ICANN – NOW AND THEN: ICANN'S REFORM AND ITS PROBLEMS

This paper sheds some light upon the major problem arising from the current normative infrastructure of the DNS[1] and provides a possible solution to the current physical problem of the DNS. The paper's main focus is the single-entity control of the A Root.[2] The paper uses as a starting point the Blueprint prepared by the Committee on ICANN[3] Evolution and Reform and raises the question: Has this reform done anything to resolve the single-entity control of the A Root? The paper argues that the reform has done nothing to solve the problem because the international privatization of the DNS merely substitutes the administration of the DNS function without making changes to the normative infrastructure of the DNS. In light of the above, the paper argues that there is a need to declare independence from a one-entity controlled DNS. The suggested approach is to share authority over the root by acknowledging that countries that are accountable to their populations are the authorities for their own ccTLDs.[4] Once technical and political independence has been achieved, the technical and, to some degree, political management of the DNS should be exercised through an international body. In order to initiate a discussion for a truly international body this paper offers nine principles that a new international ccTLD cooperation organization should observe when working on its own creation.

Introduction

There has been much criticism of the Internet Corporation for Assigned Names and Numbers (ICANN). It has been said that ICANN became an example of a "rogue institution," which did not fit, nor plan on entering, into a simple form of international civil society.[5] ICANN has also been characterized as being unfair,[6] illegitimate,[7] anticompetitive,[8] and not representative

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[1] Domain Name System, discussed *infra*.

[2] The authoritative or "A" Root is the anchor of the hierarchical DNS system.

[3] Internet Corporation for Assigned Names and Numbers, discussed *infra*.

[4] country code Top Level Domains, discussed *infra*.

[5] Kim G. von Arx & Gregory R. Hagen, *Sovereign Domains: A Declaration of Independence of ccTLDs from Foreign Control*, 9 RICH. J.L. & TECH. 4, ¶ 7 (Fall 2002), *available at* http://www.law.richmond.edu/jolt/v9i1/article4.html. The authors are referring in their analysis to Alejandro Colás, *The promises of international civil society: global governance, cosmopolitan democracy and the end of sovereignty?*, *at* http://www.theglobalsite.ac.uk/press/107colas.pdf (2001).

[6] *See generally* Michael Geist, *Fair.com?: An Examination of the Allegations of Systemic Unfairness in the ICANN UDRP*, *at* http://aix1.uottawa.ca/~geist/geistudrp.pdf (August 2001). *See also* Milton L. Mueller, *Rough Justice: An Analysis of ICANN's Uniform Dispute Resolution Policy*, *at* http://www.acm.org/usacm/IG/roughjustice.pdf (last visited March 10, 2003).

of the diverse Internet inhabitants. Further, ICANN president Stuart Lynn's own comments further exacerbated the debate. While he did not criticize ICANN *per se*, he did find fault with the environment surrounding ICANN, e.g., the lack of control over Internet inhabitants and players; scarce financial resources; the lack of interest of major participants of the domain name system (DNS) such as major users, backbone providers, and major ISPs; and the informal relationship between ICANN and the various root server operators.[9]

Stuart Lynn also issued the first significant reform proposal of ICANN's internal structure.[10] Thereafter, other reform suggestions followed such as the Accra Manifesto,[11] the Heathrow Declaration,[12] the New.Net proposal,[13] Comments of the Center for Democracy & Technology,[14] and many more.[15]

Following these reform proposals, ICANN formed the Committee on ICANN Evolution and Reform (ERC) to research ICANN and make recommendations for its reform. Subsequently, ERC put forth a new ICANN structure in "ICANN: A Blueprint for Reform."[16] On June 28, 2002, the ICANN board passed a resolution adopting the Blueprint[17] and since that time ERC has

[7] A. Michael Froomkin, *Wrong Turn in Cyberspace: Using ICANN to Route Around the APA and the Constitution*, 50 Duke L.J. 17, 45-46 (October 2000), *available at* http://www.law.miami.edu/~froomkin/articles/icann.pdf, 29-30. *See also* Jonathan Weinberg, *ICANN and the Problem of Legitimacy*, 50 Duke L.J. 187 (October 2000), *available at* http://www.law.wayne.edu/weinberg/legitimacy.pdf.

[8] *See* A. Michael Froomkin & Mark A. Lemley, *ICANN and Antitrust*, at 104-105, *at* http://www.law.miami.edu/~froomkin/articles/icann-antitrust.pdf (2002) (pagination begins at 101).

[9] *See* Stuart Lynn, *ICANN – The Case for Reform*, *at* http://www.icann.org/general/lynn-reform-proposal-24feb02.htm (February 24, 2002).

[10] *See id*.

[11] *John-Perry Barlow's Accra Manifesto*, *at* http://lists.essential.org/pipermail/random-bits/2002-March/000792.html (March 12, 2002).

[12] *The Heathrow Declaration*, http://www.byte.org/heathrow (last modified January 27, 2003).

[13] New.net, *A Proposal for More Realistic Domain Name Governance*, *at* http://www.new.net/WhitePaper_v2.pdf (March 2002).

[14] Center for Democracy and Technology, *Comments Of The Center For Democracy & Technology To The Committee On ICANN Evolution And Reform*, *at* http://www.cdt.org/dns/icann/020503ceir.shtml (May 3, 2002).

[15] *See, e.g.,* ICANN, *General Comments Regarding ICANN Reform*, *at* http://forum.icann.org/reform-comments/general (last visited March 10, 2003); ICANN, *Committee on ICANN Evolution and Reform - Links to Relevant Documents and Resources*, *at* http://www.icann.org/committees/evol-reform/links.htm (last modified February 26, 2003).

[16] Committee on ICANN Evolution and Reform, *ICANN: A Blueprint for Reform*, *at* http://www.icann.org/committees/evol-reform/blueprint-20jun02.htm (June 20, 2002).

