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Cato Institute Briefing Paper No. 33: Internet Domain Names: Privatization, Competition, and Freedom of Expression

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Milton Mueller

Milton L. Mueller, an associate professor at the Syracuse University School of Information Studies, is the author of many scholarly works on telecommunications policy.

Executive Summary

There is growing confusion over the administration of Internet top-level domain names (TLDs), the system of suffixes, such as .com, .org, and .edu, that determines a person's e-mail or Web site address on the Internet.

We need to define rules and procedures that will permit and encourage competition among administrators of TLDs in response to market demand. Freedom of expression should be a primary concern. Proposals for compulsory national TLDs should be rejected. National TLDs would undermine the international character of the Internet and encourage national governments to enact myriad petty regulations and restrictions on free speech. Domain names should not be equated with trademarks or brand names. We should reject attempts to forge inappropriate links between domain name registration and trademark protection.

The U.S. government should encourage the development of property rights and competition by moving the administration of Internet domain names into the private sector.

Introduction

The current system for administering Internet domain names, the system that determines a person's e-mail or Web site address on the Internet, is under fire. The National Telecommunications Information Administration (NTIA) has called for comments to help the Internet community resolve issues of domain name governance. [1]

One key issue is the proper role of government in establishing rules to provide a framework for markets in domain names. Many Internet standards are set, without government involvement, by consensus within or among nongovernmental entities such as the International Standards Organization. It is becoming apparent, however, that the controversy about the type and number of top-level domain names (TLDs) such as .com, .org, and .net that should be issued cannot be satisfactorily resolved until the U.S. government takes steps to move the domain name system unambiguously into the private sector.

Another key question is how domain names relate to registered trademarks. For example, Kayvan Sylvan, who runs his own computer business, registered the domain name sylvan.com. Sylvan Learning Systems challenged his use of the word "sylvan" as a violation of their trademark and forced Mr. Sylvan to trademark his own name in a foreign country to keep his domain name. [2]

Resolution of domain name issues will determine whether the people who control the Internet of the future will be in the state sector or the private sector, whether national governments can control Internet content, and whether the

Internet will be controlled by state monopolies or market forces. The controversy over domain names can and should be resolved by establishing ground rules that enable private entities to compete in the business of administering domain names.

The Need for a Framework for Private-Sector Governance

The current domain name crisis is the product of a legal and administrative vacuum for which the U.S. government is directly responsible. The domain name problem is about ownership and allocation of valuable resources--specifically, root name servers (computers containing directories used by the domain name system) and TLDs. No existing entity has a direct, unambiguous legal right to establish rules and procedures for the root servers or to determine what the TLDs will be or how many there will be.

Each root name server everywhere in the world contains a directory associating each domain name with a unique Internet Protocol Number (IP address). The root server relays requests for access to any Internet address to the downstream domain name server that serves as the home domain for that Web site or e-mail address. [3] The root server equipment is owned by various entities such as the National Aeronautics and Space Administration, the U.S. Army, universities and colleges including the University of Maryland, the National Science Foundation (NSF), and similar organizations. [4] The root server files are updated daily by certain assigned government contractors.

For most of the Internet's history, domain names were managed by various defense-related research institutes under contract to the Department of Defense. [5] In 1988 the University of Southern California's Information Sciences Institute (USC-ISI) began to refer to its system for managing domain names and their corresponding IP addresses as the Internet Assigned Numbers Authority (IANA). [6] Since 1989 TLDs have been explicitly managed by IANA under agreement with the Federal Network Council and the Internet Society. [7] IANA is a four-person group led by Internet pioneer Jon Postel. It operates out of USC-ISI. Its main role is to delegate the management of TLDs and to make technical decisions about the location of the root servers.

