award for Journalism

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EDITORIAL

THE POWER OF CERTIFICATION

Andrew Updegrove

The practice of certifying compliance with standards is almost as old as the creation of standards themselves. This should come as no surprise, because the vast majority of standards are created for the benefit of multiple stakeholders, rather than as pure design tools for vendors. Human nature (on both sides of a transaction) being what it is, there is no reason for a vendor to expect a customer to believe an uncorroborated assertion of compliance. But third party certification can provide a means to fill this gap in trust.

In consequence, the testing and certification of compliance with all manner of requirements, both mandatory under laws and voluntary under many thousands of consensus-based standards, has been an ever-expanding and adaptable practice since the nineteenth century. The result is that we enjoy a world today that is more commercially trustworthy than that which existed only a short time ago.

It is interesting to note in this regard that an increasing number of the certifications that benefit us today fall into the voluntary rather than the mandatory category. True, compliance with thousands upon thousands of health and safety-related standards has been incorporated into governmental regulations. And those regulations continue to be policed by armies of local building inspectors and federal employees of agencies such as the U.S. FDA and OSHA. But there are even more thousands of standards that vendors, service providers and professionals voluntarily comply with in order to increase the commercial attractiveness of their goods and services.

Why should vendors and service providers not only constrain their design freedom and professional conduct to standards, but also pay others to confirm such compliance? The exact reasons vary, but most come down to assuring consumers that their purchasing expectations will be met, and/or that those expectations may be justifiably higher with respect to certified than non-certified alternatives. In practice, these expectations can relate to interoperability (yes, this will plug and play with that), safety (I see the Underwriters Laboratory seal), training, professionalism and trustworthiness (professional certifications of all types) and compliance with ethical, environmental or other societal values (this vendor engages in fair practices, both at home and abroad).

The mere existence of certification programs arguably raises the bar even for those that do not choose to participate. The reason is that consumer expectations can rise in response to the promotional campaigns that are often launched to support a certification program. If the consumer comes to associate value with certified product or service, all competitors are put to the challenge of justifying the value proposition of

their own offerings, either through lower prices, providing superior service, or simply by committing to a larger marketing budget. Ultimately, it may become a less expensive and more certain alternative for a non-participating vendor to simply meet the same tests that those who certify have met, rather than to seek to persuade the buying public that an unknown quantity provides a superior alternative – especially if the certified product is now commanding a premium price.

Such market-based self-regulation can provide a very attractive alternative to government regulation, avoiding the greater bureaucracy, waste, and expense that might otherwise be brought to bear to address the same issues. Even assuming parity of process and efficiency in public and private endeavors, it is difficult to imagine the degree to which government payrolls would need to expand, were the public sector to assume responsibility for assuring compliance with the hundreds of thousands of voluntary consensus standards in existence today.

Recently, broad awareness of the threats presented by global warming and dependency on foreign energy sources has risen dramatically in many countries (including, finally, even the United States). But the political will to address these challenges effectively is still often weak (especially in the United States), despite the fact that public opinion is swinging in favor of responsible action.

In the face of growing consumer interest in environmentally and ethically responsible conduct by industry, a variety of private sector organizations have been launched. Such private sector initiatives can be more nimble and responsive, and less likely to be subverted by special interests, than efforts to achieve the same ends through the legislative process. This has proven to be true not only in the case of initiatives launched by "green" advocates, but also by major companies in some extractive industries that have (in the words of the author Jared Diamond) grown concerned that their "social license" to operate may be revoked if they do not (literally) clean up their acts.

Some of the efforts that are in process now have adapted traditional standard setting and certification concepts to address important new global needs. A splendid example (and there are others) is the Forest Stewardship Council, which is headquartered in Germany, and has offices in over 40 nations. This organization has created rigorous standards for sustainable harvesting of timberland, and certifies independent inspection companies that forest owners can hire to assess their compliance in the field to FSC standards. Only after compliance with these standards has been confirmed can the FSC certification mark be applied to raw lumber, and to those finished goods created from materials that can be tracked back through the supply chain to a certified source. Certified timberlands remain subject to annual, unannounced inspections to assure continuing compliance – all at the cost of those for profit, not for profit, and governmental forest owners that seek certification.

The validity, value and extensibility of the concept of standards are amply demonstrated by such new and innovative efforts. Today, we are faced with ever more daunting challenges, such as global warming, dwindling natural resources and an increasingly ravaged environment. If there is any reason to hope that we will be able to cope with these crises, it may lie in our ability to create such new kinds of voluntary consensus standards – and in the deployment of effective certification programs to back them up.

Comments? updegrove@consortiuminfo.org

FEATURE ARTICLE

STANDARDS COMPLIANCE CERTIFICATION AND BRANDING IN THE INFORMATION AND COMMUNICATIONS TECHNOLOGY SECTOR

Andrew Updegrove

Abstract: *While a standard can provide value to a vendor through facilitating the design and production process, its greatest benefit arises when multiple stakeholders are made aware that a product or service complies with that standard. In order for such a benefit to be secured, however, the assertion of compliance must be trusted, and that trust must be validated by actual performance in the marketplace. In some circumstances, awareness of compliance is needed only on a business-to-business basis, while in others consumers must be made aware – or by experience find that they can take for granted – the fact that compliance goals have been achieved. However, the creation of tests to demonstrate compliance, and the performance of such tests, can be expensive, and not all standard setting situations generate the desire, investment and infrastructure needed to fund neutral third party testing and certification. This is particularly true in the information and communications technology (ICT) industry, in which interoperability among the products of diverse manufacturers is nonetheless an essential requirement. As a result, a variety of techniques have evolved in the trenches to address this need in a situation-specific manner, from self-assertion of compliance with standards, to industry-wide certification programs that support expensive consumer brand-awareness building campaigns. This article surveys the principal certification and branding needs, realities and practices that can be found in the ICT industry today.*

Introduction: Standards have value to many constituencies, but their most obvious beneficiaries are those that utilize standards in the production of goods and the delivery of services, and those that consume those deliverables. While vendors often benefit from using standards simply as production tools (e.g., to achieve interoperability between products from the same vendor), the greatest value of a standard to vendors and consumers alike can arise from simply knowing that a product or service complies with a standard.

For example, performance standards (e.g., how many watts of energy a light bulb will draw, and how many lumens of light it will produce) permit vendors to provide products that customers can easily evaluate, and allow customers to compare prices between competing products. Similarly, vendors increasingly adopt and implement interoperability standards that allow their products to access networks of all types in order to make those products more useful and desirable, and customers rely on built-in "plug and play" interoperability in order to mix and match components of everything from music systems to home wireless networks.

