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WHITE PAPER

Assessing the Benefits and Risks of Authorizing the Mobile Top-Level Domain

Sponsored by: mTLD participating companies

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EXECUTIVE SUMMARY

A group of leading companies in the mobile communications industry signed a memorandum of understanding to apply for a mobile top-level domain (TLD) from the Internet Corporation for Assigned Names and Numbers (ICANN) during the current application round, which closed March 15, 2004. If the application is successful and the mobile TLD (mTLD) is granted by ICANN, these companies have agreed to form a registry as a joint venture to manage the new TLD.

The companies behind the application believe that a mobile TLD would benefit the entire mobile industry, including mobile users, Internet service providers, mobile operators, and businesses with mobile applications. They hold that a mobile TLD would create the opportunity to streamline the deployment of new Internet sites optimized for mobile usage. Further, they posit that it would enhance the mobile Internet experience for users, improve the ease of use of mobile data services, and speed delivery of mobile data services to market. Moreover, they hold that a new domain name that flags where data services optimized for the mobile environment may be found on the Internet will attract new users and spur mobile data usage, a development that will have positive reverberations throughout the entire value chain. In short, they believe that a mobile top-level domain will benefit the growth and global uptake of the Internet including the mobile data industry.

As with any initiative aimed at changing the status quo, the mobile TLD initiative has attracted its own set of detractors and critics. While most people see much value in stimulating the demand for mobile data services, not everyone favors the idea of a new top-level domain for mobility or a new TLD at all. Some of the critics are concerned that a new top-level domain for mobility would fragment the Internet and impose unnecessary costs on the mobile community. Others have expressed concern about proper and adequate representation of diverse interests in the proposed registry, while yet others have expressed fear that allowing any group of industry players to form and manage a domain name registry might grant them undue financial and strategic advantage in the emerging market for mobile data services.

This position paper discusses the details of the application for the mobile TLD pending before the ICANN and how the applicants plan to manage the top-level domain. It also presents the arguments for and against the application being granted.

Introduction

Late last year, Microsoft, Nokia, and Vodafone joined forces to spearhead and rally industry support for an initiative for a sponsored mobile TLD. These "founding members" of the initiative were later joined by other companies and organizations in the mobile industry, including 3, Ericsson, the GSM Association, Hewlett-Packard, Matsushita, Orange, Samsung, Sun Microsystems, T-Mobile, and Telecom Italia Mobile. (See sidebar, *Mobi JV Companies*). To ensure broad industry representation within the consortium, the founding companies are seeking additional investor members and active supporters from among technology firms, software developers, device manufacturers, network operators, infrastructure providers, and content providers. A casual scan of the ICANN Web site reveals that the mobile TLD initiative has garnered some additional support from several organizations across the industry, some of which are not investors.

Mobi JV Companies

The Mobi JV will have a maximum of 17 investors, including three founding members — Microsoft, Nokia and Vodafone. Among the current investors are three telecom gear makers (Ericsson, Matsushita, and Samsung), four mobile operators (3, Orange, Telecom Italia Mobile, and T-Mobile), two technology companies from the IT world (HP and Sun), and one industry association (the GSM Association). The Mobi JV has room for four more investors.

While ownership shares, based on initial investment and the eventual count of investors, may vary, the investors will each have one representative on the JV's board of directors. Each director will have equal weight with respect to voting on proposals, and no one player will have veto power.

Subject to ICANN's approval of their application for a mobile TLD, the companies in the consortium plan to set up a limited joint venture company (with a working name of Mobi JV) based in Ireland to manage the registry of mobile TLD domain names under ICANN guidelines (See sidebar, *What Is ICANN?*). The Mobi JV registry company will have its own management team and decision-making structure and will adhere to the broad guidelines and standards established by the ICANN executive committee.

It will operate under and follow the rules set by ICANN for granting and allocating domain names utilizing existing sales channels, known as ICANN-accredited registrars. Assuming ICANN approval happens this year, the Mobi JV plans to be operational during the second half of 2005. The application is currently under review by ICANN's external and independent experts.

What Is ICANN?

ICANN (The Internet Corporation for Assigned Names and Numbers) is an international non-profit organization with a charter to manage the Internet Domain Name System (DNS) for the benefit of the global Internet community. It was created through a memorandum of understanding (MoU) between the U.S. Department of Commerce and ICANN to transition management of the DNS from the U.S. government to the global community. The MoU sets out a series of goals for ICANN that should result in a fully independent ICANN organization.

As a private-public partnership, ICANN attempts to preserve the operational stability of the Internet, to promote competition, to achieve broad representation of global Internet communities, and to develop policy. ICANN, a public benefit, non-profit entity, is the international organization responsible for the management and oversight of the coordination of the Internet's DNS and its unique identifiers.

How ICANN Works

Participation in ICANN is open to all who have an interest in global Internet policy as it relates to ICANN's mission of technical coordination. ICANN holds public meetings throughout the year. Recent meetings have been held in Tunis, Bucharest, Montreal, Shanghai, Rio de Janeiro, and Accra.

The ICANN board of directors and staff reflect the international nature of the organization. The staff hails from seven different countries (Australia, Denmark, France, the Netherlands, Niger, the United Kingdom, and the United States) and exhibits fluency in more than 14 languages.