IANA delegates registration of national TLDs (such as FR, IT, UK, US) to national naming registries. The familiar generic top-level domains (gTLDs)--.com (commercial), .org (miscellaneous entities), and .net (international infrastructure service providers)--are delegated to the InterNIC (NIC stands for Network Information Center). [8] InterNIC is a collaborative venture between AT&T and Network Solutions, Inc. (NSI), another private company. Under a contract with the NSF, InterNIC assigns domain names and updates information on the root servers. [9] The NSF root server administered by InterNIC is the primary root server, in that all the other root servers "mirror" the NSF site (that is, the other sites are copies of the NSF site). Those other servers are, however, operated by other organizations, including PSINet, the University of Southern California, Vixie Enterprises, various U.S. military bases, and Comedia Information AB in Sweden. [10]

Under the current system, there is a limited number of open, global gTLDs: .com, .net, and .org. Registrations of domain names within those three domains mushroomed from 400 per month in 1993 to as many as 70,000 per month in 1996. Many desirable names have been taken (of course, there is almost an infinite number of possible names consisting of random combinations of letters with little semantic content). NSI's contract with NSF will expire in 1998, providing an opportunity for reforms.

But no entity has the clear legal right to carry out reforms. The commercialization of the Internet has stranded IANA in an ambiguous position. IANA's essential status as a DOD contractor does not give it a clear legal right to manage, as a private commercial entity, the root name servers owned by others. [11] Nor has the domain name system as a whole been declared a public resource to be managed by government. Nor has IANA been given any legal or procedural mechanism for distributing relevant property rights to competing firms in the private sector. That legal vacuum does not encourage self-governance; it perpetuates confusion and invites the Internet equivalent of land grabs and squatting. It is evident from the growing number of lawsuits, the angry rhetoric from many participants in Internet groups, and the growing schism between the key institutions of Internet administration that no "consensus" exists in the Internet community.

In this context, loose references to "self-governance" and "private-sector initiative" are not helpful. The NTIA, for example, has proposed that one governing principle for reform be that "the private sector, with input from

governments, should develop stable, consensus-based self-governing mechanisms for domain name registration and management that adequately defines responsibilities and maintains accountability." [12]

That statement reveals a degree of confusion about the existing situation and the proper role of government. It obscures the legitimate and unavoidable role governments must play in the definition, enforcement, and adjudication of property rights. Without clearly defined property rights, there is no private sector. Without stable rules governing the nature and use of resources, there can be no self-governance.

A better formulation of the above principle would be the following:

> The U.S. government must play an active role in moving the core resources of the Internet out of the U.S.-based public sector and into a competitive, private-sector-driven, global institutional framework. Only government can establish the legal and institutional basis for private-sector competition and ongoing self-governance. Because of its historical responsibility for the central authorities of Internet administration, the U.S. government must take the lead in this process.

The U.S. government's failure to act to continue to move the Internet into the private sector will allow confusion to continue until a politicized and bureaucratic entity like the International Telecommunications Union (ITU) decides to act or other authoritarian and nondemocratic bodies step in to take control. [13]

Principles for Domain Name Reform

In addition, would-be reformers should recognize a new principle for domain name reform. Domain names must be recognized as a form of expression or communication. Domain names convey ideas and transmit organizational identities. They can be put to creative uses. They are often selected to attract attention, and in some cases they form phrases. Domain names can make reference to people, institutions, and events. In formulating public policy, therefore, freedom of expression and the proper level of restraint on personal and public communication must be taken into account. Many governments around the world are hostile to freedom of expression. The U.S. government should uphold the principles embodied in the Bill of Rights and clearly recognize that freedom of expression is implicated in its treatment of domain naming.

Resolving Questions about the Domain Name Framework

A Model for Domain Name Registration

Reform can be misdirected by similes, such as the comparison of domain names to listings in a phone directory, which tempts us to think of domain names as identical to trademarked company names. That way of thinking immediately invites litigation, creating more problems than it solves, and sweeps free speech issues under the rug. The NTIA has asked whether there exist "decision-making processes that can serve as models for deciding on domain name registration systems (e.g., network numbering plan, standard-setting processes, spectrum allocation)." [14]

One significant model is the system of company symbols adopted by the stock exchanges in the United States. The analogy is relevant for at least three reasons:

> ∑ Names have some semantic relationship to the actual company names.
>
> ∑ There are competing, privately run exchanges, but all exchanges manage to make their naming conventions consistent and avoid collisions.
>
> ∑ Most important, the exchanges do not simply hand out symbol strings at random or passively upon application; they actively manage their namespace. For example, the New York Stock Exchange reportedly is reserving the symbol "M" for Microsoft in an attempt to lure it from NASDAQ. That kind of active management of the resource in an environment that combines competition with cooperation is applicable to the domain name system.