In order for such benefits to exist, however, customers need to be able to rely on, and therefore trust, the fact that a product that purports to comply with a standard actually does. Such trust can be based upon any of a number of means, including vendor assertions, if the vendor has earned a reputation for trustworthiness, or on third party testing and confirmation of compliance. With respect to that subset of standards that is created by governments (laws and regulations), the assurance of compliance may result from government inspections, licensures and enforcement.

Private sector assertions of compliance are often loosely referred to as "certification," in the sense that someone (whether the vendor or a third party) is promising that the good or service complies with the standard. More properly, the word "certification" is usually used only where a neutral third party is providing the assurance of conformance. Regardless of who is making the guarantee, however, the value is roughly the same, if the claim of compliance is accepted and relied upon in the marketplace.

That value can be augmented by focusing customer attention on the benefits of purchasing products that comply with a standard. Such building of "brand awareness" in a standard can be just as useful as building customer awareness of an individual vendor's trademarked products. Moreover, the costs of building brand awareness in a standard can be shared among many vendors, thus lowering the per-vendor cost of a promotional campaign by leveraging the efforts of the many campaign participants.

In this article, I will survey the principal means by which information and communications technology (ICT) industry compliance testing tools are created, the most common types of programs employed to perform and certify successful passage of compliance tests, and the ways that vendors build compliance brand awareness through the promotion of certification programs.

I. Overview

Why test for compliance? As with so many other aspects of standards and standard setting, the concept and practice of certification extends back into the dim reaches of antiquity. The first known examples of certification relate to weights and measures, as evidenced by metal ingots stamped with royal seals that attest to purity and weight. The evolution of coinage systems in many societies was a manifestation of the same certification concept, using the impressed (and sometimes idealized) likeness of a ruler on each coin to attest to the exact value (also sometimes idealized) of the precious metal comprising the coin.

Certification of compliance with standards relating to safety, on the other hand, has roots in the private as well as the public sector. For example, the development of standards to ensure the safe design and building of steam boilers arose not from a government effort to prevent boiler explosions, but from a private vendor initiative launched to reassure both the public as well as insurance underwriters that installing boilers would not lead to disaster. But over time government regulators became pleased to incorporate by reference the fruits of such private initiatives into the regulations they create in an effort to maintain public safety.

By 1984, for example, voluntary compliance standards created by the American Association of Mechanical Engineers (ASME) to ensure that heat sources would automatically shut down before boilers could run dry (and sometimes explode) had been adopted into law by 46 states and all ten Canadian provinces.[1] And in the private sector, the ubiquitous Underwriters Laboratories "UL in a circle" mark (and its many related marks) is well recognized by U.S. consumers as a trusted indication that products bearing the mark have been designed to criteria that the UL believes to be conducive to safe usage.[2]

In more recent years, certifications of all types have become omnipresent – attesting to the weight, quality, purity, safety and other significant attributes of goods as diverse as building materials, drugs, foods, appliances, elevators, services of all types, and more recently, advanced technology products and sustainable forest management. These certifications attest to compliance with the standards promulgated by a wide variety of bodies – Federal, State, and more recently, regional (e.g., the European Union) governments and agencies, safety testing organizations, accredited private sector standard setting organizations, and unaccredited consortia, trade associations, environmental foundations, and other fora. Within some of these broad categories there may be hundreds of individual standard setting bodies, some of which develop and maintain many, and even thousands, of standards. One site, http://www.nssn.org, tracks the status of some 270,000 current standards worldwide.

Standards themselves can be of several types, permitting varying ways to comply, as well as different processes to verify compliance. For example, ***performance*** standards define required outcomes, but not the design elements required to achieve those outcomes. As a result, they permit a vendor to design a

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[1] Department of Philosophy and Department of Mechanical Engineering, Texas A&M University, "Engineering Ethics," summarizing ASME v. Hydrolevel Corp., at <http://ethics.tamu.edu/ethics/asme/asme1.htm> (accessed July 23, 2006).

[2] Like virtually all compliance testing organizations, Underwriters Laboratories does not test and certify every individual product. Instead, it tests samples, and then allows its marks to be displayed on products that the manufacturer attests are consistent with the tested sample. Current UL marks can be viewed at this page of the UL Website: http://www.ul.com/marks_labels/mark/art.htm#ul (accessed July 29, 2006).

product using a variety of techniques (patented and otherwise), so long as the resulting product meets the established performance measures. The techniques used to certify compliance with such products must therefore accommodate the different types of products designs so utilized.

Products built to ***design*** standards, on the other hand, must conform to more detailed and exacting specifications, so that all electrical plugs of a given type (for example) will fit into all electrical sockets intended to accommodate them. Compliance testing techniques for this type of standard can therefore be as simple as measurements of physical dimensions. A given standard can incorporate both performance and design elements as well as diverse criteria, including the composition of component materials, physical dimensions, minimum outputs and maximum tolerances.

Interoperability standards, from the compliance testing point of view, can be another type of amalgam, in that design elements are specified, but their compliance (as in software) may need to be inferred from performance tests that prove or disprove success in achieving compliance.

Why brand? Compliance testing of products is very widely used by vendors to ensure that their products will perform as expected, will meet regulatory requirements, and/or will be safe to use. Certification of compliance also bears an important role in international trade, where the importation of products may be preconditioned on proof of compliance with applicable standards.[3] This extra effort taken to demonstrate compliance with standards is usually invisible and unknown to purchasers, or taken for granted by consumers in the case of safety standards in well-regulated societies.

The reason that vendors do not go to greater lengths to publicize their efforts to achieve compliance or formal certification is because the means required are expensive, and compliance may not be sufficiently important to a consumer to warrant the extra marketing and promotional resources required to raise customer awareness.

Competitive formats: In today's interconnected world, however, there is increasing demand for certification mechanisms that can assure consumers as well as vendors that their expectations will be met when they make a purchase, whether they are aware that that expectation relates to a standard or not. Visible evidence of such certification can be useful in the consumer realm to convey the message that a product will perform and be usable as desired. This is particularly true where new products are being introduced that rely on interoperability to provide value, and where consumers are aware that multiple, incompatible types of products are being sold that are visually indistinguishable, but for a distinctive logo or label text.