The formation of the Country Code Names Supporting Organization (ccNSO) also internationalizes participation in the ICANN policy development process and improves the voice of ccTLD managers on the ICANN board of directors since the ccNSO directly elects two board members.

ICANN does not create or make Internet policy. Rather, policy is created through a bottom-up, transparent process that involves all necessary constituencies and stakeholders in the Internet community. ICANN policy begins its development in the Supporting Organizations and Advisory Committees. The recognition that a policy is needed may arise from anywhere in the Internet community, the international ICANN Supporting Organizations and Committees, and other Web entities.

Key Elements of the mTLD Application

In addition to a sponsored top-level domain dedicated to mobility, the applicants are seeking the authority to form a registry that would manage the mobile TLD through assignment of second-level domain names and through the setting of policy guidelines specific to the domain. Some of the policy initiatives for which the applicants are seeking authority include:

- Setting eligibility criteria for registration in the restricted mobile TLD within the bounds of rules agreed upon with ICANN, as well as determining the eligibility of an applicant for registration within the mobile TLD based on the established criteria
- Creating and managing an ongoing and transparent process for establishing policies relating to eligibility criteria and modifying these criteria as appropriate
- Establishing procedures for initial registration, including sunrise rules designed to preempt potential cybersquatting in the mobile TLD
- Establishing fair registry prices for current products and creating new products
- Establishing the policies and best practices for mobile content and service operation within the domain in accordance with obtaining technology standards and industry practices
- Managing and resolving domain name disputes among applicants based on ICANN's existing Uniform Domain-Name Dispute-Resolution Policy
- Establishing quality assurance requirements and best-practices guidelines for mobile TLD registrars (all of whom must also be accredited by ICANN)
- Establishing restricted WHOIS and other privacy-related policies in accordance with ICANN, regulatory, and telecommunications requirements

To ensure that the style guidelines do not distort market competition, the companies backing the proposal offer the assurance that the registry will not offer any guideline pertaining to the mobile application execution environment, a market player's choice of an operating system, or an air-interface standard.

The mobile TLD, which has a tentative name of .mobi (or alternatively .mbl, as determined by ICANN), would indicate that the Internet address points to a site that offers content optimized for mobile usage in line with the parameters set forth by the proposed registry company and ICANN. If it comes about, it will make possible such URLs as www.cnn.mobi or www.disney.mobi that are indicative of particular businesses, as well as www.music.mobi and www.restaurants.mobi that are descriptive of the generic business categories. The latter, according to the consortium companies, are likely to be assigned/allocated subject to special rules such as auctions.

Rationale and Timing of mTLD Application

Why the Application?

Companies backing the initiative note that their principal reason for seeking a mobile top-level domain is to help create a domain name space for mobile data services and subscribers that would stimulate a culture of data consumption when people are mobile to the benefit of both consumers and providers of mobile data services.

When couched in these terms, the initiative lends itself to the criticism that, for its proponents, the mobile TLD is merely a superior marketing tool rather than a technological imperative. Perhaps, in anticipation of such criticism, proponents of the mobile TLD initiative say that their quest for a separate TLD for mobility is anchored in their belief that mobility constitutes a business and technical — as well as a socio-cultural — environment that is fundamentally different than the fixed-line environment and deserves to be treated on its own terms.

To make their point, companies backing the mobile TLD initiative point to the issue of roaming agreements among mobile network operators required to serve mobile subscribers who may wish to effortlessly access data services they are used to even while traveling outside their home networks. The technical complexities of making data services available in a seamless manner to mobile subscribers traveling on a foreign network — managing interoperability, authentication, quality of service, for instance — not to mention the business arrangements necessary for the task — are quite extraordinary and not something with which folks in the fixed-line environment have to contend.

Pointing to this difference, mobile TLD proponents posit that forcibly shoehorning the demands of mobility into frameworks originally designed to serve the wireline environment imposes unfortunate constraints on future innovations in the mobile space and speaks to a rather poor understanding of the mobile context. Alternatively, they contend, taking a position of cooperation between the mobile industry and these Internet technologists will likely yield considerable growth for both constituencies.

Pointing to the continued worldwide growth in the number of mobile subscribers and to the rising salience of mobile networks in most societies that is reconstituting our sense of space and redefining the very fabric of our social existence, the backers of the mobile TLD note that mobility deserves more serious consideration than it may be accorded under organizing principles anchored in a wireline mind-set. A separate top-level domain, with its own policies — but using the same tools and standards to ensure full interoperability, given that there is only one Internet — would allow the opportunities for precisely such a consideration and help foster the growth of new application cultures and service possibilities that, in turn, would lead to increased socio-economic rewards for all engaged in the mobile data value chain.

Why Now?

The current application for a mobile top-level domain is in response to ICANN's recent request for proposal for new top-level domains. It is one of 10 applications submitted to ICANN in the current round, as discussed below.

The mobile industry has discussed the mobile TLD often during the past few years, and many in the industry view its implementation as an exciting development. While different market actors, from mobile operators to content providers, have acted to stimulate and serve the market for mobile data services, their attempts have largely met with limited success, and these actors are looking for new ways to cooperate to catalyze the widespread adoption of mobile data services. "The assignment of a mobile TLD will allow these varied actors an opportunity to harmonize their efforts for the benefit of consumers and the entire industry," says a spokesperson for the mobile TLD initiative.