The Optimal Forum for Discussion

In establishing rules for privatization of the global namespace, the U.S. government needs to find an appropriate forum in which to coordinate its efforts with those of other governments. The World Trade Organization is the most appropriate international organization for that purpose. The WTO is free of the sectoral vested interests that characterize, for example, the ITU or the World Intellectual Property Organization (WIPO). As a vehicle for commerce and communication, the Internet is vital to the growth of free trade in services and is also likely to have an impact on trade in commodities. Internet-related services themselves form a growing part of world trade. Therefore, the domain name issue should be approached as a problem of trade in services, and international coordination established through WTO agreements.

Generic Top-Level Domains Should Not Be Retired

One question before the Internet community is whether gTLDs such as .com and .org should be retired from circulation. NTIA asks, "Should geographic or country codes (e.g., .US for United States) be required? If so, what should happen to the .com registry? Are gTLD management issues separable from questions about International Standards Organization (ISO) country code domains?" [15]

Generic TLDs should not be retired from circulation. The two-character country codes should not be compulsory. [16] Such a course of action would be a disastrous mistake.

A regime of compulsory national TLDs is unfriendly to users. The primary purpose of domain names is to make addresses easier to use than numbers. Country codes are only marginally better than numbers. The codes themselves are often counterintuitive and confusing. For example, .au could be Austria or Australia; .il could be Iceland, Ireland, or Israel.

Another aspect of user unfriendliness is the additional hierarchical levels that a country-code system imposes on users. National TLDs usually have second-level hierarchies with additional generic categories inside them. (If country codes were compulsory, all of them would need generic second- and possibly even third-level hierarchies.) Under a national TLD regime, namespace can be expanded only by adding additional levels. The economic premium placed on existing gTLDs, especially .com, by multinational companies is largely attributable to the shorter, more easily remembered name. A very large number of users have demonstrated a clear preference for shorter domain names.

Elimination of gTLDs eliminates all innovation in naming conventions. It fixes the total number of TLDs and imposes a single top-level categorization scheme on the entire Internet, regardless of user demand. Ideas such as the .nom or .per space for personal names, or the .num space for telephone numbers, could not be implemented globally.

Most important, a regime of compulsory country codes threatens to give national authorities the same bottleneck control over the Internet that they have traditionally exercised over post, telephone, telegraph, and broadcasting systems. That is, domain name policies and conventions would be set by national governments or national registration monopolies. Naming conventions could be subordinated to the desire of national governments or network administrators, or both, to control and monitor the activities of Internet users. One virtue of gTLDs is that they create global competition for names and registrations. It is ironic that a form of "Internet nationalism" should be proposed now, when telecommunications and broadcasting industries are slowly extricating themselves from the constraints and inefficiencies of a regime organized around national monopolies and national boundaries. Forcing Internet TLDs into a hierarchical framework organized around nation-states invites the politicization of Internet governance. It is also totally out of synch with the global, borderless nature of Internet communication and the regional and local boundaries of language and culture.

A high level of coercion would be required to implement Internet nationalism. Tens of thousands of gTLDs would have to be moved into national TLDs. Many registrations under national TLDs would also have to change. There are at least 50 country-code registries that now accept registrations from hosts not resident in those countries. That practice would have to be ended.

The Creation of New Top-Level Domains

Technical Constraints on the Number of New Top-Level Domains

The total number of possible gTLDs can be constrained by technical, practical, or policy considerations.

Technically, there seems to be no significant disagreement with the proposition that there could be an unlimited number of TLDs. The only argument concerns how rapidly new TLDs could be introduced without creating operational problems.

By way of background, it is worth noting that in 1996 IANA's Jon Postel, someone who could reasonably be considered an authority on the operational aspects of the Inter-net, proposed adding 300 new TLDs over a period of five years, 150 of them in the first year. [17]

Trademark protection is sometimes cited as a reason to not create new TLDs. In fact, additional TLDs help to decouple domain names from brand names and trademarks and thus alleviate that alleged problem. (This argument is developed in greater detail in the section on trademark protection.)

