Order Code 97-868 STM
Updated February 9, 2001

CRS Report for Congress

Internet Domain Names: Background and Policy Issues

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Summary

To navigate the Internet requires using addresses (and corresponding names) that identify the location of individual computers. As the Internet grew, the method for allocating and designating those *domain names* became controversial. The Administration issued a White Paper in June 1998 endorsing the creation of a new not-for-profit corporation of private sector Internet stakeholders to administer policy for the Internet name and address system. On November 25, 1998, the Department of Commerce (DOC) formally approved a new corporation, called the Internet Corporation for Assigned Names and Numbers (ICANN). A Memorandum of Understanding between ICANN and DOC has been extended through September 2001. During this transition period, government obligations will be terminated as DNS responsibilities are transferred to the private sector. Issues in the 107th Congress include the appropriate federal role in overseeing the DNS, the creation of new top level domains (TLDs), how ICANN will be governed and funded, and the resolution of trademark disputes. This report will be updated periodically as events warrant.

Background

The Internet is often described as a "network of networks" because it is not a single physical entity but, in fact, hundreds of thousands of interconnected networks linking millions of computers around the world. Computers connected to the Internet are identified by a unique *Internet Protocol (IP)* number that designates their specific location, thereby making it possible to send and receive messages and to access information from computers anywhere on the Internet. Domain names were created to provide users with a simple location name, rather than requiring them to use a long list of numbers. For example, the IP number for the location of the THOMAS legislative system at the Library of Congress is 140.147.248.9; the corresponding domain name is "thomas.loc.gov". *Top Level Domains (TLDs)* appear at the end of an address and are either a given country code, such as .jp or .uk, or are *generic* designations *(gTLDs)*, such as .com, .org, .net, .edu, or .gov. The *Domain Name System (DNS)* is the distributed set of databases residing

in computers around the world that contain the address numbers, mapped to corresponding domain names. Those computers, called *root servers*, must be coordinated to ensure connectivity across the Internet.

The Internet originated with research funding provided by the Department of Defense Advanced Research Projects Agency (DARPA) to establish a military network. As its use expanded, a civilian segment evolved with support from the National Science Foundation (NSF) and other science agencies. While there are no formal statutory authorities or international agreements governing the management and operation of the Internet and the DNS, several entities have played key roles in the DNS. The Internet Assigned Numbers Authority (IANA) makes technical decisions concerning root servers, determines qualifications for applicants to manage country code TLDs, assigns unique protocol parameters, and manages the IP address space, including delegating blocks of addresses to registries around the world to assign to users in their geographic area. IANA operates out of the University of Southern California's Information Sciences Institute and has been funded primarily by the Department of Defense.

NSF was responsible for registration of nonmilitary domain names, and in 1992 put out a solicitation for managing network services, including domain name registration. In 1993, NSF signed a 5-year cooperative agreement with a consortium of companies called InterNic. Under this agreement, Network Solutions Inc. (NSI), a Herndon, Virginia engineering and management consulting firm, became the sole Internet domain name registration service for registering the .com, .net., and .org. gTLDs.

Recent History

Since the imposition of registration fees in 1995, criticism of NSI's sole control over registration of the gTLDs grew. In addition, there was an increase in trademark disputes arising out of the enormous growth of registrations in the .com domain. There also was concern that the role played by IANA lacked a legal foundation and required more permanence to ensure the stability of the Internet and the domain name system. These concerns prompted actions both in the United States and internationally.

An International Ad Hoc Committee (IAHC), a coalition of individuals representing various constituencies, released a proposal for the administration and management of gTLDs on February 4, 1997. The proposal recommended that seven new gTLDs be created and that additional registrars be selected to compete with each other in the granting of registration services for all new second level domain names. To assess whether the IAHC proposal should be supported by the U. S. government, the executive branch created an interagency group to address the domain name issue and assigned lead responsibility to the National Telecommunications and Information Administration (NTIA) of the Department of Commerce (DOC). After receiving extensive comments from the public, DOC released "A Proposal to Improve Technical Management of Internet Names and Addresses" in the Federal Register on February 20, 1998 (also called "the Green Paper"). The Proposal called for a private, non-profit corporation, headquartered in the United States, to manage the DNS and IP addresses.