[17] *See* Committee on ICANN Evolution and Reform, *Text of Reform Resolution*, *at* http://icann.blog.us/stories/2002/06/28/textOfErcResolution.html (June 28, 2002).

been implementing the recommendations. The most recent restructuring was approved by the ICANN board in Shanghai.[18]

This reform process is doomed to failure as it fails to lay the appropriate foundation upon which a reformed ICANN can securely stand. The reform proposal focuses on the internal structure of the governing body while ignoring the physical limitation imposed by the Domain Name System (DNS) itself. Admittedly, Lynn in his reform proposal, and most recently the European Union (EU),[19] identified a primary feature of the DNS's architecture which must be changed before discussions as to what form the governing body of the DNS should take may follow; namely the United States' (US) complete control over the A Root and substantial control of the DNS. Lynn and the EU suggested that the US government should grant ICANN complete legal and policy control over the DNS, with the hope that this would entice active international participation in DNS governance, funding, and administration. This willingness and desire to gain more control was most recently displayed by the International Telecommunication Union's (ITU) approval of a resolution on the management of multilingual domain names.[20]

Despite Lynn's and the EU's reasonable suggestion, the ERC made no mention of it in their Blueprint. The reason for this omission is likely due to the current political movement surrounding the DNS. In other words, past and recent developments in the US indicate that the US never did, nor currently does, possess any intention of giving up physical, political, or legal control over the DNS.

Notwithstanding the above, even if Lynn's and the EU's suggestion were to be implemented, the problem would remain the same, i.e., one entity would continue to control the DNS. This conundrum stems from the normative infrastructure of the DNS, i.e., its physical structure. The DNS is a hierarchical system that has at its pinnacle the most authoritative root, known as the A Root, which controls every major aspect of the DNS. Indeed, whoever wants to control the DNS must control the A Root given its hierarchical structure. As previously mentioned, the US currently controls the A Root and, thereby exercises substantial control over the DNS itself. Therefore, even if the US gave up control over the A Root and assigned it to

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[18] *See* ICANN, *Preliminary Report ICANN Meeting in Shanghai*, *at* http://www.icann.org/minutes/prelim-report-31oct02.htm (November 1, 2002).
[19] *See* ICANNWatch.org, *The EU Weighs in on ICANN Reform*, *at* http://www.icannwatch.org/article.pl?sid=02/06/21/125909 (June 21, 2002). ICANNWatch is an unincorporated, volunteer organization dedicated to monitoring and discussing ICANN's management of the DNS.
[20] ITU, *Plenipotentiary Conference 2002*, *at* http://www.itu.int/newsroom/pp02/Highlights/1010.html (October 10, 2002).

ICANN or some other international body, the problem of control over the DNS would simply shift from the US to another entity.

This single-faceted control over the DNS causes significant infringements upon other countries virtual and, to some degree, real world space. It has been argued that, this lack of control and power over one's own virtual and real world space contains inherent risks ranging from compromised national security and critical infrastructure to political instability.[21] In essence, the normative infrastructure of the DNS, those norms which are coded into the physical infrastructure of the DNS, do not permit a country to be a true sovereign over its own virtual and, as far as it affects the physical world, real world territory.

All of this is to say that from a principled and practical point of view there is a need to eliminate the present, and protect against future, unilateral control of the DNS.

This paper aims to provide a foundation for a truly independent international organization by exploring Lynn's reform proposal and the Blueprint. It will discuss the principles of both and suggest a solution to single-entity control by introducing a number of principles—the Ottawa Declaration—that a DNS government should respect to remain truly international.

The Domain Name System – A Troubled Beginning

There have been a plethora of papers written on the DNS itself, and therefore, it will be assumed that the reader possesses a basic understanding of the structure and workings of the DNS.[22] However, the following paragraph aims to provide a terse overview of this system.

The principal name server in the DNS is the Legacy A Root. There are twelve identical copies of the A Root, which are referred to as secondary legacy roots.[23] It is important to note that the A Root is the chief Legacy Root and as such sets the standard for the DNS from which every other root, including the twelve secondary legacy roots, synchronize their own data. Below

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[21] Von Arx & Hagen, *supra* note 5, ¶ 45-63.

[22] For a more detailed account of the DNS, see, e.g., Von Arx & Hagen, *supra* note 5, ¶¶ 11-16; Gregory R. Hagen and Kim G. von Arx, *The Patriation of .ca*, 1:2 C.J.L.T. 2002, at 79-92 (November 2002).

[23] Note there are thirteen root servers which are assigned letters from A-M. The US operates the "E," "G," and "H" root servers. The US contracted out operations of the "A," "B," and "L" root servers. "C" and "D" are operated by non-governmental, US-based entities. Only the "I," "K," and "M" root servers are operated in other countries. *See* David Conrad et al., *Root Nameserver Year 2000 Status*, app. A, *at* http://www.icann.org/committees/dns-root/y2k-statement.htm (July 15, 1999). Like the Internet itself, the legacy root is a logical rather than physical concept. From a physical point of view, the existence of thirteen root legacy servers underlines that the root server is a single virtual root rather than a single physical root. In reality, only the A Root server is authoritative and the mappings of the A Root file are copied to the other twelve root server "clones" are copied from A.

these thirteen legacy roots are Top Level Domains ("TLDs") that are labeled according to function such as military (.mil), governmental (.gov), commercial (.com), professional (.pro), etc. At the present time there are 258 TLDs which are in turn divided into three types, two of which are of interest here.[24] The most commonly known and widely distributed TLD is the generic TLD (gTLD) such as .com, .net, .mil, .gov, etc.[25] gTLDs are, generally speaking, global, and thus they are independent of any specific territory.[26] The second type is called the country code Top Level Domain (ccTLD) and as the name suggests this TLD is territory-specific. Examples of ccTLDs are .us (the United States), .ca (Canada), .de (Germany), .uk (United Kingdom), .tv (Tivoli), and .ch (Switzerland).[27]

The above explanation illustrates how the DNS is a normative infrastructure stemming from the A Root and, thus, is hierarchical in nature. Therefore, whoever controls the A Root controls the DNS itself. As mentioned, at present the A Root is ruled by the US by virtue of having physical and legal domain over it. The concept of the normative infrastructure of the DNS is a special case of Burk's concept of the "normative architecture of the network", which is the idea that the architecture of the Internet is value-laden.[28] In his view, "technologies embody the values of their creators . . . ."[29] Burk contends that the designers of the Internet embedded in its physical infrastructure the values of scientists, or, in other words, scientific norms. Consequently, Burk argues that the Internet has a "locked-in . . . [n]ormative rule-set" which must be given due regard because, should differences exist between the values of architects and users, legal and "technological retrofits . . . will only generate continued disputes."[30] These disputes, manifested notably in the tensions between ICANN and its critics, reflect a deep divide between the existing normative infrastructure of the DNS and the values held by supporters of a truly international DNS embodying ideals of an international civil society.