User "confusion" is cited as another reason to restrain or limit the number of TLDs. This argument assumes that domain names need to be part of a controlled, exhaustive classification scheme. In fact, there is no empirical evidence that users benefit substantially from a controlled classification scheme at the top level. All that matters is whether the TLD is easy to remember and gives users some semantic clues to the nature of the address (e.g., .biz, .sex).

The most important practical considerations are not technical but economic and administrative. Specifically, the procedure for distributing the right to create and administer new TLDs must be carefully defined. If this process is open and continuous, as it should be, poorly defined procedures in the early stages of implementation may result in "land grabs" that could create injustices and threaten the connectivity or operational integrity of the network.

Reasons to Create Additional Generic Top-Level Domains

Additional gTLDs should indeed be created. More precisely, a procedure that allows new TLDs to be added continuously in response to consumer demand, entrepreneurial effort, and market evolution should be defined. Creation of more TLDs would

- ∑ reduce conflicts over desirable or popular names or expressions,
- ∑ increase competition for registry services,
- ∑ reduce the incentives for name speculation,
- ∑ provide an additional channel for entrepreneurial innovation in value-added registration services and naming structures, and
- ∑ eventually make possible domain names based on non-Roman alphabets.

Management of Country Code Domains

NTIA asks, "Are gTLD management issues separable from questions about ISO country code domains?" [18] The real issue is the creation of new TLDs, not new gTLDs. Until and unless there is a consistently enforced policy that every name must end in a national TLD, there is no important distinction between generic TLDs and national TLDs. At the present time, users still have the choice of registering in a gTLD or in alternative national TLDs. As long as that is true, national TLDs are nothing more than badly truncated, semantically unattractive generic TLDs.

Policies for Domain Name Registries

In creating a new system for administering gTLDs that involves numerous competing registries, we must ask whether control over a given gTLD will be limited to one registry, for technical or other reasons. Are there any technical

limitations on using shared registries for some or all gTLDs? Can exclusive and nonexclusive gTLDs coexist?

Duplication of registrations among shared registries is avoided by the connection of all registrars through the root name servers. Shared registries may reduce users' risk of losing their investments in particular domain names. In a competitive marketplace, that may make shared TLD registries an attractive option for users. However, there is no reason why all TLD registries should be required to be shared. There are no technical or administrative barriers to the coexistence of shared and exclusive TLD registrars. Hence, the choice of a shared or exclusive TLD registrar can be left to end users.

Limiting the Number of gTLDs per Registrar

In the initial distribution phase of TLD rights there must be fairly stringent limits imposed on the number of TLDs given to each registrar, otherwise applicants will have an irrational incentive to claim as much of the top-level namespace as possible regardless of their real capability to administer it, either to preempt competitors or to profit from a secondary market, or both.

Trademark Issues

Domain Names Are Not Brand Names

The question of what trademark rights (e.g., in registered trademarks, common law trademarks, geographic indications), if any, should be protected against domain name "encroachment" on the Internet has arisen repeatedly.

A great deal of nonsense has been written about this issue. There is a pervasive fallacy that domain names are the same thing as brand names or trademarks and that textual identity of a domain name and a trademark is equivalent to a violation of intellectual property. The issues surrounding trademark rights will never be resolved justly until the fallacies are disposed of.

The trademarklike status of second-level domain names has been greatly exaggerated by the artificial restriction on the supply of gTLDs devoted to business. As long as .com was the only game in town, naive Internet users could assume that typing in www.<companyname>.com was a reasonable way to find the Web site of a particular company. Browser software reinforced that assumption by automatically filling in .com when users typed in an unadorned company name. In that environment, it was rational (if not ethical) for name speculators to take advantage of the huge gap between the low cost of registrations and the high potential economic value of famous company name registrations under .com. Given the monopolistic status of .com, it was also rational (if not legally correct) for the affected companies to see such speculative registrations of their names by third parties as a dilution of their brand identity or trademark.

Expansion of the TLD space is the only permanent solution to this problem. As alternatives to .com proliferate, the putative equation of domain names, brand names, and trademarks is progressively weakened. As TLD space expands, it becomes increasingly unlikely that the mere presence of a famous name in the second or third level of a domain name will attract attention or dilute the value of a brand name.