An application for a mobile TLD had been filed with ICANN in 2000. That application was rejected by ICANN for want of broad-based industry support, among other reasons. The current application to ICANN is supported by a broad range of industry players. Backers of the current mobile TLD initiative believe that the timing is right for the assignment of a mobile TLD, given that mobile technology has matured considerably and the necessary ecology for provisioning mobile data services is fast assuming shape.

For instance, mobile subscribers are benefiting from upgraded networks, the availability of a growing variety of handsets and other mobile devices, and the deployment of new applications and services. Even so, mobility-based services have yet to find widespread adoption, and mTLD backers believe that diffusion of mobile data services is likely to be facilitated by a mobile top-level domain name on the Internet. While other Internet sectors have flourished, mobile data services have been slow to evolve. Introducing a mobile TLD that would carry with it the presumption of data tailored for consumption in the mobile environment would bridge the world of mobility with the Internet and enable a host of new applications, services, and content.

The Business of the Mobi JV Registry

The Internet is a web of connected computer networks that communicate with each other through a standardized communication protocol. Each computer is assigned a unique identifier, or network address. This address — essentially an Internet protocol (IP) number — functions like a mailing address. But since names are easier to remember than strings of numbers, a computer (that constitutes an Internet site) is usually addressed by a domain name rather than an IP number. The Domain Name System (DNS), a database, serves as a look-up mechanism that tells a computer how to translate a domain name into a corresponding IP number. These translations themselves are performed by domain name servers.

Like the IP numbers that they shadow, domain names adhere to a hierarchical structure that is read from right to left and is separated by dots. Consider, for instance, the name, www.idc.com. The top-level domain in the hierarchy is at the extreme right — ".com," and the second-level domain name is ".idc." The hierarchy can be extended indefinitely, with each level circumscribing the availability of domain names in the level below it. Usually, most domain names have only three levels. There are, currently, three categories of top-level domains:

- Country code TLDs, such as .uk (for the United Kingdom) and .ca (for Canada)
- Generic TLDs, such as .com, .org, and .gov
- Special TLDs, such as .arpa (for DNS maintenance)

The current discussion pertains to adding a new TLD to the generic TLD category, which is further subdivided into *sponsored* and *unsponsored* TLDs. The initiative to expand the category with a new domain name is not unique. ICANN expanded the category from the original seven to 14 following an application process in 2000. Of the seven new generic TLDs, three — .aero, .museum, and .coop — were *sponsored* TLDs, earmarked for limited purposes. Mobile TLD would be a sponsored TLD, intended for use by those engaged in mobility-oriented services/businesses.

Because end users favor short, memorable (or at least easy to remember) names with a minimum number of levels, the mobile TLD (with the number of potential new Internet users it represents) brings a most credible case for a large number of names being desired in this new name space, which should make it very attractive to ICANN and the registrars.

For the record, a sponsored TLD constitutes a specialized domain that has a sponsor representing a specific community served by that domain. The sponsor of the TLD — such as the Mobi JV in our present discussion — is typically designated by the ICANN and usually assumes responsibility for developing and implementing policies affecting the domain within the framework of established ICANN guidelines. A domain name comes into being when it is registered by an applicant with the appropriate registry, the entity that provides domain name service for a TLD. (The registry conventionally deals with domain name applicants, or registrants, through service retailers called registrars.)

If the mobile TLD is approved by ICANN, the Mobi JV registry will sell these second-level domain names on a wholesale basis to individual ICANN-accredited registrars, which will resell the names directly to the domain name owners, or registrants. The registry company will also manage how different types of names are assigned. Corporate and trademark domains will be assigned to their respective companies following a validation process. To safeguard the interests of commercial entities with trademarked names, there will be a 90-day "sunrise period" to allow for challenges and the resolution of any disputed name assignment.

The Mobi JV registry will also offer domain names to individuals and groups possessing non-trademarked names. Generic second-level domains, such as mycompany.mobi, will be available on a first-come first-served basis with a standard WHOIS service. Consumer second-level domains, such as janedoe.mobi, will be offered with a restricted WHOIS response, if so requested by the purchaser, due to privacy issues.

In addition, the registry company will reserve domains with high-value generic names that are descriptive of a field, such as music.mobi or maps.mobi, to be auctioned to companies aiming to serve broad needs. The reserved list, which will be developed by the Mobi JV registry company, will most likely include potential new services, such as localnews.mobi, localrestaurants.mobi, and so on.

The registry company will also use the channel of registrars to register domain names for individuals. In addition, the company says it will develop future products to advance mobility and to encourage the development of location-based services by seeking an intuitive connection between the various locating technologies and Internet naming.

Scalable Technology, Transparent and Representational Governance

Scalability

According to the sponsors, the proposed registry company will offer robust scalable technology that will support the naming practices for mobile TLD for decades to come. Its aims will be to encourage and support innovation and the use of new technologies that will enhance existing business models and encourage new ones. The broad goals of the joint venture are to stimulate the demand for and adoption of mobile data services by end users and spark innovation and creativity on the supply side. It promises to do this by providing operator-grade reliability with the benefits of Internet scale.

The mobile community consists of business users and individual users of mobile devices, services, and applications; mobile content and service providers; mobile operators; mobile device manufacturers; and technology and software vendors that serve the mobile community. It is a large and growing community in need of scalable technology solutions.