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[24] There is one infrastructure TLD (iTLD) called .arpa. The iTLD is the Address and Routing Parameter Area domain and is used solely for Internet infrastructure purposes. *See* Internet Assigned Numbers Authority, *Infrastructure Top-Level Domain*, *at* http://www.iana.org/arpa-dom (last modified January 25, 2003).
[25] For a complete list of the current fourteen gTLDs and the requirements for obtaining some of them, *see* Internet Assigned Numbers Authority, *Generic Top-Level Domains*, *at* http://www.iana.org/gtld/gtld.htm (last modified February 7, 2003).
[26] However, note that .mil (for military) and .gov (for government) are reserved for US use only.
[27] There are currently 243 ccTLDs. *See* Internet Assigned Numbers Authority, *Root-Zone Whois Information*, *at* http://www.iana.org/cctld/cctld-whois.htm (last modified November 26, 2001).
[28] Dan L. Burke, *Cyberlaw and Norms of Science*, *at* http://infoeagle.bc.edu/bc_org/avp/law/st_org/iptf/commentary/content/burk.html (June 4-5, 1999).
[29] *Id*.
[30] *Id.*

It is commonly known that the Internet was designed to avoid single points of communications failure. Nevertheless, given that the US created the Internet for military and defense reasons, it seems reasonable to conclude that the US created a DNS with embedded values that support command and control by a single entity, namely the US itself. This control of the DNS by the US allowed it to create a consistent US-centric namespace in order to ensure the effectiveness and security of its own cyber-communications.

Indeed, the Internet was part of the US military defense strategy, and thus the military infrastructure in the US was the first to become increasingly dependent on the existence of the Internet.[31] Therefore, the ability to protect the US' communications using the DNS from disruption is clearly of utmost concern to the US military defense strategy.

The President's Commission on Critical Infrastructure Protection discussed the Internet and various systems' reliance on it:

> Threats to the Internet are of primary concern because we are becoming
> increasingly dependent on it for communications—including government
> and military communications—for commerce, for remote control and
> monitoring of systems, and for a host of other uses; because our ability to
> understand its full impact on society seems unable thus far to keep up
> with its explosive growth; and because it is inherently insecure . . . .[32]

Nowadays, as Gregory Hagen and I have pointed out, the US military views cyberspace as a battle space in one form or another.[33] Therefore, it may be both concluded and understood that the US, as mentioned above, does not intend to give up control over the A Root. Indeed, traditional military reasoning seems to reinforce the need for ultimate control: "Establish and control . . . superiority (or supremacy). Never cede control over the battle space to an adversary."[34]

That said, it is understandable why the Internet was embedded with military defense norms given that it grew out of military defense strategy concerns. As the Internet became more

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[31] Former United States President Bill Clinton noted that the military and the US economy are "increasingly reliant upon certain critical infrastructures and upon cyber-based information systems." Dan Bart, *Nations and a World at Risk TSACC report March 24, 1999*, at 3, *at* http://www.tiaonline.org/standards/cip/ciptsacc.pdf (March 24, 1999).

[32] The Report of the President's Commission on Critical Infrastructure Protection, *Critical Foundations Protecting America's Infrastructures*, at 16, *at* http://www.ciao.gov/resource/pccip/PCCIP_Report.pdf (October 13, 1997)

[33] Von Arx & Hagen, *supra* note 5, ¶¶ 52-61. *See also* Dorothy E. Denning, *Activism, Hacktivism, and Cyberterrorism: The Internet as a Tool for Influencing Foreign Policy*, *at* http://www.ehj-navarre.org/aehj/denning2.html (last visited March 10, 2003), *also available at* http://www.rand.org/publications/MR/MR1382/MR1382.ch8.pdf.

[34] Glenn H. Takemoto, *Information Warfare in the Cyber Domain*, at 3-5 (2001) (on file with author).

and more crucial to everyday functioning it slowly matured into a true battle space by virtue of being a critical infrastructure for communications. At the same time, as the Internet became more international and commercialized, it brought with it the clash of military and commercial norms and values.

Before concluding this part, it is important to briefly explain why a simple transfer of the A Root server from the US to an internationally representative body would not solve the current problems arising from the normative infrastructure of the DNS. In short, even without the A Root, the US government would still control seven Secondary Legacy Servers.[35] Another two, albeit private, are physically located in the US. This leaves only three of the thirteen Legacy Servers in extraterritorial possession, i.e., in Japan, England, and Sweden.

To further frustrate matters the total number of root servers is limited to thirteen (as a result of the fact that the names and addresses of root servers under the current DNS protocol must presently fit into a single 512–byte packet). The core problem is that should the US lose control of the A Root server it need only designate one of the legacy root servers in its possession as superior thereby creating a competing A Root server. Synchronization with this substitute A Root server would practically perpetuate its authority.