The domain name vs. trademark debate seems to have lost sight of some fundamental facts about the Internet. There are millions of Web sites out there. The number is doubling every six months. Users do not flock to a particular Web site merely because of the character string in a domain name. Site content must be promoted and updated, and the site address advertised, cross-linked, and bookmarked to attract significant, recurring attention. Owners of internationally famous names and brands have the resources to promote their own Internet sites and to forge a strong link between their Internet domains and their own unique brands and trademarks. Similarity of domain names does not per se constitute dilution of the value of a trademark or the "passing off" of one product as another unless the offending domain name holder also engages in systematic efforts to exploit the famous name and confuse users.

The only legitimate link between trademark and intellectual property rights protection and Internet domain names and sites occurs when domain names contribute to the defrauding of customers or users. That is, if a company other than McDonald's acquires a domain name with "McDonalds" in it and organizes its information, products, or services in ways that deceive users into believing that they are interacting with the "real" McDonald's, then and only then should a

legally actionable trademark problem exist. Under the law of the United States, that is the case for most marks, although "famous" marks are afforded additional legal protection by changes to the trademark law enacted in 1996. [19]

Trademark protection must be balanced with the principle (proposed above) that domain names are a form of expression. It is legitimate for companies, organizations, and individuals to use domain names to refer to other companies, organizations, events, or individuals, as long as no attempt at deception or passing off is involved. For example, a group of disgruntled McDonald's customers has a perfectly legitimate claim to register the domain McDonalds.org and set up a Web site at wehate.McDonalds.org. In that case, the domain name can be construed as a reference to the McDonald's Corporation, in the same way that one would use the name McDonald's in writing or talking about that company. Just as a corporation's ownership of its trademark does not give it a right to prevent people from using its name in all documents or speech, so domain names per se must not be equated with brand names or trademarks.

Preliminary Review before Registration?

The lack of strict identity between a trademark and a domain name means that the process of applying to register a domain name need not include a preliminary review to determine if the proposed domain name conflicts with a trademark, a trade name, or a geographic indication.

The idea that preliminary review would be required assumes that mere textual identity between a domain name and a trade name creates a legal or economic conflict. That assumption is totally invalid for the reasons explained above. More generally, reorganizing the whole world's domain name registration system in order to give major multinational trademark holders veto power over all name allocations would be an unwarranted expansion of the power of trademark and a grotesquely disproportionate response to a fairly minor problem. Furthermore, such an approach would exacerbate rather than resolve trademark conflicts. Current domain name categories bear no relationship to the jurisdictional, industrial, and geographic boundaries of trademark protection. The people conducting a preliminary review thus would have no solid legal basis for resolving conflicting claims.

Resolution of Disputes over Trademarks

NTIA has asked how trademark rights should be protected against domain name encroachment on the Internet. What entity or entities, if any, should resolve disputes? Are national courts the only appropriate forums for such disputes? Specifically, is there a role for national, international governmental, or nongovernmental organizations? [20]

When real trademark violations occur on and through the Internet, they can be handled in the same way as international intellectual property violations are handled now. There is nothing unique about Internet domain names in this regard. There is simply no evidence for the presumption that mere textual identity or similarity between a domain name and a brand name somehow gives intellectual property violators sweeping powers to reap illicit gains at the expense of intellectual property rights holders. Real trademark violations involve sustained sequences of actions designed to pass off or defraud. The adoption of a domain name, by itself, cannot accomplish that.

The Burden of Proof on Applicants for Domain Names

Some people have suggested that domain name applicants be required to demonstrate that they have a basis for requesting a particular domain name. Further questions then arise. What information should be supplied? Who should evaluate the information? What basis or criteria should be used?

Those questions are helpful but need to be reframed. The answers to them can come only from the policies name registries adopt to prevent name speculation and to control the secondary market for names. Name speculation is a form of arbitrage. Speculators attempt to exploit the gap between the price of registering a name and the higher value of that name to some other potential user. Name speculation thus provides a clear signal that the primary distributor of name registrations is not exploiting the full economic value of its name resources.

The best long-term solution to this problem is privatization of name registration and expansion of TLD space. It is in

the rational self-interest of commercial registries to manage name resources actively rather than passively. Just as airlines or movie theater owners do not allow aggregators and wholesalers to buy up all available seats and resell them to end users, so it seems unlikely that private, profit-motivated name registries would allow speculators, rather than themselves, to exploit the full economic value of their namespace. As the namespace becomes privatized and commercialized, it seems likely that more active monitoring of who is applying for names and why would take place. Administrative policies such as this are much preferable to intellectual property law as a solution to problems of name speculation.