IPv6

Streamlining the deployment of new Internet sites optimized for mobile usage is expected to create a multitude of new usage scenarios for mobile devices and serve as a catalyst in accelerating the adoption of key technologies that will further fuel the growth of new mobile data applications and services, thereby creating new business opportunities for companies servicing mobile subscribers.

The Mobi JV consortium has identified Internet Protocol version 6 (IPv6) as an enabler for new applications and services and intends to actively promote it. [IPv6 is the next-generation protocol designed by the Internet Engineering Task Force (IETF), an Internet standards body, to migrate Internet Protocol version 4 (IPv4) that is widespread today. There is no IPv5.]

However, because the migration from IPv4 to IPv6 requires an economic investment, the registry will support co-existence of IPv6 and IPv4 from launch. The Mobi JV consortium believes that market conditions and economics — rather than any regulatory fiat — must drive the migration to IPv6. And, while the group is committed to creating and facilitating the conditions that will invite the adoption of IPv6 for new services and applications as quickly as commercially reasonable, it does not intend to impose any arbitrary sunset date for IPv4.

Most of today's Internet uses IPv4, which is now nearly 20 years old. IPv4 has been remarkably resilient in spite of its age, but it is beginning to have problems. Most important, there is a growing shortage of IPv4 addresses, which are needed by all new machines added to the Internet.

Besides overcoming the limitation pertaining to the available number of Internet addresses, IPv6 adds many improvements to IPv4 in areas such as routing and network auto-configuration. Proponents of the mobile TLD believe that IPv6 will provide improved discoverability and an enhanced user experience. Mobile subscribers will find it easier to discover sites optimized for their use, searching will be more focused, and users will be more productive.

Style Guides

The proposed registry will also issue style guides to help new and existing players to better present their content based on best practices gleaned from the industry. By following the best practices and style sheets established by the registry company, .mobi sites would provide users with a predictable, high-quality experience on any mobile device. Mobile users would also be able to access the full Internet, assuming their device capabilities provide that functionality. Further, by reducing barriers for new services, the mobile domain would facilitate innovation in mobile services and faster adoption of advanced mobile and Internet technologies.

The intended style guides will address measures that will help optimize content for use in mobile contexts and on mobility-supporting access devices such as mobile phones and personal digital assistants (PDAs), for instance. They will not mandate the use of any particular language or operating system and will also be air interface-agnostic.

The style guides, even though they may not be backed by any specific power of enforcement, will carry the power of moral suasion within the community of economic actors composing the ecology of supply of mobile data services and content.

Governance Issues

To ensure that the Mobi JV registry represents and operates in the interests of all segments of the mobile community — and is *seen* to do so! — backers of the mobile TLD initiative are proposing an elaborate governance structure for the registry that is inclusive in its representation and transparent in its practice.

The Mobi JV will be managed by a management team chosen by a board of directors comprising the shareholder companies in the joint venture that will also maintain oversight of the management team. The Mobi JV's board of directors will create a Policy Advisory Board (PAB) and Membership Advisory Board (MAB) in an attempt to institutionalize broad representation of community interests, including consumers, academics, corporations, technologists, and other industry participants. The PAB will be made up of elected representatives from a supporter organization that will be open to all interested parties, not just investors.

The companies pushing the mobile TLD initiative say that none of the participants, not even the founders combined, will have a dominating or controlling position on the board of directors. The governance model further states that none of the industry groups — mobile operators, mobile vendors, or IT/Internet and mobile content providers — can have a dominant position in the Mobi JV company.

PROS AND CONS OF THE MOBILE TLD

Creation of a mobile TLD is intended to expand mobile services and to create new services and more content by optimizing Internet sites for mobile usage. A new domain name space optimized for use by handsets, PDAs, and other mobile-enabled devices will simplify mobile customers' Internet experiences and increase the ease of use and speed of delivery of mobile services, according to the mTLD proponents. The mobile TLD will also be agnostic to air interface and transport medium. Moreover, its use of existing Internet standards and tools is critical to the bridging of mobility to the Internet.

Fragmentation Concerns

Arguments against ICANN approving the mobile TLD application range from public policy concerns to economic and technological issues. Is it good public policy, for instance, to allow a small group of self-selected companies to represent the interests of an entire industry? Also, should some economic players be allowed to impose costs on others in the industry? More generally, do the public benefits of the new domain outweigh the costs involved?

In 2004, several applications have been submitted to ICANN to create new top-level domains. In addition to the mobile TLD, there are nine other sponsored TLD applications for a variety of industries and global Internet interests. They include .asia, .cat, .jobs, .mail, .post, .travel, .xxx, and two proposals for a .tel domain for telephony.

One .tel domain would give individuals and businesses a text-based naming and navigation structure to let them initiate communications or access services by entering, say, acme.tel on their Internet-enabled communications device. The second .tel application would allow legacy telephone numbers to migrate to IP networks so that users can continue to use phone numbers for both public switched telephone and Internet services.

Those advancing the cause of the mobile TLD hold that ICANN approval of .mobi would not conflict with authorization for one or both .tel domains because the mobile and telephone industries are so different and the .tel proposals are fairly limited in nature, especially when compared with the scope of the .mobi application.