In the late 1970s and early 1980s, for example, it was essential for video vendors to indicate, and for buyers and renters of videotapes to carefully look for the label stating, whether a given title conformed to the VHS or the Betamax video format. The same is true today as the next generation of DVD players and discs is now being introduced into the marketplace. Just as before, two competing (and incompatible) formats are once again being promoted, one called HD-DVD, and the second Blu-Ray. Initially, the vendors of each camp will seek to persuade consumers that their technology is superior, and to build brand awareness around their format mark.[4] After a given consumer buys a player that conforms with

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[3] Prohibiting the use of compliance testing to favor domestic industry by making it difficult, expensive or impossible for foreign goods to be imported is a goal of the World Trade Organization's Agreement on Technical Barriers to Trade. Before the enactment of such laws, countries would frequently require local compliance testing of goods that had already been tested elsewhere instead of respecting the certification already granted by a neutral, but non-domestic, testing service.

[4] While each format has its own differentiating features, these features tend to be of greatest interest to distinct stakeholders (e.g., content owners, hardware vendors, software vendors, and so on) rather than to all stakeholders. As a result, if one format is "better" for the consumer, it will only be likely to win the current standards battle by coincidence. For an example of the hundreds – if not thousands - of articles that have been written over the past several years assessing the advantages and chances of one format over another at any particular point in time (a search of "HD-DVD vs. Blu-Ray features" at Google yields 2,450,000 hits), see: Perenson, Melissa J., *More from the Blu-Ray vs. HD-DVD Front.* PC World.com (November 15, 2005), at <http://www.pcworld.com/news/article/0,aid,123491,00.asp> As of this writing, it is uncertain which format – if either – will ultimately prevail. For an example of a current analysis on that question, see: Belcher, James**,** Blu-ray and HD-

one format or the other, however, the principal value of the format label will not be as a brand, but as a conformance mark on a DVD, in order to allow the consumer to avoid buying or renting a disc that proves to be unreadable on the particular player she now owns.

New networks: Other common examples of such visible certifications, promoted as actual brands but of value to consumers for more utilitarian means, include the logos that appear on ATM machines, informing a user whether a given terminal will accept a credit, debit or bank card from the network (e.g., Star or Cirrus) with which that card is registered. Today, most bank ATMs are compatible with the cards of a wide variety of issuers, and arrangements have been made between banks and those issuers to reconcile accounts behind the scenes for most customers. But initially, these networks were more limited, and the marks displayed on cash machines therefore had a higher value to individuals on the lookout for an ATM that could satisfy their need for instant liquidity.

Whether or not branding as well as certification makes sense to vendors and service providers - and to what degree – therefore depends on market circumstances. In the ATM example, there is no tolerance for error, because the results are binary: either the card can or can't be read, from the technical perspective, and the transaction will or will not be accepted, at the commercial level. When someone sees a Cirrus logo on an ATM, they expect their card to be honored, even if the user has no knowledge what the "Cirrus" network is, who designed it, or how it operates. The value that the consumer does appreciate is that there are hundreds of thousands of ATMs worldwide that bear the Cirrus logo, and into which the holder of (for example) a MasterCard can insert that card in order to obtain cash.

Vendor needs: In the world of non-consumer goods, the standards-based goals of commercial vendors may vary widely. In some circumstances, standards and credible certification mechanisms may make it easier for a new market to develop because one vendor will have a greater degree of confidence that the products reaching the marketplace will indeed be interoperable. Similarly, the existence of certification options may make it more worth a vendor's while to create products that comply with one standard rather than another, not only because the certification option has independent value, but because it knows that other vendors will be more likely to choose the standard supported by certification. Since a standard only becomes useful through wide adoption, implementing the standard supported by certification therefore becomes the safer, as well as the higher value, decision (all other things being equal).

In this type of case, there is no incentive to create public brand awareness at all. Instead, a much more targeted, but no less important, campaign is needed to educate the vendors in a given product space that not only a standard, but a supporting certification mechanism is available to reward them for adoption. In many cases, the existence of compliance tests, even without a formal certification program, will still be attractive, because the compliance tests will be useful as tools to assist a vendor in discovering those changes in its product design that are required to achieve compatibility.

Product identification: The value of certification and branding can also fall somewhere in between. This is because standards "brand awareness" is more common than most consumers might suspect, with much of the public being unaware that a heavily promoted brand utilized by multiple vendors actually relates to a standard. A current example is the explosive use of "WiFi" enabled equipment, from laptops to home network routers, all of which achieve their unique value through compliance with one or more of the IEEE 802.11 family of wireless connectivity standards.

In this case, the WiFi Alliance, an unaccredited consortium, acts as an auxiliary to IEEE, an American National Standards Institute (ANSI) accredited, global standards development organization (SDO). The WiMedia Alliance rapidly creates test suites for each WiFi standard as it is completed, and then offers certification testing to permit vendors to refine their designs to achieve interoperability, and then advertise their compliance through use of WiFi trademarks licensed from the Alliance after their products pass the required tests.

DVD: Only One Winner? Or Two Losers? (July 26, 2006) EMarketer.com, at <http://www.emarketer.com/Article.aspx?1004082>.

The result is akin to the "Intel Inside" branding campaign, but with important differences. In the Intel case, Intel customers are able to borrow on the reputation of the best-known semiconductor manufacturer, and Intel benefits from the increased advertising – but Intel remains in sole control of the design of its chips, and the use and ownership of the "Intel Inside" trademark. With WiFi, the 250 members of the WiMedia Alliance control the process of test suite creation, certification testing and brand promotion. To the customer, however, the result is much the same: greater assurance that expectations will be satisfied when a purchase is made. Even if they don't really know why.

II Certification Processes

Except in certain government-regulated areas where determination of compliance must be confirmed on-site (e.g., in the case of building codes and food preparation), certification tests and test facilities must usually be created by the private sector, either under the auspices of an existing standards development organization, by for-profit companies, or by means of a new entity created for a specific purpose.

In recent decades, more and more ITC standards have been created not by accredited standards development organizations (SDOs), but by unaccredited consortia. However, while a standard setting organization (SSO) of either type may be quite able to fund and manage the development of a standard, SSOs in general, and consortia in particular, are most frequently low-budget operations. Moreover, in the world of SDOs, there is a history of separation between the standards creation process and the compliance testing function, each of which is conducted by a separate organization.

This can lead to a lack of certification options, especially in the information technology (IT) industry, which is typified not only by expensive research and development costs, but also by briefer product lifespans than is common in many other industries. Because development of a robust test suite implemented in software (as compared to a set of detailed questions attesting to internal design compliance and self-testing) can be quite expensive, that cost is likely to exceed the financial resources of the organization that has created the standard in question, even though the actual process of certification testing might be self-funding once the test itself has been developed.