Factors Affecting the Cost and Number of Trademark Disputes

The number of different gTLDs and the number of registrars would affect the number of and the cost of resolving trademark disputes. As noted above, additional TLDs reduce legitimate conflicts over name allocations. If there are 50 additional gTLDs devoted to businesses, then United Airlines, United Van Lines, and the United Hardware Store of Wahoo, Nebraska, can all find unique, second-level domain names based on the string "united." What additional TLDs do not do is make it possible for one of those three companies to stake a global claim to all possible uses of the string "united" in the second level of the hierarchy. In fact, no one should be able to do that--unless, of course, he is willing to pay the full market price for the name resources he excludes others from using.

Apologists for multinational trademark holders have attempted to argue that additional TLDs "worsen" the "trademark problem" by making it more difficult for them to reserve or register a famous name in all possible TLDs. That argument is fallacious. There are about 250 TLDs in the world now. In response to the demand for name protection, intermediary companies such as NetNames have already established international Internet name registry services that offer multinational firms registrations of their desired names in the world's top commercial domains. In other words, global name protection is readily available for companies that are willing to pay for it. When those companies lobby for elaborate bureaucratic mechanisms to vet domain names or for artificial restrictions on the supply of TLD namespace, or both, they are simply asking the world's governments and Internet users to subsidize their own private commercial objectives. That is unfair and unnecessary.

Creating additional TLDs will probably make global name reservation and protection services more expensive (although competition and improving market organization may have countervailing effects). But for well-intentioned companies, it should also reveal the futility and irrationality of the notion that they need to control all possible uses of particular character strings in all domains.

Will There Be Valid Conflicting Trademark Rights in *a Single Domain Name*?

NTIA has asked, "Where there are valid, but conflicting trademark rights for a single domain name, are there any technological solutions?" [21]

Again, the assumption that mere textual identity between a domain name and a trade name creates a legal or economic "conflict" must be rejected. Valid, conflicting claims to the same second-level domain name will undoubtedly arise. This problem must not be confused with a conflict over trademark rights. United Airlines, United Van Lines, and possibly hundreds of other companies have a perfectly legitimate claim to united.com. When conflicts arise, the solutions are semantic and economic. For example,

- ∑ the loser can choose an alternative formulation of its name (e.g., united-van.com; united-vanlines.com; move-united.com);
- ∑ the party that wants united.com the most can bid a higher price for it; or
- ∑ the excluded party can move to an alternative TLD (e.g., united.firm, united.biz).

Conclusion

Now that most of the Internet infrastructure is provided by the private sector, that infrastructure should be administered by the private sector. The history of the telecommunications industry over the past decades has shown that once a

government-dominated monopoly is created, it is very hard to create and maintain a competitive environment. The U.S. government is in a unique position to eschew monopoly in domain name registration in favor of markets.

Under the new regime, protection of free speech rights should be paramount. An expansive view of trademark rights conflicts with that goal and is unnecessary to protect consumers. Perhaps in 20 years something quite different from domain names will be used to locate information on the Internet. In light of that possibility, domain names should be permitted to evolve as much like natural language as possible, and conflicts should be kept in perspective.

Notes

[1]. National Telecommunications Information Administration, *Request for Comments on Internet Domain Names*, July 1, 1997, http://www.ntia.doc.gov/ntiahome/domainname/dn5notic.htm (hereafter, *Request for Comments*).

[2]. Shari Steele, staff attorney, Electronic Frontier Foundation, letter to Patrice Washington, NTIA, August 18, 1997.

[3]. From the standpoint of the end user, domain names work as follows: When the end user requests access to an Internet address from his workstation, the request is first sent to the workstation's primary domain name server (for example, acme.com). That domain name server checks its directory for the requested domain name. If it finds the name, it sends the IP address back to the workstation. If it does not find that particular domain name, it refers the query to one of the root servers. The root server in turn refers the query to a TLD server (e.g., the .com server). The TLD server contains a list of subdomains (e.g., ace.com) and their IP addresses. It refers the query to the IP address of the subdomain name server that is supposed to contain the domain name data for that domain. From there the query may be referred to a number of other domain name servers, until it finds one that knows the IP address, at which point the IP address is returned to the workstation.