Not everyone supports the applications. For instance, Tim Berners-Lee, one of the leading architects of the Web, who is currently the director of the World Wide Web Consortium (W3C), finds the move to add new domains rather problematic: "There are costs in general to creating any new top-level domain." According to Berners-Lee, new Internet domains should bring social or technological value to the Web. Governance should be fair, and the new domain should provide visible value to the community and not be used as a cash cow. Addressing the issue, the Mobi JV spokespeople say that none of the investor companies are looking to the Mobi JV investment to augment their corporate bottom lines. To the contrary, they note, these companies plan to take a "modest payback" for their investments and reinvest most of the profits back in the JV to foster further innovation in mobile Internet and enhance mobile business possibilities in different parts of the world. It is not quite clear, however, what specific form this investment might take.

To critics who say that the mobile TLD applicants are trying to enhance their own businesses, the Mobi JV spokespeople point out that success in a mass-market business can come only from user acceptance of products and services. The mobile TLD will only be successful, they note, if it enables the expansion of user-friendly mobile services over the Internet.

Proponents of the mobile TLD have long argued that mobility applications on the Internet require special features that are unlikely to advance rapidly under the control of regular mainstream business. In areas where mobile business has been successful, mobile subscribers often have had their own number space, allowing

callers to recognize the mobile connectivity on a national level. By providing a mobile TLD, the JV companies claim that they can extend this recognition of mobility to a global level on the Internet in the simplest possible way. Reverting to their claims that mobility constitutes a unique technological and business environment, the companies seek to point out that mobile data services have usually been successful only when purpose-built from a structural and services point of view.

While most people agree that more services and content are needed for mobile devices, some policy actors believe that mobility does not warrant a separate domain and that separate domains are not needed. The Web is about universality, they argue. It should be independent of the hardware, operating system, or application software that users run and of the network by which they are connected. The concern of the policy actors is that .mobi would fragment the Internet. By partitioning the HTTP information space into parts designed for mobile access and parts designed for other types of access, an essential property of the Web would be destroyed. There are systems that enable content to be displayed on any device, without using a top-level domain, they point out.

Those backing the mobile TLD agree that many companies offer content adaptation technologies, including some of the JV companies, and they see no conflict of interest between .mobi and the use of these adaptation technologies. In fact, the provision of services for the mobile TLD anticipates access to and from the services of other TLDs, which means that adaptation technologies will have to be used in existing back-end servers to tailor the content and services from these domains to accommodate the smaller mobile screen sizes, less efficient navigation capabilities, and other limitations of mobile devices. Furthermore, they note, since mobile devices come in increasing varieties with differing features and capabilities, some level of content and service optimization will likely remain a value-added opportunity for the providers that offer these types of services.

The mTLD initiative, according to its backers, welcomes all efforts by standards bodies and industry fora that help to address this content adaptation issue and intend to cooperatively work with those organizations and make use of their results. Further, with a mobile TLD, content providers can choose between methods of service provisioning, making it possible for less sophisticated content developers to also succeed with mobile content offerings. They continue that having a mobile TLD gives users the choice to select the content on a site optimized for mobile use or to get the content on a site optimized for general use. This customer choice is not possible without the mobile TLD.

The main issue of the mobile TLD is not to have names for specific nodes or protocol implementation; rather, the purpose is to have a name space for mobile businesses that allows identification for mobile users on a global scale and makes space for new content providers and new business models while maintaining, and even expanding, the possibilities of existing ones.

By adding the mobile TLD, claim the Mobi JV participants, the mobile users' concerns will be brought to the highest possible level, potentially reducing the risks and the load on the current domain name server infrastructure in the future.

Cost Considerations

Critics also claim that adding the mobile TLD will inevitably increase costs as organizations are forced to buy new domain names to protect their brands or trademarks. For most domain name owners, the part between the "www" and the top-level domain is their brand, or name, which they need to protect. To avoid confusion, an organization has to own its domain in every non-geographical top-level domain; therefore, the cost of protecting widely known brand names increases with the number of domains. For a large company, this cost can be insignificant. For a small enterprise, a non-profit organization or a family, the cost can be substantial. From a public policy perspective, costs incurred for defensive registrations are, and should remain, a concern.

However, discussion of costs should be tempered by the recognition that competition between registries has brought down the costs of registration fairly drastically — by about 80%, according to recent ICANN estimates quoted in a July 2004 OECD report. (See OECD report, *Generic Top Level Domain Names: Market Development and Allocation Issues*, DSTI/ICCP/TISP (2004)2/Final, July 13, 2004.) According to the report, in the four years following the introduction of competition between registries, there has been significant reduction in retail prices pertaining to domain name registration, to the extent that a domain name that might have cost $35 in early 2000 can be registered for under $6 today.

Introducing new TLDs has two other deleterious effects, claim the critics. The first is a little like printing more money. The value of one's original registration drops. The second effect is one of instability. With a new TLD, there is a flurry of activity to reserve domain names, a rush that companies cannot afford to miss in order to protect their brands. There is also a rash of attempts to steal well-known or valuable domains. The Mobi JV registry plan for a 90-day sunrise period to protect brands and trade names is designed to avoid these problems.

Opportunities and Challenges

Opportunities

The mobile TLD offers a key opportunity for industry players to come together at a precompetitive stage to build in a consensual manner a framework that could help streamline the deployment of new Internet sites optimized for mobile usage.

As we have noted elsewhere in this paper, mobility constitutes a complex technical and business environment. From the user perspective, it also constitutes a fairly difficult and uncertain environment marked by frustration and apprehension that things may not work as expected, if they work at all.