Because the number of vendors building products to a given standard may be low relative to the cost of creating a test suite to confirm compliance, it is also usually the case that a private testing service would be unable to recover its development costs to create the test suite needed before it could offer certification services. Consequently, where robust test suites are developed at all, they are often funded by consortium dues or by a government or other grant, or the test suite is developed and contributed by the same member that initiated the creation of the standard to which the test suite relates.

The same challenges that stand in the way of test suite creation also arise in the context of certification testing. In the case of actual interoperability or software-driven testing, expensive test equipment, facilities and personnel may be required, as well as administrative support. Once again, such costs exceed the budgets, staff and physical resources of many SSOs. On occasion, however, a third party can be found to provide testing services once the development of the test suite itself has been funded or arranged through the consortium's own devices of one type or another.

As a result of the financial challenges of instituting a formal third-party certification testing program, compliance programs and processes are therefore far from uniform. Certification programs in the ITC space have therefore evolved that fall across a range of increasing cost and credibility, ranging from very low-budget self-assertion (and therefore low trust) programs, to costly third-party programs that may provide much higher credibility and value.

One on one systems: The following are representative (although not exhaustive) of the levels of compliance testing and certification that can be found in the ITC industry today where the parties to the process are the vendor and the SSO or a third party verifier.

Self-Assertion without a Test Suite: At the most modest end of the scale is ***self-assertion***, which is not a certification process at all, in any true sense of the word. In this model, the vendor simply asserts that its product conforms to a given standard, and there is no third party verification of either the

result, or the means by which the vendor reaches its conclusion. Where this is the best that can be done, it is important for a consortium to make it clear that only limited credibility should be given to such assertions, and that the marketplace understands that no formal certification process is in place.

As a result, the term "certification" should not be used in connection with a self-assertion program. Rather, the implementers of standards in this setting should only be permitted to assert "compliance with", or "conformance to," a standard or specification.[5] Self-assertion programs are quite common for primarily informational purposes, notwithstanding the limited level of credibility that they are likely to offer. One reason is that, unlike safety features in consumer safety products, interoperability failures in ICT products do not typically lead to dire consequences, and the government therefore has not to date found it necessary to focus on this area. Further, vendors can acquire an individual reputation over time for being trusted (or not) when they self-assert compliance, since customers will swiftly learn whether or not the product in question is truly interoperable with other equipment or software believed to comply with the same standard.

Second, a wide range of factors (besides cost) may preclude the ability or interest of an SSO to create a test suite and/or engage a third party testing service. For example, the commercial value of compliance may not be high enough, or the standard itself may not be sufficiently robust enough to achieve a conclusive result, and therefore compliance with the standard alone would not imply a result that has significant public commercial value. Where cost is the true reason, however, the achievements of the affected organization may be more modest than those of another group that is capable of supporting a full certification program, especially where reliable interoperability is highly important to the end user.

Self-Asserted Compliance (or Self-Certification): In this model, some type of test suite exists (although it may be a "paper test" that states required results of one sort or another), but the vendor performs the test itself and asserts success. In some cases, there may be little effort to publicize the fact that a product meets the test, because the test suite has been created primarily as a tool for vendors to use in order to achieve interoperability or another goal at a lower cost. In other cases, credibility is an important goal, but the consortium has not been motivated, or able, to arrange for verification. As a result, only a very modest increase in trust may be gained over self-assertion of compliance, since only one leg (thoroughness or rigor of test) has been strengthened, but not the other (independent verification).

Self-Certification with Verification: If a higher degree of credibility for the certification program is deemed to be desirable, the vendor is required to return some type of evidence of satisfactory test completion to the SSO (or a third party) for verification. The deliverable typically will be a paper or electronic record of the test results, with the credibility of the program relying in part on how stringent and conclusive the test suite provided may be. Again, depending on the consortium's resources and the degree to which vendors are willing to pay certification fees, the report may either simply be filed away to create what is essentially a record of self-assertion, or may be examined for completeness and consistency, but not otherwise directly confirmed by an independent test of the product. Hence, an element of unsupported trust is still involved, and the credibility of the certification is therefore still qualified.

Third Party Testing: This is the highest standard of formal testing, since the vendor must submit its product to a third party for testing. However, the efficacy of testing may vary widely, being limited in part by the sophistication of the standard to which the test applies (some standards are very detailed and comprehensive, while others are less so), and the effectiveness of the test itself. Hence, a product built to one standard which successfully passes certification testing may indeed "plug and play" with another compliant product, while a product built to another, less comprehensive standard may require further refinements in order to reliably interoperate. The degree to which a standard is capable enabling full interoperability is also affected by factors other than technical challenges, including political compromises

[5] While there is consensus on not using the word "certification" in connection with self-assertions of compliance, there is no general agreement on whether, or how, to use words such as "compliant" and "conformant" across SSOs. As a result, it is important for an SSO to define with precision which word(s) may be used in connection with the performance of what types of tests in connection with its standards, so that the marketplace understands what a vendor is saying when it uses a permitted term.

(such as permitting alternate ways to implement a single element of a standard) among members that are, after all, usually competitors.

With third party testing, the final results are often submitted to the SSO, which will then issue the actual certification, along with a license to use its trademarks in connection with assertions of satisfactorily passing a certification test.

Other Processes: There are other mechanisms besides certification testing that a consortium may take to increase the credibility of its standards and/or assist its members and other companies in achieving a high degree of compliance.

Interoperability Testing: In some cases, a third party testing service may be engaged to run submitted products directly against other compliant products, in addition to (or instead of) running them against the test suite. In others, a consortium may set up such an "interoperability center" itself (usually at a member site or at a trade show) to which members may (or in some cases are required to) bring their hardware and software products and run them against each other, in order to work out final interoperability issues not able to be resolved by means of a test suite.

The purpose of such testing can be either very secret or very public. In the former case, stringent confidentiality agreements may be utilized, particularly where the testing being conducted relates to products that are not yet announced in the marketplace, and/or where the failure of a product to demonstrate interoperability could have a negative impact on sales. In this case, the purpose of the exercise is all about compliance confirmation and not at all about branding.

At the opposite extreme is the very much public "plug fest" at a trade show, where multiple vendors demonstrate the interoperability of their products. In this case, the purpose is entirely brand-related, since no vendor would wish to publicly demonstrate the non-compliance of its products, and confirmation of interoperability is usually therefore tested in advance.

In each case, although the activity in question may not be part of the formal certification testing process, it provides another example of the way in which an SSO may initiate and coordinate activities in order to lower costs and improve outcomes for its members in support of the standard that it has developed.