[4]. "Internet Domain Name System Root Servers," May 16, 1997, http://www.wia.org/pub./rootserv.html.

[5]. A. M. Rutkowski, "The Internet: Governance for Grabs," May 8, 1997, http://www.wia.org/pub/forgrabs.html; see generally historical documents at http://www.wia.org.

[6]. "Internet DNS Historical Timeline," July 31, 1997, http://www.wia.org/pub/iana.html.

[7]. Ibid.

[8]. In addition, domains for the U.S. government, the .gov domain, are under the authority of the U.S. Federal Networking Council (FNC), as is the .edu domain (educational), which is delegated to the NSF. The .mil domain (military) is under the authority of the Defense Data Network's Network Information Center. The remaining TLDs are for technical needs and are administered by IANA.

[9]. There is, however, currently an alternate renegade domain name registry known as AlterNIC that has opened without permission from IANA. AlterNIC has created its own TLDs, such as .wired and .earth. To get to those alternate domains, which are not listed in InterNIC's root name servers, an end user needs to reconfigure his TCP/IP settings. David Hakala and Jack Rickard, "A Domain by Any Other Name," October 1996, http://www.boardwatch.com /mag/96/oct/bwm9.htm.

[10]. "How Domain Names Are Found," October 1996, http://www.boardwatch.com/mag/96/oct/bwm9.htm.

[11]. See A. M. Rutkowski, "Competing Models of Internet DNS Service," August 25, 1997, http://www.wia.org/pub/models/html.

[12]. *Request for Comments*, p. 2.

[13]. On the ITU, see A. M. Rutkowski, "ITU Models and the Quest for the Internet," July 19, 1997, http://www.wia/pub/itu-mou.html.

[14]. *Request for Comments*, p. 3.

[15]. Ibid.

[16]. Country codes are defined by the International Standards Organization document ISO-3166 and are also known as ISO-3166 codes.

[17]. Jon Postel, "New Registries and the Delegation of International Top-Level Domains," August 1996, http://www.jmls.edu/cyber/docs/iana-tld.txt.

Some secondary sources interpret Postel's proposal as a call for only 150 new TLDs. Postel's text reads:

> Approximately thirty (30) new [international] TLDs will be allocated to approximately ten (10) new registries created per year. It is expected that this will continue for the next five years. . . .
>
> In the first year of this plan . . . up to one hundred fifty (150) iTLDs [may be allocated] to up to fifty registries. That could mean 30 new TLDs per year for five years (150 TLDs) or 30 new TLDs for each of 10 new registries, all to be created over five years (300 TLDs). The latter reading makes more sense; otherwise, there is no way that 150 new TLDs could have been created in 1996, and more since then.

[18]. *Request for Comments*, p. 3.

[19]. Under the Lanham Act, trademark dilution occurs when someone uses a registered mark and such use is likely to cause confusion, mistake, or to facilitate deception. 15 U.S.C. § 1125 (a) (1997). There is also an action for trademark "tarnishment," a sort of overbroad defamation law for trademarks that presents a glaring conflict with free speech rights.

Furthermore, the Federal Trademark Dilution Act signed into law in January 1996, protects "famous" marks. Uses of "famous" marks may be forbidden depending on (a) the degree of distinctiveness of the mark, (b) the duration and extent of use of the mark, (c) the duration and extent of advertising and publicity, (d) the geographical extent of the trading area in which the mark is used, (e) the channels of trade, (f) the degree of recognition of the mark in the trading areas and channels of trade used by the mark's owner and the person against whom the injunction is sought, (g) the nature and extent of the use of the same or similar marks by third parties, and (h) whether the owner of the mark has a valid federal registration. The new act defines "dilution" as "the lessening of the capacity of a famous mark to identify and distinguish goods or services, regardless of the presence or absence of (a) competition between the owner of the famous mark and other parties, or (b) likelihood of confusion, mistake, or deception."15 U.S.C. § 1125 (c) (1997).

[20]. *Request for Comments*, p. 4.

[21]. Ibid., p. 3.