In light of the normative infrastructure of the DNS and the "widespread dissatisfaction about the absence of competition in domain name registration,"[36] the US recommended in June 1998, the delegation of DNS supervision to a private entity identified as "NewCo."[37] In doing so, the US acknowledged that "the Internet is a global medium and that its technical management should fully reflect the global diversity of Internet users."[38] It further acknowledged that there should be "international input into the management of the domain name system." [39] Indeed, the US contended that "a key US Government objective has been to ensure that the increasingly global Internet user community has a voice in decisions affecting the Internet's technical management."[40] Subsequently, the Internet Corporation for Assigned Names and Numbers (ICANN) was established with the US government duly recognizing ICANN as the "NewCo."

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[35] The US operates the "E," "G," and "H" root servers. The US contracted out operations of the "A," "B," and "L." "C" and "D" are operated by non-governmental, US-based entities. And only the "I," "K," and "M" root servers are operated in other countries. Conrad et al., *supra* note 23.

[36] Improvement of Technical Management of Internet Names and Addresses; Proposed Rule, 63 Fed. Reg. 8825, 8827 (1998), *available at* http://www.ntia.doc.gov/ntiahome/domainname/022098fedreg.htm.

[37] Management of Internet Names and Addresses, 63 Fed. Reg. 31741, 31744 (1998), *available at* http://www.icann.org/general/white-paper-05jun98.htm.

[38] *Id.* at 31748.

[39] *Id*.

[40] *Id*.

ICANN And Its Mandate

From its inception ICANN was intended to be a private organization that precluded participation of both national governments acting as sovereigns and intergovernmental organizations acting as representative of governments.[41]   This notion of non-governmental participation was summarized quite well by Lynn in his reform proposal:

> ICANN was to serve as an alternative to the traditional, pre-Internet model of a multinational governmental treaty organization. The hope was that a private-sector body would be like the Internet itself: more efficient – more nimble – more able to react promptly to a rapidly changing environment and, at the same time, more open to meaningful participation by more stakeholders, developing policies through bottom-up consensus. It was also expected that such an entity could be established, and become functional, faster than a multinational governmental body.[42]

ICANN was the answer to two pressing problems—one technical and one political.[43] The technical problem stems from the architecture of the DNS, i.e., the need for stability, and culminates in the purported need for a unique hierarchical name mapping system administered and regulated by "one" entity. The political concern results from the power over Internet real estate and traffic, which falls into the hands of the controller of the A Root, i.e., the ability to act as a registry such as Verisign or the Canadian Internet Registration Authority (CIRA). With this power and potential for abuse the US found itself in the precarious position of having to answer to public critique. In order to avoid criticisms of US policy governing the Internet, it was decidedly most prudent to let ICANN deal with such matters. This transition of power did little to quiet opposition since ICANN was predominately US-controlled. Thus, from the beginning ICANN was poorly situated to fulfill its assigned policy mission "[t]o create an effective private sector policy development process capable of administrative and policy management of the Internet's naming and address allocation systems."[44]

ICANN was created to be a technical and political answer to US control over the Internet. It was meant to reflect the global nature of the Internet by encompassing the norms and values of the Internet. The overall goal was to create a body, which would be more accepted by the global Internet community as a whole, a body which could elicit and maintain global input and cooperation around world for the management of the DNS.

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[41] *Id*. at 31744.
[42] Lynn, *supra* note 9.
[43] *See generally*, *supra* note 37.
[44] Lynn, s*upra* note 9.

The Problems Of ICANN

The most important problem with respect to ICANN is that it has no significant powers of oversight and control over the A Root and thus has no substantial control over the DNS as a whole. The US concern for sovereign control over the DNS precludes sharing control of the A Root, even with ICANN.

The crux of the failure of internationalization or globalization of the DNS does not lie in the constitution of ICANN or in the composition of the board and various committees, but rather in the power to unilaterally control the DNS through the A Root. The US, through ICANN, maintains the power to impose obligations and conditions on anyone who wants to participate in the DNS.[45] The entire ICANN-US relationship is contractual in nature,[46] thereby requiring annual and semi-annual renewals and providing the US with termination powers.

A seeming partial solution to this power imbalance is, as Lynn and the EU most recently proposed, US delegation of full legal, physical, and policy control of the A Root to ICANN. But this seeming partial solution has grave difficulties.

Despite its attempts at internationalization, at the end of the day it has become evident that the US will not relinquish legal or policy control of the A root. For example, the Counsel for the United States General Accounting Office made this quite clear when he remarked, "According to the Department, it has no current plans to transfer policy authority for the authoritative root server to ICANN, nor has it developed a scenario or set of circumstances under

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[45] Controls related to the A Root are contractual controls such as redelegation/delegation powers, and the power to give or take away the virtual real estate. For a more detailed discussion, *see* Von Arx & Hagen, *supra* note 5, ¶¶ 28-44; Hagen & Von Arx, *supra* note 22, at 84-85.
[46]The relationship is governed by: (1) the contracts between the US government and ICANN and between the US Government and NSI/VeriSign which require that NSI obtain written approval from the US government before modifying the A Root, i.e., adding new TLDs. *See* Froomkin & Lemley, *supra* note 8, at 108; (2) the Memorandum of Understanding between the US government and ICANN which provides that delegation is occurring on an experimental basis, that the US government retains ultimate oversight, and that both entities shall cooperate, *see Memorandum of Understanding Between The U.S. Department of Commerce and Internet Corporation for Assigned Names and Numbers*, at http://www.ntia.doc.gov/ntiahome/domainname/icann-memorandum.htm (last visited March 10, 2003); (3) a Cooperative Research and Development Agreement (CRADA) which directs ICANN to study the function of the Internet Assigned Numbers Authority (IANA) during the experimental phase, *Cooperative Research & Development Agreement, at* http://www.icann.org/committees/dns-root/crada.htm (last visited March 10, 2003); and (4) "an unusual no-cost, no-bid 'procurement' contract for the 'IANA function.'" Froomkin & Lemley, *supra* note 8, at 111-12; for the actual contract see *Contract Between ICANN and the United States Government for Performance of the IANA Function, at* http://www.icann.org/general/iana-contract-09feb00.htm (last modified February 9, 2000). Further, the overall implication of the

which such control would be transferred."[47] In addition, Nancy Victory, Assistant Secretary of Commerce for Telecommunications and Information commented:

> Regarding the A Root server, the Department of Commerce has no plans to transfer policy control . . . . When the necessary technical capacity is in place, the department may enter into a management agreement or other legal arrangement with ICANN for operation of the A Root server.[48]

More recently, Donald L. Evans of the Department of Commerce received a letter from the Energy and Commerce Committee asserting that "any assumption of control over that asset [the A Root] by any outside entity would be contrary to the economic and national security interests of the United States."[49]

ICANN as Technical Coordination and Standard-Setting Body

As a result of its lack of control over the A Root, ICANN has yet to issue a true standard or commence technical coordination. Michael Froomkin, Professor of Law at the University of Miami School of Law and one of the founding members of ICANNWatch, quite aptly commented on ICANN's progress in these two areas:

> ICANN's processes little resemble either standard-making or technical coordination. To date, ICANN's "standard making" has produced no standards. ICANN's "technical coordination" has been neither technical nor has it coordinated anything. Rather, in its initial foray into the creation of new gTLDs, ICANN has acted like a very badly organized administrative agency. Instead of engaging in standards work, ICANN is instead engaged in recapitulating the procedural early errors of federal administrative agencies such as the Federal Communications Commission (FCC).[50]

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contractual framework between ICANN and DoC is that ICANN will be able to administer the DNS only as long as the US government continues to recognize ICANN as "NewCo."

[47] Letter from Robert P. Murphy, General Counsel, General Accounting Office, to Senate Subcommittee on Commerce, Justice, State, and the Judiciary, and to House Subcommittee on Commerce, Justice, State, and the Judiciary, and Related Agencies, at 30, *at* http://www.icann.org/general/gao-report-07jul00.pdf (July 7, 2000).

[48] Steve Kettmann, *Will US Release Grip on ICANN?*, Wired News, *at* http://www.wired.com/news/infostructure/0,1377,49836,00.html (January 12, 2002).

[49] Letter from W. J. Tauzin, Chairman, House Energy and Commerce Committee, to Donald L. Evans, Secretary, Department of Commerce, *at* http://www.politechbot.com/p-03268.html (March 12, 2002).

[50] A. Michael Froomkin, *ICANN: Between Legitimacy and Effectiveness: A Proposal for an Improbable Solution to the Problems of an Improbable Body* (February 12, 2002) (on file with author).

Even though ICANN did establish certain policies for some or all of its supposed policy mandates, it often did not follow them. Instead ICANN tried to circumvent them, either because it was pressured to do so[51] or because it suited the body's agenda at that time.[52]

The ICANN Reform

In his proposal for reform, Lynn suggests that at the beginning, when the coordination and administration of the DNS was discussed, the desire "to avoid a total governmental takeover of the IANA functions led to an overreaction."[53] He argues that this is clearly demonstrated by ICANN's history.[54] According to Lynn, the reasoning behind this is that this kind of isolation from governments "left ICANN isolated from the real-world institutions—governments—whose backing and support are essential for any effective global coordinating body to accomplish its assigned tasks."[55] It is true that ICANN currently benefits from input from the governmental advisory committee (GAC), but Lynn opines that this advisory role is not enough to "effectively [integrate] . . . the views or the influence of governments."[56]

His proposal is based upon the principle that governments are fundamentally the best equipped to adequately represent the public interest. Therefore, his final conclusion is that the new entity should be a hybrid, a governmental and private organization, i.e., a "well-balanced public-private partnership."[57]

In addition, Lynn maintains that ICANN requires control over the A Root in order to obtain international approval. He comments:

> [T]he current role of the US Government is not consistent with long-term global stability. ICANN has attracted considerable international participation to date, but this gratifying response has been founded on a belief that it would shortly result in the transition of the DNS away from US Government control to an international policy process, represented by ICANN. ICANN itself has been successfully internationalized; there are now only six US citizens on ICANN's 19-member board. That board (and many in the ICANN community) is increasingly restive with continued dependency on unique US government involvement, and if that is seen as an indefinite fact of life, international participation in ICANN will inevitably diminish. Thus, without a realistic prospect of a successful transition . . . international support for ICANN will fade. If ICANN comes to be seen (as is starting to happen in some quarters) as

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[51] Von Arx & Hagen, s*upra* note 5, ¶¶ 38-39 (the .us example).
[52] *Id.*, ¶¶ 35-37 (the .au example); Hagen & Von Arx, *supra* note 22, at 84 (the .au example).
[53] Lynn, *supra* note 9.
[54] *Id.*
[55] *Id.*
[56] *Id.*
[57] *Id.*

simply a tool of the US Government, it will no longer have any hope of
accomplishing its original mission.[58]

Furthermore, as already mentioned, Lynn asserts that there is a need for more active
involvement of major participants of the DNS, increased financial support and resources, greater
control over ccTLDs, and a formal relationship between ICANN and the Root operators.

The Blueprint

On June 28, 2002, the ICANN board passed a resolution adopting an earlier Blueprint[59]
for the ICANN reform issued by the ERC.[60] The Blueprint is a partial culmination of Lynn's
comments in his proposal and various other proposals issued by numerous people, organizations,
and governments. The ERC commented that the crux of the debate over ICANN's mission can be
found "in the nexus between ICANN's technical coordination role, its operational role, and its
policy role."[61] Interestingly, the ERC maintains that the debate over whether ICANN has a role
in policy is moot because it simply does. The ERC argues further that "the technical coordination
role need be performed by making decisions, and in order to avoid arbitrariness or an excessive
ad-hoc approach, these decisions need be based on general policies."[62] The conclusion, therefore,
is that ICANN must perform the technical coordination, and thus obtain the policy guidance for
it, and in conjunction with that it must also have some operational activities. Furthermore, it was
argued that ICANN, by virtue of the mere nature of the Internet and the subject matter of
governance, has a global policy role.[63]