A new domain name space optimized for use by handsets, PDAs, and other mobile-enabled devices could simplify a mobile customer's Internet experience and increase the ease of use and speed of delivery of mobile services. The implied assurance to users that sites in this domain offer services optimized for the mobile environment, and the implicit lowering of social transaction costs (such as frustration), could attract users and spur mobile data usage.

While it is true that a top-level domain alone cannot guarantee the success of mobile data industry — diffusion of innovations is far too complex for any one factor to define or guarantee a desired outcome — it could act as an important catalyst. Greater usage and the subsequent establishment of a culture of mobile data consumption, in turn, could spark dynamics that could have positive results for the entire value chain.

Challenges

Machiavelli had the story right, perhaps, when he observed that "there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order." The observation points to a basic truth — all attempts to reform the status quo, to initiate a new order of things, almost invariably find detractors and critics. The mobile TLD initiative is no exception. The challenge for the group backing the initiative is compounded by the fact that each of the three founding members — Microsoft, Nokia, and Vodafone — is a dominant player in its respective market. Each player is eminently capable of attracting cries of "Foul!" when advancing any initiative. Given the hegemony each of the founding members enjoys in its respective market, it would have been very surprising if the measure that they are proposing collectively did not attract challenges. And it has, as it should.

Initiatives advanced by powerful economic actors that constitute a new order of things and may circumscribe the possibilities of action open to other economic actors and to consumers ought to be carefully examined for their merits. In the realm of public policy, it is, in fact, absolutely necessary to invite an open and vigorous debate on such initiatives. We discuss here some of the key concerns — in addition to those pertaining to costs and fragmentation of the Internet that we have discussed above — raised by a variety of commentators responding to ICANN's invitation for comments.

- **Is the Mobi JV sufficiently representative of the industry?** The Mobi JV lists several key players in the mobile industry, including an influential industry group such as the GSM Association, as investors. As noted above, it has obtained letters of support from an additional number of industry players that are not investors. However, that said, it deserves mention that several large and influential industry players (such as Qualcomm, Cisco, IBM, Nortel, and Sprint) are conspicuously absent from the list of investors and have yet to voice their support for the initiative. The Mobi JV spokespeople note that many of these and other large players either have been, or are being, contacted for investment and support. However, in the short period of time allowed to write and file the application, the Mobi JV has garnered the support of the wider GSM community. China Mobile and NTT DoCoMo have, we understand, expressed their support for the mTLD initiative as members of the GSMA Board. The mTLD proponents point to the addition of several new partners and note that building widespread representation is a work in progress. Moreover, Mobi JV spokespeople note that there are some spaces still open for companies to join the JV as investors.

- **Auctioning names descriptive of a field (e.g., maps.mobi, travel.mobi).** In principle, auctions are an effective and transparent method of allocating scarce resources: The onus is on the bidders to price the asset, and because the process is visible to all parties, the final allocation is less likely to be subjected to legal challenges. However, that said, auctioning is not without its challenges. For instance, access to information is often not symmetrical in nature, in that some entities are better equipped than others to find information in a timely manner. A decision to auction second-level names that bestow significant market advantage on the winning bidder without regard for this concern could be unfair. The Mobi JV will have to ensure that news of the auction and information about procedures are well-publicized in advance of the actual auction. For another, auctions — with an implied competition among bidders — often tend to maximize revenues for the auctioneer. Given that the those conducting the auction will also be economic actors in the same industry, this may be a rather difficult situation, although they have stated that they will reinvest a significant portion of the JV's earnings back into the JV to fund further innovation.

- **Number portability and the stickiness of domain names.** There are two principal concerns here. The first concern is that the second-level domain name — say, shiv.bakhshi@operator.mobi — looks like a clever means for the mobile operators to stop their subscribers from churning to other operators. The second concern is that this tends to thwart and circumvent the policy goals of regulators seeking to implement wireless number portability as a means of promoting vigorous competition. Spokespeople for the proposed mobile TLD say they are cognizant of the above concerns and intend to address them. For instance, they say that the Mobi JV recognizes the mobile users' desire to control their names and have designed their TLD policies to accommodate name portability. They note that — perhaps, for a fee — mobile users could ask for and receive personalized identities from the registry that they could then take with them as they change service providers. So, for instance, since the registry intends to sell second-level domain names to both mobile operators and individual users, this author could get an identity such as shiv@bakhshi.mobi that could then be ported across different mobile operators and service providers.[1] Similarly, they recognize the policy goals of regulators and are planning to support operator-independent names as mandated by ICANN.

  The backers also point out that number portability is not connected to the ICANN application and is out of its scope. Backers of the mobile TLD might do well to clarify whether the portability scheme would be limited to mobile operators or would be more expansive to include, say, ISPs of a different kind.

- **Potential impact on the regional numbering plan.** The concern here is that the domain name scheme — given the interchangeability of numerals and alphabets in any alphanumeric string — could negatively impact the numbering plan. Those proposing the mobile TLD point out that they all follow and comply with the standards and regulatory authorities that govern the numbering plan and that the numbering plan is not within the scope of ICANN or the terms of the application. It is interesting to note that the numbering plan as a concept is already under pressure from newer technologies, such as VoIP technologies. However, they add that the issue is being carefully watched should any changes in the dynamics occur.