Reference Software: In some cases, an SSO will provide actual software instantiating a specification. The software is often made available in both source code as well as object code form, and is commonly referred to as a reference implementation. Where such software is available (sometimes only to members, and at others as a free download from the consortium's website), an implementer is spared the expense of developing its code to comply with the standard.

One common reason for the existence and use of reference software is that a member may have already created it for its own purposes, and is willing to make it freely available to all in order to reap some greater benefit from wide adoption of the standard. Another reason may be that a standard has been created in a patent-rich environment, and there is a common benefit to be gained from the availability of an implementation of the standard that is not believed to infringe upon known intellectual property rights of (at least) members. While the primary motivation may therefore not be to save compliance testing time and expense, those indirect benefits automatically follow.

III. Trademarks and Branding

While discussing intellectual property concerns in standard setting almost always focus on patent and copyright issues, trademarks play an essential role as well. The reason is that while patent law may control what can be in a standard, and copyright law protects the text of the standard itself, only

trademark law provides the means to control whether or not a vendor is entitled to claim that its products actually comply with a standard.[6]

Using Trademarks to Enforce Quality Control: As noted earlier, standards need to be credible in order to have value. This is because standards are only useful to a customer to motivate a purchase, or to a vendor to secure market advantage, when the promise they make is valid (e.g., a brand request to "buy this because it will work with that" only works if in fact "this" really does work with "that"). Moreover, if a vendor asserts compliance where compliance does not exist, an end user may be unable to tell whether the fault lies with a non-compliant product or with an inadequate standard. As a result, not only the vendor that failed to comply loses credibility, but all products of all vendors that assert compliance with the same standard will lose credibility as well, and the goals of the SSO that created the standard and its members will be defeated.

False claims of compliance are therefore of great concern to SSOs and to end users alike. Where an SSO gives a name to a standard and the public knows the standard by that name alone, then the SSO may prevent false claims of compliance from being made by withholding the legal right of the offending vendor to refer to the standard in connection with a non-compliant product.[7]

While it is not legally necessary to obtain a formal trademark registration in the United States on the name of a standard in order to own all rights to its usage, it is prudent to do so, since the cost is modest in comparison to the benefit of putting the world on notice that the SSO owns the trademark. Since it is widely known that it has become very simple to perform an on-line search of issued trademarks, obtaining a trademark registration will also make it far less likely that someone else will begin to use the same, or a confusingly similar, name for its product or service. As a result, there will be less potential that someone else's actions will dilute the value and effectiveness of the SSO's mark, or that the SSO will be put to the trouble and expense of asserting or defending its trademark.

However, since ITC standards are usually intended for global adoption, it is important to undertake an analysis in order to settle upon a cost-effective strategy for protecting a mark, due to the fact that a commercial-scale, global trademark program would invariably be prohibitively expensive. Fortunately, the a trademark convention in Europe now permits a single filing to secure rights in multiple countries, and a very large proportion of sales of certified products are usually expected to occur in a comparatively small number of first world countries. The result is that it is possible to achieve a very meaningful degree of protection by obtaining trademark protection in just the United States, Europe and selected Pacific Rim countries. Such a measured program of trademark registration can be completed within the budget of most SSOs.

Using Trademarks to Associate Value with Products: The term "branding" usually connotes a use of trademarks that is broader than simply policing compliance. Rather, it seeks to associate value with compliant products in the mind of the buying public that relates to the purpose for which the standard was created, rather than simply with compliance with the technical elements of the standard itself. For example, the right to include the familiar "Dolby" brand logo on a product, indicating the use of patented Dolby noise-suppression technology, was a valuable product differentiator in the early days of tape decks. More recently, the earlier noted "Intel Inside" ad campaign provides an example of a brand usage that is intended to promote the goodwill of Intel as much, if not more, than the vendor of the product in which the chip finds a home. In sum, Intel is seeking to create a market perception that its technology represents a "standard of excellence and innovation" with which consumers should associate added value.

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[6] While the use of trademarks in certification and branding programs has many similarities to the usage of the same tools in connection with building brand awareness in support of proprietary products, there are also important differences, not all of which are immediately obvious. For example, while marks designated as "certification marks" can be registered in some (but not all) countries, it may be appropriate to use trademarks, service marks or certification marks (and sometimes all three) in support of a given standards effort, depending upon the goals and circumstances in a given case. A detailed review of this topic is beyond the scope of this article.

[7] Exercising a sufficient degree of "quality control" over a widely used trademark is a sensitive issue for SSOs, which commonly do not have the resources needed to police the usage of their marks to the same extent as commercial entities. As a result, it is essential for an SSO to institute good practices with respect to each standard as soon as it is complete, to prevent members and others from taking actions (such as incorporating the name of a standard into a product name) that could result in the mark becoming generic.

Where a branding campaign is to be launched in connection with a certification program, however, a much larger budget is required. To be effective, such an initiative also requires the active cooperation of SSO members, who should place certification logos on their compliant products, packaging and advertising in order for the program to be truly successful. Often, engaging the cooperation of the marketing departments of large corporate members proves to be an insurmountable hurdle, regardless of the fact that the same companies may have invested heavily in creating the standards to which the certification and branding would apply.[8]

Nonetheless, as the video format and ATM examples discussed above illustrate, branding may be vital in persuading the marketplace to buy (or, in the case of the credit card, to buy into) new classes of products and services, and the costs of brand creation may therefore prove to be wise, or even unavoidable, investments. Absent such a program in the video example, many consumers might have shied away from purchasing or renting any products at all while the vendor community engaged in its standards war.

The costs of brand maintenance in such an example may also be finite. After a single standard "wins", or after interoperability issues are resolved between competing standards, the brand may be allowed to languish, as an end-user comes to take interoperability for granted, and expects that all products, regardless of the technology upon which they are based, will be usable in connection with all other logically related products.

For example, today the user of an ATM is not likely to look for, or even notice, the multiple acceptance network logos on an ATM, because such a high degree of technical interoperability and business reciprocity has been achieved that virtually every ATM will now accept almost any and every card, regardless of the issuer. Similarly, after the VHS format vanquished Betamax, video rental and consumer electronics stores discontinued stocking Betamax products entirely, making the use of the mark "VHS" no longer meaningful in anything other than an historical sense. At that point in each example, the brand had already done its job, although the certification process continued to live on unnoticed by consumers in order to confirm actual compliance with the VHS standard for the benefit of manufacturers.