In light of the above, the ERC announced that the reformed ICANN would still perform
the same tasks as it already did, but this time it would do so "to the extent—and only to the
extent—as is reasonable to enable ICANN to fulfill its mission in conformance with its core
values."[64] However, having said that, the ERC admits that the dividing line between core and
non-core values in relation to the policy role of ICANN will not always be clear, and for that

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[58] *Id.*
[59] *Supra* note 16.
[60] *Id*.
[61] *Id*.
[62] *Id.*
[63] *See id.*
[64] *Id.* For the ICANN mission and core value, see Committee on ICANN Evolution and Reform,
Working Paper on ICANN Mission and Core Values, *at* http://www.icann.org/committees/evol-
reform/working-paper-mission-06may02.htm (May 6, 2002).

reason the ERC does not provide guidelines as to what these boundaries are.[65] Therefore, the ERC suggests, "There is much room for follow-on work in this regard."[66]

The ERC is currently implementing its Blueprint as approved by the Board. The most recent implementation has been approved by the Board in Shanghai.[67]

ccTLD Independence

Now that the Blueprint is being implemented, the question that arises is: what does this reform change? The short answer is nothing! ICANN as it was, as it is, and as it will be does not address the issue of the normative infrastructure of the DNS.

One may wonder why we should even be concerned with the current normative infrastructure of the DNS. The reasons for such concern flow from a principled and practical point of view. First, a sovereign country should, at the very least, have the option to be sovereign over its own space. Second, since the Internet has become such an integral part of society, there are a number of risks that come along with someone else imposing rules and controlling a country's virtual space. These are: (1) loss of ccTLD sovereignty; (2) encroachment upon a country's trademark and rights to names policies, i.e., it may have real world effects; (3) encroachment upon a country's privacy laws; (4) endangerment of national security; and (5) loss of a critical infrastructure.[68]

The Technology

The technical solution has already been discussed elsewhere.[69] Therefore, this section will provide a brief overview of the major points.

The necessary step in achieving independence is through technical independence and political cooperation among the ccTLDs.[70] While it is clearly possible to obtain technical independence by declaring ccTLD name servers authoritative for their own domains,[71] this sovereignty must be recognized by other foreign countries and corresponding ccTLDs. This

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[65] *See supra* note 16.

[66] *Id*.

[67] ICANN, *supra* note 18.

[68] For a detailed account, see Von Arx & Hagen, *supra* note 5, ¶¶ 45-63.

[69] Von Arx & Hagen, *supra* note 5, ¶¶ 76-81; Hagen & Von Arx, *supra* note 22, at 87-89.

[70] Note that ICANN claims, e.g., through ICP-3, that it is the, "unique authoritative root for the domain name system." Indeed, its claim is that "[f]rom the inception of the DNS, its most fundamental design goal has been to provide the same answers to the same queries issued from any place on the Internet." ICANN, *A Unique, Authoritative Root for the DNS*, *at* http://www.icann.org/icp/icp-3.htm (July 9, 2001).

[71] For a fuller discussion of technical independence of ccTLDs, see Von Arx & Hagen, *supra* note 5, ¶¶ 76-81; Hagen & Von Arx, *supra* note 22, at 87-89.

recognition must be embedded in the ability of name servers, on a global basis, to point to the authoritative name servers of each country as determined by the countries themselves.[72]

In that sense, authorizing each ccTLD operator to be authoritative for its own top level domain will assist with the problem of single point of failure, and thus increase the stability and scalability of the DNS. In order to achieve independence there is a need to renounce the authority of the US and ICANN and the A root server and to enlarge the root (individual nations can enlarge the root by themselves by creating an additional authoritative root server within their own ccTLD). The national government could then legislate that the domestic ISPs recognize the national root as authoritative for the ccTLD. Therefore, instead of relying on the A Root as the authoritative root, each country retains authority for its own domain.

In short, the solution proposed herein is a DNS infrastructure that does not have one authoritative A Root, but instead, many authoritative roots across the world, at the moment 243 (i.e., each ccTLD is the authoritative root for its own ccTLD) plus the various gTLDs or the already existing Root servers. Therefore, for example, a query for google.de that originates from Sweden, would be resolved directly at the .de level as opposed to being sent to the A Root first which in turn then would direct the query to the .de server. The point of this reform is that each country would finally attain true sovereignty over its own virtual space. Of course, this declaration of independence requires political cooperation among the ccTLDs.

ccTLD Cooperation

This section aims to initiate a dialogue on the ideal nature of a truly international organization for the management of the new DNS, as suggested herein, by listing nine principles, which it should consider when discussing its own formation. However, before listing these nine principles it is worthwhile to take a brief look at the arguments that have been put forth both for and against the International Telecommunication Union (ITU),[73] a part of the United Nations–an organization which has been discussed as a potential manager for the DNS since, at the very least, 1998.[74] The ITU is an international organization, which brings governments and the private sector together to, among other things, coordinate the operation, cooperation, and standardization of telecommunication networks and services.[75] From the outset, and it appears to be the case still,

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[72] For a fuller discussion of the recognition of sovereignty of individual ccTLDs, see Von Arx & Hagen, *supra* note 5, ¶¶ 64-75.
[73] http://www.itu.org.
[74] *See* "United States of America Comments in Response to PP Res. 101, 102 and Circular Letter DM-1089" (on file with author).
[75] *See* ITU, *ITU Overview – Purposes*, *at* http://www.itu.int/aboutitu/overview/purposes.html (last modified February 13, 2002). For a historical account on the ITU, see William J. Drake, *The Rise*

the Internet community and the US[76] were against ITU involvement in the administration of the DNS. Some of the reasons put forth in favor of non-ITU involvement in Internet issues are:

1. The ITU would be too slow to respond to the fast-paced and ever-changing Internet community.[77]

2. US interest could be impeached or encroached upon if the ITU managed the Internet.[78]

3. The ITU may impede or undermine commercial interests of key players.[79]

4. The Internet should be managed by a private organization to ensure transparency, efficiency, and expediency.[80]

Having said that, however, ICANN seems to suffer from similar problems, i.e., it is too slow in responding to the needs of the Internet, not representative of the Internet community, heavily influenced by commercial and US interests, and is managed by the US government.