- **Conflict with country code–based top-level domain (ccTLD).** The concern here is that companies and individuals are likely to be confused when confronted with the need to choose between ccTLD and mobile TLD. Spokespeople for the proposed mobile TLD respond by saying that it essentially represents a choice for both businesses and consumers as to which site they choose to visit. It is also possible that the choice may be curtailed by a political decision made at the country level. Countries might legislate that all businesses and consumers in the land would be required to adhere to the country code first, and this mandate would have nothing to do with the Mobi JV. A similar situation already exists today when people are not sure whether to go to the .org, .com, or .net TLD to locate a site. In the .mobi case, a person on a mobile device may simply find it convenient to go to the .mobi domain.

- **JV members and operating systems.** There is some serious concern that three Mobi JV members, Microsoft, Nokia, and Sun, hold dominant positions with respect to major mobile operating systems — Microsoft, Symbian, and Java, respectively — and that together they could unduly influence the market. This is a very legitimate concern, but mobile TLD spokespeople note that it may be rather ill-founded — for two reasons. First, the Mobi JV does not plan to concern itself with operating systems, as noted above. Second, there is an operating system such as Linux in the market that many handset vendors have chosen to work with even as they work with Microsoft, Symbian, and Java. Motorola, the second largest vendor of mobile handsets, is a case in point.

- **Enforceability of style guidelines.** The concern here is that the Mobi JV may not have the power to enforce the style guidelines it might articulate, resulting in market chaos. Spokespeople for the Mobi JV recognize the challenge; however, they believe that, beyond mere moral suasion, they are likely to find adherence as a result of the enlightened self-interest of market actors. The desire to adhere will be benefits-driven, they say.

Perhaps, the single biggest challenge facing the Mobi JV, however, is one of political legitimacy — specially with respect to the proposed JV's policy-making function. As a sponsor of the domain, the Mobi JV — like other sponsors of TLDs — has exercised its rights to seek authority for making policy for the domain, including the right to set eligibility criteria for registration, as well as to determine the eligibility of an applicant for registration within the mobile TLD based on the established criteria.

However, considering that the JV consists of a set of actors operating in the economic realm, its policy decisions are likely to be viewed with suspicion and concern by others in the market. The stated position of the Mobi JV actors — that they will act in the interests of the entire industry, within the framework of ICANN's rules and regulations, and under ICANN's oversight — serves to address the structural concern only up to a point.

In the public policy arena, it is not merely important for an actor to act in the public interest — assuming there can be a perfect consensus on what constitutes public interest or, for that matter, how to define mobility — it is also important to be *perceived* as doing the right thing. In other words, the process is as important as the outcome.

Perhaps, in recognition of this need to also manage public perception, which is an important element of legitimacy, investors in the Mobi JV have delineated an elaborate decision-making structure, complete with a Policy Advisory Board consisting of elected representatives from a supporter organization that will be open to all interested parties, not just the investors. While the structure is a little short of the Habermasian ideal of discursive decision making — which policy structure isn't? — it does institutionalize some scope for articulation of alternative points of view.

However, as policy players might note, the power to advise is considerably less than the power to influence. It would be up to ICANN to decide whether the Mobi JV's decision-making structure — which requires the articulation of reasons in a discursive environment and thus creates a degree of procedural transparency — sufficiently mitigates against the possibility of implementing hidden agendas.

Conclusion

ICANN will have to make a determination on the application for a mobile top-level domain. It must address two key issues: First, does mobility constitute an environment different enough to be assigned its own top-level domain? Will assigning a top-level domain to mobility serve to advance the public good, or will it add unnecessary complexity to the Internet? To address these questions, ICANN will have to balance the stringent demands of Internet purists with a pragmatic interest in advancing the social good as implied in the application for a mobile top-level domain. The argument that a new mobile TLD would fragment the Internet becomes rather difficult to sustain if ICANN is seeking to expand the number of TLDs.

Second, do the Mobi JV and its supporters have the economic wherewithal and the technological know-how to take mobility to the next level in terms of innovative applications and services? Further, is the Mobi JV sufficiently representative of the mobile community, or has it created the appropriate framework for such representation, to be trusted with the task? The answer to the first question is yes. However, ICANN will have to carefully consider the answer to the second question.

Since policy structures, like design structures, can foreground certain possibilities and foreclose certain others, a society should seriously and vigorously debate the implementation of any policy — especially if the policy concerns a technology that is gaining increasing salience in our daily lives as citizens and consumers. But the goal of the discussion needs to be a genuine willingness to examine options and implement those that advance the social good. A serious appreciation of the fact that mobility constitutes a different technological and economic environment would lead ICANN to give the application the serious consideration it deserves.

Endnote

[1] The mTLD proponents note that they recognize the issue of name portability. They recognize that mobile users would like to be able to take their names with them as they switch operators and service providers — in other words, to have control over the names to which they may have assigned some value. The mTLD proponents say the Mobi JV has designed TLD policies to give this flexibility to users that desire it.

Per the hierarchical architecture of the Internet Domain Name System, each domain name acts as the parent of all domain names in the level below it. So, for example, all third-level domain names are circumscribed by the second-level domain name under which they reside. Per market norms, the owner of the second-level domain has the right to provision third-level domain names on top of the second level and sell or give these names away.