Summary: Notwithstanding the costs and constraints associated with developing, administering and participating in standards certification programs, vendors and service providers nonetheless voluntarily implement and comply with hundreds of thousands of standards, because they believe that the benefits of compliance outweigh the costs. Since one of the anticipated benefits in complying with standards is increasing sales through customer awareness of product compliance, vendors are often willing to make promotional investments in conducting standards-based brand awareness campaigns as well.

When the certification process works best, larger markets for goods and services are created more quickly, and end users are better served by the greater likelihood that their purchase expectations will be fulfilled. While providing conclusive certification testing in every market situation is not necessary, cost constraints would often render this goal infeasible in many situations in any event. In response, the marketplace has evolved multiple levels of compliance assertion and testing that can provide both cost effective as well as meaningful comfort in a variety of different situations, to the ultimate benefit of vendors and end users alike.

Comments? updegrove@consortiuminfo.org

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[8] One of the first consortia that the author represented was formed to initiate a very ambitious certification-based branding program. The most interested members paid hundreds of thousands of dollars in annual dues to fund the development of sophisticated hardware and software certification suites and the founding and staffing of a sophisticated interoperability testing center. However, few – if any – members actually branded their products with certification marks after their products had been proven to be compatible. The author has ensured that every consortium he has helped structure since then has included a marketing committee that is co-equal with the technical committee from the date of formation, in order to make it more likely that both the marketing, as well as the technical management of member companies would be committed to achieving the goals for which the consortium was founded.

FROM THE STANDARDS BLOG

THE MICROSOFT CONVERTER, NEWS SHOPPING AND TECTONIC SHIFTS

Andrew Updegrove

Wednesday, July 12 2006 @ 09:57 AM EDT

It's been a week now since Microsoft announced its ODF/Office open source converter project – time enough for at least 183 on-line stories to be written, as well as hundreds of blog entries (one expects) and untold numbers of appended comments. Lest all that virtual ink fade silently into obscurity, it seems like a good time to look back and try to figure out What it All Means.

There are two ways to go about that task. One is the "have it your way," news channel technique (simply pick the channel that serves up your daily news just the way you like it, whatever that may be – liberal, conservative or just plain snarky). Nothing better than the Internet for that, where you can go shopping in the great marketplace of interpretation (as well as willful misinterpretation), and find more flavors than you could ever possibly imagine. If you do want to test that premise, you won't be disappointed with the myriad ways in which people have examined the entrails of the converter story to divine (or dictate) wha's up.

For example, there is metaphorical religious conversion theory, from Martin LaMonica:

> Redmond has "road to Damascus" open source conversion

As well as differences of opinion about whether ODF supporters are jumping for joy or expecting the worst:

> OpenOffice developers rejoice at Microsoft's OpenDocument Support
>
> ODF guardedly welcomes Microsoft's Office XML move

And, of course, there are plenty of theories about what Microsoft may really be up to. Here's a sampling:

> Vaughn-Nichols: Microsoft not telling the whole truth about ODF translators
>
> Pamela Jones: MS: OK. OK, so we'll set up an "OS" project to build an ODF killer. Er, we mean translator

If you want to read just one analysis, though, by all means make it the acute, thorough and balanced report by Redmonk's Steve O'Grady. His thoughts, as always, are a "must read." You can find it, together with links to additional reactions to the announcement, here, and a follow up entry posted by Steve the next day here.

The second way is to go direct to the sources, and make up your own mind, which is what I'll do here to provide my take on what led to Microsoft's decision, and what it's likely to mean.

Although I've read many different interpretations of this story by knowledgeable parties, I'm going to focus today on just one source: Microsoft itself, and more specifically, its July 6 press release, together with a conversation I had with Jason Matusow, Microsoft's Director of Standards Affairs. I don't rank as high in the blogging food chain as Steve O'Grady (he was one of two analysts that Microsoft briefed in advance),

but Jason was good enough to call me the morning after the press release was issued, to answer any questions that I might have.

Let's start with the press release, which is useful for two purposes: first, to learn the basic facts, and more intriguingly, to find the messages that Microsoft wants to deliver. Those messages relate both to the facts at hand, as well as to a bigger and ever evolving strategic picture, because every press release provides an opportunity to insert another piece into the mosaic that is the public image that the issuer wishes to reinforce.

Press releases are especially useful in interpreting what underlies a vendor's desired public image and strategy, because they are extensively worked over and reviewed by multiple parties, and therefore are as authoritative as their authors can make them. Hence, while a press release is hardly the most objective source in the world, it is highly indicative of what the issuer wants the market to think at that point in time. More intriguingly, and due to the same process by which they are written, press releases are also highly indicative of the bathwater that the issuer is drinking as well.

As I read the press release, Microsoft wants the following points to sink in regarding its new converter project:

1. The converters (one each, serially, for Word, Excel and PowerPoint) are being developed at the request of government customers.

2. The converters will be created within an open source project, for maximum transparency.

3. OpenXML and ODF were created for two very different purposes, and OpenXML is far superior to ODF. This will unavoidably result in some deficiencies in how well the converters will work.

4. This announcement is further evidence of Microsoft's new commitment to "interoperability by design," a four-pronged approach (only one of which involves an open process – standards).

Here's how I see these messages fitting into the big picture:

1. At the government customer's request: I have heard this phrase explained by two Microsoft sources as follows: "if even one citizen wants to send a document to a government in ODF form, they have to be able to deal with it." The net desired impression, then, is that the need to accommodate ODF is minimal (so don't take this as an admission that ODF is taking off), but when the customer asks, Microsoft listens.

2. Open source project: Microsoft deserves points on this one. They aren't monkeying around, but are putting the code out front and largely in the hands of others, while still paying the bills. Is it perfect? Of course not. But neither is OpenOffice.org, where Sun pays the bills and supplies most of the programmers to write the code, and largely selects what code will be written. It's only fair to be consistent in how we judge competitors.

3. Different formats: Indeed the two formats were created for two different purposes, and I expect that there will likely be some inabilities for ODF documents to replicate, for example, all 200 Microsoft Word borders back through 1993. But I assume that there won't be (or at least won't need to be) any such problems in the other direction. The main difference between the two format approaches is that OpenXML is a format standard created to serve a single product line, while ODF was developed to enable the creation of multiple competing products, which is already occurring. Losing a few borders along the way is considered to be a pretty easy tradeoff if your goal is the latter rather than the former, because the anticipated rewards are very different. In fact, there is a place for both standards, and they should not be directly compared to each other any more than, say, a telephone and an intercom should be directly compared, although you can talk into each of them and they share some of the same technology.