In light of the above, there have been suggestions that the ITU is well-positioned to actively assist ICANN in managing the Internet, or take over ICANN altogether. One argument raised in favor of the ITU is that it has experience in coordinating international codes, e.g., it administers country-code numbers for the telephone system. Therefore, the ITU already has experience with international politics, and above all, it is legitimately engaged with that task.[81] Furthermore, with 189 member states[82] the ITU already embodies a relatively large internationally representative structure. Starting in the 1950s, more and more developing nations decided to join the ITU.[83] Indeed, one commentator even suggested that:

> Eine Anbindung der ICANN an die ITU hätte auch den Vorteil größerer
> Repräsentanz, da so die geographische Konzentration der Internetcafés
> oder sonstiger Zugänge zum Netz, die momentan die wirtschaftlich

and Decline of the International Telecommunication Regime, _at_
http://www.ceip.org/files/projects/irwp/pdf/draketelecom.pdf (last visited March 10, 2003).
[76] _See supra_ note 74.
[77] Houlin Zhao, _ITU-T on ICANN Reform_, at 5, _at_ http://www.itu.int/ITU-T/tsb-director/itut-icann/ICANN%20Reform.pdf (April 17, 2002).
[78] _Id._ at 6.
[79] _Id._
[80] _See id._ at 5-6.
[81] _See, e.g.,_ Paul Hoffman, _Reforming the Administration of the DNS Root_, _at_
http://www.proper.com/ICANN-notes/dns-root-admin-reform.html (April 25, 2002).
[82] ITU, _ITU Member States_, _at_ http://www.itu.int/cgi-bin/htsh/mm.list?_search=ITUstates (last modified October 8, 2002).
[83] Uwe Afeman, _Internet und Demokratie: Es bleibt noch viel zu tun_, _at_
http://www.ifa.de/zfk/positionen/dafemann.htm (2001).

schwachen Regionen benachteiligt und die Dominanz der Industrienationen fördert, umgangen werden könnte.[84]

Furthermore, it has been argued that by incorporating ICANN into the ITU, ICANN would obtain financial support and freedom, thus enabling ICANN to pay more than just hotel and flight costs which would provide much-needed assistance to representatives from developing nations. At the moment, representatives from financially wealthy member states of ICANN are clearly the majority at the international ICANN meetings because they are better able to afford the costs of attending ICANN meetings around the world and maintain a stable Internet within their borders.[85]

Recently, Houlin Zhao, Director, TSB,[86] ITU, issued his response to Lynn's reform proposal.[87] In essence, he recommended that:

> [I]t would not be easy either to replace ICANN with some other organization, or for ICANN to establish quickly the reporting and financial links with governments that Mr. Lynn has called for. Thus, we propose that ITU could provide support for ICANN and help it to overcome its current difficulties.[88]

In light of the above comment then, ITU does not intend to take over ICANN's function, but rather assist it in overcoming its difficulties. Regardless of the intended limited encroachment upon the management of the DNS, there will be, as *heise Online* remarks:

> Wie gut dessen ungeachtet die Chancen der ITU im Konvergenz-Regulierungspoker sein werden, darüber darf in den kommenden Wochen gestritten werden. Vor allem in den USA dürfte die Machtverschiebung von Washington nach Genf auf erheblichen Widerstand stoßen. In den USA ertönte inzwischen sogar der Ruf nach der Auflösung von ICANN und einer völlig neuen Debatte über die DNS-Verwaltung. Eine "unilaterale" Lösung zugunsten der USA sei aber–anders als vor drei Jahren–nicht mehr zu machen, heißt es bei der ITU.[89]

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[84] *Id.* In essence Afeman claims that a closer connection to the ITU would increase the international representation and allow weaker (less affluent) nations to overcome the lack of Internet access. Therefore, the general under-representation of the less affluent nations would most likely be minimized.

[85] *Id.*

[86] The Telecommunication Standardization Bureau (TSB) is a section of the ITU responsible for diffusing information on international telecommunications worldwide and establishes agreements with many international Standards Development Organizations. *See* http://www.itu.int/ITU-T/info/index.html (last modified October 17, 2002).

[87] Zhao, *supra* note 77.

[88] *Id.* at 6-7.

[89] *ITU will ICANN "Helfen"*, Heise Online, *at* http://www.heise.de/newsticker/data/jk-18.04.02-005 (April 18, 2002). In essence the quotation states that the US will try to hold on to the power over the DNS. In addition, the quote suggests that the US is even thinking about completely

Therefore, the potential power shift from the US to the ITU in Switzerland will most certainly encounter significant disapproval from the US.[90] Having said that, however, the issue of whether the ITU or some other organization should take over ICANN's function is moot as long as the normative infrastructure of the DNS continues to be based on control by one entity. Therefore, in order to enable a truly independent and international organization, the normative infrastructure of the DNS must be changed. Once that is achieved the discussion of what this organization should look like can commence. Notwithstanding that, it is worthwhile to consider briefly certain principles that should be incorporated in any international Internet organization in order to facilitate its approval, success, and legitimacy.

The Principles of ccTLD Cooperation – The Ottawa Declaration

John Barlow, co-founder of the Electronic Frontier Foundation,[91] suggests in his Accra Manifesto:

> [T]hat ICANN decentralize and convey operational authority to the communities that naturally define themselves around the top-level domains, restricting its duties to the resolution of disputes that cannot be resolved within the communities. In other words, we believe that ICANN should become a loose confederation of autonomous domains, rather like the federal government of the United States during Jefferson's time.[92]

This suggestion is in line with what has been advocated herein, however, the difference is that the proposal herein argues that the DNS needs to be changed as well in order for a truly international organization to be formed. Barlow seems to be on the right path in acknowledging that there needs to be more than just an ICANN. It is submitted here that in order for a truly international ccTLD cooperation organization to function the following principles should be observed:

1. *It should embrace and focus on the common governing values of a "Civil Society" on the Internet and not each member country's values.* These include: technical feasibility, simplicity (technically, politically, and structurally), openness, representativeness, accountability, transparency, diversity, and cultural identity. Therefore, it should acknowledge that

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changing the DNS administration. However, the ITU thinks that the US will not be able to create a new model that is so US-centric.