On June 5, 1998, DOC issued a final statement of policy, "Management of Internet Names and Addresses." Called the White Paper, the statement reaffirms the principles and goals of the Green Paper, but essentially defers to the private sector in deciding how those

principles and goals might be met. The White Paper states that the U.S. government is prepared to recognize and enter into agreement with "a new not-for-profit corporation formed by private sector Internet stakeholders to administer policy for the Internet name and address system."[1] In deciding upon an entity with which to enter such an agreement, the U.S. government assessed whether the new system ensures stability, competition, private and bottom-up coordination, and fair representation of the Internet community as a whole.

In effect, the White Paper endorsed a process whereby the divergent interests of the Internet community came together and decided how Internet names and addresses would be managed and administered. Accordingly, Internet constituencies from around the world held a series of meetings during the summer of 1998 to discuss how the New Corporation (NewCo) might be constituted and structured. Meanwhile, IANA, in collaboration with NSI, released a proposed set of bylaws and articles of incorporation. The proposed new corporation was called the Internet Corporation for Assigned Names and Numbers (ICANN). After five iterations, the final version of ICANN's bylaws and articles of incorporation were submitted to the Department of Commerce on October 2, 1998. Additionally, nine members of ICANN's interim board were chosen (four Americans, three Europeans, one from Japan, and one from Australia). On November 25, 1998, DOC and ICANN signed an official Memorandum of Understanding (MOU), whereby DOC and ICANN agreed to jointly design, develop, and test the mechanisms, methods, and procedures necessary to transition management responsibility for DNS functions to a private-sector not-for-profit entity.

The White Paper also signaled DOC's intention to ramp down the government's Cooperative Agreement with NSI, with the objective of introducing competition into the domain name space while maintaining stability and ensuring an orderly transition. During this transition period, government obligations will be terminated as DNS responsibilities are transferred to ICANN. Specifically, NSI committed to the development of a Shared Registration System that will permit multiple registrars to provide registration services within the .com, .net., and .org gTLDs. All accredited registrars are now eligible to participate in the Shared Registration System. To date, approximately 150 companies have either been accredited as a registrar by ICANN, or have qualified for accreditation; currently, 74 registrars are operational.[2] NSI will continue to administer the root server system until receiving further instruction from the government.

Significant disagreements between NSI and ICANN & DOC arose over how a successful and equitable transition would be made from NSI's previous status as exclusive registrar of .com, org. and net. domain names, to a system that allows multiple and competing registrars. Of particular controversy was NSI's refusal to sign ICANN's accreditation agreement. On September 28, 1999, after nearly a year of negotiations, DOC, NSI, and ICANN announced a series of formal agreements. NSI agreed to sign an accreditation agreement with ICANN, but with certain limits and conditions placed on ICANN decisions that could affect NSI's business. NSI will retain control of the .com

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[1] Management of Internet Names and Addresses, National Telecommunications and Information Administration, Department of Commerce, *Federal Register*, Vol. 63, No. 111, 10 June 1998, 31741.

[2] For up-to-date list, see: http://www.icann.org/registrars/accredited-list.html

registry for at least four years; if ownership of NSI's registry and registrar operations is fully separated within 18 months (via spinoff or sale to a third party for example), the term would be extended for four additional years. NSI and all accredited registrars will provide public access to the full database of registered domain names (the "WhoIs" database). Competing registrars will pay NSI a wholesale price of $6 per registered name per year. Finally, NSI agreed to pay ICANN $1.25 million upon signing the agreement, and agreed to approve an ICANN registrar fee policy as long as NSI's share does not exceed $2 million.