4. Interoperability by design: Microsoft has realized that standards are not going to go away, and that customer demand for standards in general, and interoperability in particular, will rise rather than fall. It has taken a thorough approach to creating a new internal standards structure (interestingly, it has many lawyers, as opposed to just technical and business people, in key positions in its standards department), and has constructed its four-point program to address that need.

It is important to note that Microsoft calls this program "Interoperability by Design," rather than "Interoperability by Collaboration." The salient difference between these two designations is that only one of the four roads to the interoperability goal (standards) of the Microsoft program involves an open process. The others leave Microsoft in the senior, or at minimum parity, power position in negotiating the means of achieving interoperability – how, and with whom it pleases.

The official way that Microsoft phrases this "commitment to interoperability" can be found in the same press release (as well as in many other press releases, statements and documents), and reads as follows:

> Ongoing Commitment to Interoperability
>
> As demonstrated by the recent announcement of the Interoperability Customer Executive Council and the significant industry contributions to the Open XML file formats from leading institutions like the British Library and Apple Computer Inc. at Ecma International, Microsoft is broadening its long-term investments in and attention to interoperability across industries and platforms *through such avenues as product design, collaboration agreements with other companies, standards and the effective licensing of its intellectual property.* Additional information about Microsoft's customer-focused interoperability commitment, including an open letter titled "A Foundation for the New World of Documents" by Chris Capossela, corporate vice president of the Microsoft Business Division Product Management Group at Microsoft, may be found online at http://www.microsoft.com/interop. (emphasis added)

Jason Matusow and I have debated what this means in several blog posts, the latest one of which is here, and you can read a wide variety of other opinions in the 274 comments on and off topic about the same piece that appear at Slashdot.

Now to my conversation with Jason, which was pretty far ranging and candid. Jason said, and I believe him, that the real motivation behind the conversion project is the need to serve government users, and especially those in countries with strong commitments to use and honor ISO standards (ODF, of course, is now ISO/IEC 26300). That's a credible reason, and if converters are going to be built anyway, as they are, Microsoft might as well be seen to be facilitating their development rather than holding back, and having at least some say in how the process evolves.

I also believe that placing the project in an open source venue was a smart move, and an honest effort to be seen as not trying to play games. As Jason said – and who can question the statement – everything that Microsoft does is going to be questioned and attacked, so they decided to initiate the project in a way that would leave as little to question as possible. Of course, one can still poke at different aspects of how things are set up, but that's inevitable, given that certain decisions have to be made, and when they are, they have to come out one way or another, each with intended as well as unavoidable potential implications. The choice of the BSD open source license is a good example of this, and you can find quite a bit of discussion on line about whether this was a good choice or a bad one, and what the motivations might be for so choosing. Jason answers a few questions on this topic in the comment thread at his blog.

On a related note, I asked Jason why there was no mention of the converter project in the May 19, 2006 Microsoft response to the Massachusetts converter RFI, given that the concept had obviously been kicking around for some time. He responded that final plans for the project had only come together in a detailed fashion in recent weeks, and that Microsoft did not want to be accused of making a "vapor ware" (my choice of words, not Jason's) announcement that could be suspected as an effort to chill independent

development efforts without a real intention of delivering on the promise. Again, that's a reasonable enough explanation, even if other considerations might have been involved as well.

More intriguingly, Jason also noted that a decision like this is still difficult to reach within Microsoft, with some constituencies hewing to the historical, proprietary way of looking at things, while others argue for a more adaptive, open approach.

I expect that this is accurate as well, and have heard the same observation from various people I know inside Microsoft for the past year, and at each step along the way as Microsoft has loosened up in the ODF saga: first, on licensing terms, then on issuing its covenant not to compete, next on the submission to Ecma, and so on. It is logical to assume that just such a process of cultural shift would be required, that it would be difficult and slow, and that change agents would need real issues in the customer base to point to in order to carry the day.

So my personal take is that we are observing a fairly consistent, significant and, well, fascinating evolution in the strategic thinking of one of the most powerful players in the IT industry. Placing this progression in tectonic terms, there have been some major shifts – earthquakes, if you will – at Microsoft in the past year, such as the organization of the new open standards (and even open source) structures within Microsoft, and the genesis and articulation of the Interoperability by Design public message. We have also seen smaller tremors and aftershocks, of which each concession in the ODF story is an example.

Obviously, there is still much unrelieved tension between the Interoperability by Design message and the real world of technology and customer expectations, both as respects open standards as well as open source software. Perhaps it is as accurate to call the Interoperability by Design program an articulation of an internal "belief system" as it is to see it purely as a public marketing message, since I expect that there is passion behind maintaining this halfway house position between a proprietary world and an open environment. Corporate belief systems can be almost as strong as religious convictions, and no conversion is easy or succeeds at a uniform basis at the level of the individual.

Perhaps Martin LaMonica's Road to Damascus metaphor is then not so inappropriate after all, although I doubt that the establishment of the open source converter project will prove to have been the particular step along the way at which the defining revelation in Microsoft's future was delivered. But some day, I think that the remaining tension between Microsoft and the marketplace will need to be released. Whether that will be through the gelling of a new corporate *gestalt* that well-serves Microsoft and its customers, or through an earthquake (a catastrophic antitrust penalty? The rout of Microsoft products by Linux/FireFox/ODF and other open source challengers to come?) remains to be seen.

It will be fascinating to see whether the transition from Bill Gates to Ray Ozzie in the master architect's chair will prove to be an opportunity to provide a smooth and easy release of this tectonic tension, or simply a ratification of the *ancien regime* that sets up an ultimate catastrophe.

Only time will tell.

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Comments? updegrove@consortiuminfo.org

‡ ‡ ‡ **July 31, 2006**

#41 Livin' the WiFi LifeStyle: the iPod Bows to the Router

Here's an interesting bit of data from the wild: 8 out of 10 folks that own both an iPod and a wireless router would give up their cool music tool before they'd do without their boring, clunky router. The same percentage of those sampled would also give up their home phone before they'd sacrifice their ability to surf the Web from their favorite couch. The data can be found in a survey conducted by Kelson Research for the WiFi Alliance, the consortium that promotes IEEE WiFi 802.11 standards and, more importantly, certifies compliance with them as well.

Surprised? Don't be, because the iPod/iTunes system comprises a closed, proprietary environment, while WiFi products are based on a continuously evolving family of open standards, and that makes a far bigger difference than you might imagine.