[90] *See id.* (links at bottom of page).

[91] The Electronic Frontier Foundation is a group dedicated to defending digital information, innovation, and technology that resides online. *See* http://www.eff.org/mission.php (last visited March 23, 2003).

[92] *Supra* note 11, ¶ 12.

cyberspace is a place of diversity and cultural uniqueness. In light of that, there should be some kind of democratic treaty or otherwise-based organization among the 243 ccTLDs in establishing cooperation and interaction among the various countries. The organization should acknowledge that the Internet requires unique treatment and flexibility because it is a separate space that is unique and still in a developing stage. As the Internet continues evolving and governments and Internet inhabitants learn more and more about this medium, it becomes increasingly important to acknowledge and define the norms and values of this new space. By creating an organization, which embraces and acknowledges the fluidity of the values and norms of the Internet, greater acceptance will flow from the Internet community.

2. *It should ensure that architecture and politics remain within their respective spheres. It should eliminate the possibility of using architecture to influence individual member politics and vice versa outside their respective spheres.* In other words, some values should be embedded into the normative infrastructure and some should emanate from political or policy decisions of the cooperative organization. This, then, will minimize the burden of the normative infrastructure on the DNS.

3. *It should seek the moral, legal, and popular authority to effectively guide and administer the DNS.* It should have legitimate enforcement powers and authority to ensure compliance with technical co-ordination, and once in place, standard setting, policy development, and other areas of concern that may arise as time goes on. In order to do so, of course, it must encompass the values listed in (1), and it must be representative of the community, stakeholders, and participants at large.

4. *It must be attentive and responsive to the needs and interests of the Internet community and yet authoritative (on moral, legal, and popular levels) in the final decision-making process.* Thus, it should be representative of all ccTLD registries (governments), major users, backbone providers, major ISPs, and the Internet community. Therefore, it must once again encompass the values listed in (1) and (3).

5. *It should be separated into pillars of power which should be decentralized across the globe.* In order to ensure independence and to avoid the appearance of wrongdoing, it is important to ensure that the significant powers are vested in different bodies which are independent of each other. In other words, there should be a separation of powers with respect to various functions. One should be a true technical coordination body which is distinct from various other bodies responsible for policy developments and other functions. The physical and legal separation of these bodies will inspire more confidence and trust in the overall credibility of the organization.

6. *Despite point (5) the ccTLD cooperation organization should be merely technical at first and it should already have policy institutions in place.* Only when its moral, legal, and popular authority increases, should it venture into policy decisions. Therefore, at first, each ccTLD should be responsible for its own administration of the ccTLD in general. The acceptance of an organization in a space as diverse as the Internet will require time. As the organization successfully fulfills its mandate, increasingly more trust will be vested in its ability to justly and efficiently manage the DNS. The least contentious area of involvement, therefore, is the technical coordination of the DNS.

7. *Each member of the organization should be subject to its own country's legal obligations and protections while ensuring defeasible participation.* The member should be independent and subject to its own domestic regulations and laws and possess the ability to withdraw from the international cooperative arrangement. The reason for the latter is to ensure the willingness to surrender some sovereignty over a country's own space to an international organization. As long as each country has ultimate sovereignty over its own space, the danger of non-participation of countries will be minimized because of possible loss of sovereignty.

8. *It should be a private, not-for-profit, and independent body which is, financially, politically, and legally separate from any member country's government and other international governmental or non-governmental organizations.* Therefore, it should be independent and have the authority to act on its own behalf for the Internet community. In that sense, it will

minimize or even eliminate the financial and political pressures that, e.g., the UN encounters.

9. *It should eliminate foreign control over a country's own ccTLD by embracing technical independence.* This technical independence could be achieved through peer-to-peer or a non-hierarchical PKI-based model[93], i.e., 243 ccTLD Legacy Servers which point to each other and consider each as the authority for the specific country.

CONCLUSION

This paper illuminated the major problem raised by the current normative infrastructure of the DNS and provides a possible solution to the current physical problem of the DNS. It focused on the key issue—the single entity control of the A Root. In order to illustrate the problem, the paper looked at the reform by the Committee on ICANN Evolution and Reform, which was adopted by ICANN in late June 2002. The question is: Has this reform done anything to resolve the most important problem of the DNS, i.e., the single-entity control of the A Root? The argument is that the reform has done nothing to solve the problem because the international privatization of the DNS merely substitutes the administration of the DNS function without making changes to the normative infrastructure of the DNS.

In light of the above, there is a clear need to declare independence from a one-entity controlled DNS. The suggested approach for achieving this independence is to share authority over the root by acknowledging that countries that are accountable to their populations are the authorities for their own ccTLDs.

Once implemented, sovereign domains will coordinate their operation through an international body. In order to initiate a discussion for a truly international body, nine principles were offered that a new international ccTLD cooperation organization should observe when working on its own creation.

By: Kim G. von Arx[94]

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[93] Public Key Infrastructure (PKI) is a method of authenticating people over the internet by way of a private and public key. In essence PKI serves to authenticate email transmissions. For more detail see, e.g., http://verisign.netscape.com/security/pki/understanding.html (last visited March 23, 2003).

[94] The opinions expressed herein are the personal opinions of Kim G. von Arx, and do not reflect the opinions of any other body with which he is associated. The author obtained an LL.B. from the University of Edinburgh and a further LL.B. from the University of New Brunsiwick. He also received an LL.M. from the University of Ottawa. He is a member of the Bars of Nova Scotia and Ontario. A previous version of this paper was submitted in partial fulfillment of the requirements for the LL.M. (concentration in law and technology) at the University of Ottawa