While the agreement was hailed by DOC, NSI, and ICANN, opposition was voiced by some competing registrars, who asserted that the agreement gives NSI too many advantages in the competition for new registrations and renewals of existing ones. Others objected to the limits placed on ICANN with regard to making decisions that might affect NSI. At its November 1999 board meeting, ICANN agreed to modifications of the agreement which addressed some of the concerns raised. On November 10, 1999, ICANN, NSI, and DOC formally signed the agreements.

On September 4, 2000, ICANN and the Department of Commerce agreed to extend their MOU until September 30, 2001 or sooner, if both parties agree that the work set under the MOU has been completed. Remaining tasks, many of which are underway, include: creating new Internet top-level domains, completing selection of the ICANN Board of Directors, enhancing the architecture of the root-name server system, formalizing contractual relationships between ICANN and the regional Internet Protocol address registries, and establishing stable arrangements between ICANN and the organizations responsible for the operation of country-code TLDs.

Issues

Until the full transition to a private sector controlled DNS system is completed, the Department of Commerce remains responsible for monitoring the extent to which ICANN satisfies the principles of the White Paper as it makes critical DNS decisions. Congress remains keenly interested in how the Administration manages and oversees the transition to private sector ownership of the DNS. The conference report (H.Rept. 106-479) accompanying the FY2000 Consolidated Appropriations Act (P.L. 106-113, signed November 29, 1999) directed the General Accounting Office (GAO) to review the legal basis and authority for DOC's relationship with ICANN (including the possible transfer of the authoritative root server to private sector control), the possibility of shifting federal oversight responsibilities from NTIA to the National Institute of Standards and Technology (NIST), and the adequacy of existing security arrangements safeguarding critical hardware and software underlying the DNS. The GAO report, released on July 7, 2000, concluded that the DOC does have legal authority to enter into its current agreements and cooperative activities with ICANN. GAO noted that while it is unclear whether DOC has the authority to transfer control of the authoritative root server to ICANN, the Department has no current plans to do so.

Governance. ICANN bylaws call for an international and geographically diverse 19-member board of directors, composed of a president, nine at-large members, and nine members nominated by three Supporting Organizations representing Domain Name, Address, Internet Protocol constituencies.

During October 1999, the three Supporting Organization each selected three directors for the permanent board. Terms of service range from one to three years. Of the nine directors, four are from Europe (Britain, France, Netherlands, and Spain), two from Canada, one from Mexico, one from Hong Kong, and one from the United States. The nine new directors joined the ten sitting interim directors, who serve until an additional nine directors are elected to the permanent board by ICANN's At-Large membership. At the August 1999 Santiago, Chile meeting, the interim board endorsed a plan to create an At-Large membership that would elect an At-Large Council which would, in turn, begin selecting At-Large Members of the board of directors. However, many in the Internet community strongly objected to this plan, arguing instead that individual Internet users should be able to directly elect At-Large board members. At ICANN's March 2000 meeting in Cairo, the sitting board agreed to a plan whereby five At-Large board members, one from each of five geographic regions of the world, would be directly elected by Internet users. Eligible to vote was anyone over 16 years old with an active email and postal address who registered as an ICANN member. On October 10, 2000 ICANN announced the five new At-Large board members elected by over 34,000 Internet users. At the November 2000 annual meeting, ICANN initiated a study to determine how to select the remaining At-Large board members. Meanwhile, the sitting board has extended the terms of four of its interim members until 2002 to serve with the five newly elected At-Large board members.