If this sounds like too simplistic an explanation, consider this:

Let's look at the numbers first (gross sales and rate of change). What we see is that there are many, many more wireless-enabled devices in the field than there are iPods. According to research analyst In-Stat, wireless chipset sales hit 140 million last year, and should reach 430 million per year in 2009, by which time there should already be over a billion chipsets in active use. 40 million of the chipsets sold last year found their way into home and small office/home office (SOHO) routers, and another 45 million into laptops and other mobile PCs. That leaves roughly 55 million more to be incorporated into phones and other mobile devices. Moreover, that 140 million number was up 50% from the year before.

In contrast, another analyst (UBS Investment Research) expects iPod sales to come in about a million units under projection this year, with about 39.8 million new iPods being bought in 2006, and a flattening in iPod sales growth after rapid expansion in prior years.

While comparing music players and mobile Internet access points is not a totally fair comparison, the ability of WiFi to achieve such dramatically larger sales numbers is still instructive, since few new capabilities of any kind enjoy such explosive growth. When they do, though, its often because they are based on open standards, and from two resulting, related effects: the ability and likelihood of multiple vendors to build new products, because the standard upon which the new products are based is open, and the tempting size of the market demand that can rapidly evolve because of the rich selection of competing products. The result is sometimes referred to as a "virtuous cycle" of incentives and rewards to both sides of the sales equation.

With that as an introduction, let's take a look at the WiFi marketplace, which is shared by many competitors, and the portable digital music play niche, which is dominated by the iPod and iTunes, a commercial combo that has delivered Apple the highest quarterly earnings in its history.

First, it is worthwhile noting that there are also very successful players in the WiFi space (such as Linksys), a result made possible in part by the fact that multiple competitors have developed diverse WiFi-based products and services, allowing for more than a single company to achieve success. We can assume that one reason this is true is because the WiFi wireless market is based on open standards, while the mobile music market includes several controlled formats - the most popular of which is not available for license.

As one measure of comparison to drive home this point, the WiFi Alliance has over 250 members, including hardware, software, silicon, consumer electronic, and other vendors (you can see a list here, but be prepared for a long scroll). While it's true that the dynamics of most IEEE 802.11 working groups are highly competitive (to put it mildly), the standards these committees set out to develop have thus far

all been finally approved (unlike the abandoned UWB project), after which everyone works hard to get them widely adopted.

Of course, in the case of the iPod, "everyone" (other than Apple) is a competitor at the format as well as the product level, unless they're making iPod accessories. As a result, the products, services, advertising, promotion and ingenuity dedicated to making the iPod more attractive and more useful are limited, while there are hundreds of companies, from the largest to the smallest companies in many industries, that are all working to tout the WiFi value proposition.

Next, it must be noted that not everyone is willing to buy into a proprietary system that traps the customer more thoroughly (just as Apple intends) with every iTune she buys. And while Apple is incredibly creative in what it designs, an iPod owner's ability to satisfy her appetite for new techno delights is still limited to the candy that Apple decides to offer her. If the iTunes format was not proprietary, other vendors could challenge Apple more effectively on price, features, and design – and anyone could play songs purchased from iTunes (or elsewhere) on those other wares as well.

But most of all, the rewards of buying a WiFi-enabled system continue to multiply exponentially, while the value of buying into the iTunes system can, at best, increase arithmetically as the stock of iTunes is expanded. Why? Because you can still only listen to an iTune on an iPod, or on another Apple product. With WiFi, the standard is available to anyone, and therefore everyone is making use of it. Not only are multiple chipset makers churning out price-competitive chips, but hardware makers automatically include those chipsets in almost all (90%) of the laptops they ship.

Similarly, Starbucks offers WiFi access in order to sell more lattes, and entire cities, like Boston, plan on providing free, universal WiFi access for the benefit of their citizens, in order to polish the city's image, and thereby boost the local economy through competing more effectively in the ongoing competition to attract employers and talent. In short, the popularity of WiFi encourages multiple constituencies to invest in providing access, and to reap the indirect benefits that such an investment can provide. You can't do anything comparable to that with an iTune, nor would you want to (why invest in what you cannot control?)

Still, this is just the beginning. The home is on the verge of becoming pervasively enabled with wireless capabilities, and wireless mobile devices of all types continue to proliferate. That's where those extra 300 million chipsets per year will be going by 2009.

There is another lesson to be drawn from the wireless example that helps to explain why someone could be more strongly attached to their humble router than to their sexy iPod. Let's call it the rise of the "WiFi Lifestyle." True, you won't find any striking ads on billboards of wildly gyrating silhouettes holding laptops, and it's doubtful that a Dell would be the best accessory to take to a trendy club in any event. But just as white ear buds score high on the teenager index of cool, freedom of access to the Internet has huge appeal to all ages when it comes to how they want to live their lives today. More and more, we want, and expect to have, ready access to an exploding range of information, services, games and more from the Internet, wherever we may be.

As a result, the perceived value of having always-on Internet capability becomes greater on a daily basis, while an iPod remains just an attractively designed, not very durable, rather expensive, and regularly obsolete music box. In short, a music box that will never provide more value to you in the future than it delivered on the day that you bought it.

That's the more obviously germane part of my last point. The more subtle (and to me, interesting) part of my lifestyle point is this: the actual value of any single WiFi access point to us is not, in fact, all that great. We could easily live without Internet access at any particular Starbucks, or even lose it at home entirely (after all, we could always pull our chair closer to the cable jack). But we are placing an increasingly high value on being surrounded by wireless access wherever we may be. Wherever we are, we want it, and that's it – because we've bought into the *WiFi Lifestyle*.

While it's doubtful that many of the 8 out of 10 respondents in the survey realize that their affection for their home router is based more on a lifestyle decision than their affection for surfing the Web from the couch, I'm pretty confident that this is what explains the Kelson Research survey results.

All of which provides yet another splendid example of how an open standard makes participation in the creation of a new network attractive and profitable, thereby enabling a logarithmic increase in innovation, implementation, value and customer appeal. This "network effect" has been recognized at least since the advent of the railroads, and it is becoming a bigger and bigger reality in our world today, because networks of all sorts are becoming essential to virtually everything that we do.

What does this say about the future of the newly-renascent Apple Computer? I think it's possible that the iPod may represent the high-water mark of that company's proprietary design strategy. With the market's ever-increasing expectations for interoperability, and even governments (such as in France) threatening to restrict the sale of music in the proprietary iTunes format, Steve Jobs may find himself on the verge of being forced to compete on design alone, even as his Company enjoys historical highs in its sales.

The good news for Steve is that, given Apple's chops in the design department, I'd guess that Apple's future will be far rosier when, as and if he ever gets through that knothole.

Comments: updegrove@consortiuminfo.org

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