To wit, a mobile operator is likely to buy a second-level domain name from the Mobi JV registry and offer third-level domain names to its subscribers. So, for instance, this author may end up with a third-level domain name such as shiv.bakhshi@OperatorA.mobi, where Operator A has the second-level domain name. The problem for this author would arise when he decides to take his business from Operator A to Operator B. Now, he will get a new name that reads shiv.bakhshi@OperatorB.mobi. To retain the shiv.bakhshi@OperatorA.mobi name, the author would be forced to stay with Operator A.

The mTLD proponents recognize this issue of domain name stickiness. Pointing to the fact that the Mobi JV registry would sell a second-level domain to anyone — whether a mobile operator or an individual — they note that this author may easily overcome the stickiness issue by buying a second-level domain name — say, bakhshi.mobi — and assigning himself a third-level domain name, such as shiv@bakhshi.mobi. The author could then have that name handled by a mobile operator of his choice and change between mobile operators as often as he may wish by using a redirector technique to link the operator-provided name to his second-level domain name.

Now when he is with Operator A, the data would be directed from shiv@bakhshi.com to shiv.bakhshi@OperatorA.mobi. When he moves to Operator B, the data would be directed from shiv@bakhshi.com to shiv.bakhshi@OperatorB.mobi. This way, the author may give out his shiv@bakhshi.com name to anyone and it will work regardless of the service provider he is currently using.

It is important to note that if the author wanted to have this portable name, he would need to purchase the Bakhshi second-level domain. As there may be more than one person who wants the Bakhshi domain, it would be advisable for the author to purchase that domain sooner rather than later or he will have to look for another name that is close, such as Bakhshi01.

APPENDIX A

Glossary of Terms

Country Code Top-Level Domain (ccTLD): Two letter domains, such as .uk (United Kingdom), are called country code top-level domains (ccTLDs) and correspond to a country, territory, or other geographic location. The rules and policies for registering domain names in the ccTLDs vary significantly, and ccTLD registries limit use of the ccTLD to citizens of the corresponding country.

Domain Name Resolvers: Scattered across the Internet are thousands of computers — called "domain name resolvers" — that routinely cache the information they receive from queries to the root servers. These resolvers are located strategically with ISPs or institutional networks. They are used to respond to a user's request to resolve a domain name — that is, to find the corresponding IP address.

Domain Name System (DNS): The DNS helps users find their way around the Internet. Every computer on the Internet has a unique address — just like a telephone number — which is a rather complicated string of numbers. It is called its "Internet Protocol address." The DNS makes using the Internet easier by allowing a familiar string of letters (the "domain name") to be used instead of the arcane IP address. Instead of typing 207.151.159.3, you can type www.internic.net.

Generic Top-Level Domain (gTLD): Most TLDs with three or more characters are referred to as "generic" TLDs, or "gTLDs." They can be subdivided into two types: "sponsored" TLDs (sTLDs) and "unsponsored" TLDs (uTLDs). In the 1980s, seven gTLDs (.com, .edu, .gov, .int, .mil, .net, and .org) were created. Domain names may be registered in .com, .net, and .org without restriction; the other four gTLDs have limited purposes. Over the next decade, various discussions occurred concerning additional gTLDs, leading to the selection in November 2000 of seven new TLDs, which were introduced in 2001 and 2002. Four of the new TLDs (.biz, .info, .name, and .pro) are unsponsored. The other three new TLDs (.aero, .coop, and .museum) are sponsored.

Internet Protocol (IP): IP, which is the communications protocol underlying the Internet, allows large, geographically diverse networks of computers to communicate with each other quickly and economically over a variety of physical links. An IP address is the numerical address by which a location on the Internet is identified. Computers on the Internet use IP addresses to route traffic and establish connections among themselves; people generally use the user-friendly names made possible by the DNS.

Internet Service Provider (ISP): An ISP is a company that provides access to the Internet to organizations and/or individuals. Access services provided by ISPs may include Web hosting, email, VoIP (voice over IP), and support for many other applications.

Organisation for Economic Co-operation and Development (OECD).

Registrar: Domain names ending with .biz, .com, .info, .name, .net, or .org can be registered through many different companies (known as "registrars") that compete with one another. A listing of these companies appears in the Accredited Registrar Directory.

Registry: The "registry" is the authoritative, master database of all domain names registered in each top-level domain. The registry operator keeps the master database and also generates the "zone file," which allows computers to route Internet traffic to and from top-level domains anywhere in the world. Internet users don't interact directly with the registry operator; users can register names in TLDs including .biz, .com, .info, .net, .name, .org by using an ICANN-accredited registrar.

Root Servers: The root servers contain the IP addresses of all the TLD registries — the global registries such as .com and .org and the 244 country-specific registries such as .fr (France).

Top-Level Domain (TLD): TLDs are the names at the top of the DNS naming hierarchy. They appear in domain names as the string of letters following the last period, such as "net" in "www.example.net." The administrator for a TLD controls what second-level names are recognized in that TLD. The administrators of the "root domain" or "root zone" control what TLDs are recognized by the DNS.

World Wide Web Consortium (W3C): The W3C is an international industry consortium founded in October 1994 to develop common protocols that promote the evolution of the World Wide Web and ensure its interoperability. Services provided by the Consortium include a repository of information about the World Wide Web for developers and users, reference code implementations to embody and promote standards, and various prototype and sample applications to demonstrate use of new technology.