New TLDs. At its July 16, 2000 meeting in Yokohama, the ICANN Board of Directors adopted a policy for the introduction of new top-level domains (TLDs). Additional TLDs could significantly expand the number of domain names available for registration by the public. The policy involves a process in which those interested in operating or sponsoring new TLDs may apply to ICANN. During September 2000, a total of 47 applications were received. Each applicant was required to pay a $50,000 application fee. At its November 16, 2000 annual meeting, after a brief period of public comment and a staff report, the ICANN Board selected seven companies or organizations each to operate a registry for one of seven new TLDs, as follows: .biz, .aero, .name, .pro, .museum, .info, and .coop. ICANN's selections are subject to approval by the Department of Commerce. Following contractual discussions between ICANN and selected applicants, at least some of the new TLDs could become operational during the first half of 2001.

ICANN's selection of new TLDs has proven controversial. The House Energy and Commerce Committee, Telecommunications Subcommittee, held a hearing on February 8, 2001 to explore whether the selection process was open and fair, and whether it will promote competition in registration and assignment of Internet domain names. Critics assert that the TLD selection process was inappropriately subjective, rushed, insufficiently transparent, and lacking in adequate due process procedures. Some argue that the DOC should not approve the new TLDs, while others urge the federal government to take steps ensuring that future selections processes will be more fair, open, and transparent. In its defense, ICANN argues that the selection process was sufficient to meet its goal of expeditiously selecting a limited number of diverse TLDs, and that these will serve as an initial and experimental "proof of concept" phase in order to ensure that new TLDs can be introduced in the future without undermining the stability of the Internet. Citing that new TLDs are likely to be selected in 2002, ICANN says it is receptive to reforming and simplifying its selection process in the future.

Trademark Disputes. A great deal of controversy surrounds trademark rights vis-a-vis domain names. In the early years of the Internet, when the primary users were academic institutions and government agencies, little concern existed over trademarks and domain names. As the Internet grew, however, the fastest growing number of requests for domain names were in the .com domain because of the explosion of businesses offering products and services on the Internet. Since domain names have been available from NSI on a first-come, first-serve basis, some companies discovered that their name had already been registered. The situation was aggravated by some people (dubbed "cybersquatters") registering domain names in the hope that they might be able to sell them to companies that place a high value on them.

The increase in conflicts over property rights to certain trademarked names has resulted in a number of lawsuits. Under previous policy, NSI did not determine the legality of registrations, but when trademark ownership was demonstrated, placed the use of a name on hold until the parties involved could resolve the domain name dispute. The White Paper called upon the World Intellectual Property Organization (WIPO) to develop a set of recommendations for trademark/domain name dispute resolutions, and to submit those recommendations to ICANN. At ICANN's August 1999 meeting in Santiago, the board of directors adopted a dispute resolution policy to be applied uniformly by all ICANN-accredited registrars. Under this policy, registrars receiving complaints will take no action until receiving instructions from the domain-name holder or an order of a court or arbitrator. An exception is made for "abusive registrations" (i.e. cybersquatting and cyberpiracy), whereby a special administrative procedure (conducted largely online by a neutral panel, lasting 45 days or less, and costing about $1000) will resolve the dispute. Implementation of ICANN's Domain Name Dispute Resolution Policy commenced on December 9, 1999. As of November 1, 2000, 2166 proceedings (encompassing the disposition of 3938 domain names) have been initiated.

Meanwhile, the 106th Congress took action, passing the Anticybersquatting Consumer Protection Act (incorporated into P.L. 106-113, the FY2000 Consolidated Appropriations Act). The Act gives courts the authority to order the forfeiture, cancellation, and/or transfer of domain names registered in "bad faith" that are identical or similar to trademarks. The bill would also provide for statutory civil damages of at least $1,000, but not more than $100,000, per domain name identifier.[3] The legislation was supported by corporate entities and others who wish to protect their trademarks and names from abusive or bad-faith domain name registrations. The legislation was opposed by civil libertarians who assert that the law threatens free expression on the Internet. The Clinton Administration also opposed the legislation, arguing that ICANN's dispute resolution procedure should not be circumvented.

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[3] See CRS Report RS20367, *Legislation to Prevent Cybersquatting/Cyberpiracy*, by Henry Cohen.