Roadmap for globalizing IANA: Four principles and a proposal for reform

- Area: ROADMAP FOR THE FURTHER EVOLUTION OF THE INTERNET GOVERNANCE ECOSYSTEM
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- Region: North America
- Organization: Noncommercial Stakeholders Group, ICANN
- Sector: Civil Society
- Keywords: IANA, reform, globalization, principles, DNS
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Abstract

This paper sets out a blueprint and supporting analysis for globalizing the IANA functions. It proposes four basic principles that should guide the reform of the IANA functions: 1. Keep the IANA function clerical - separate it from policy; 2. Don?t internationalize political oversight: end it; 3. Align incentives to ensure the accuracy and security of root zone maintenance; 4. De-link globalization of the IANA function from broader ICANN policy process reforms. The paper then sets forth a blueprint for change. In summary, it proposes to: 1) Structurally separate the IANA functions from ICANN?s policy process; 2) Integrate the DNS-related IANA functions with the Root Zone Maintainer functions performed by Verisign, and put them into a new, independent ?DNS Authority? (DNSA); 3) Create a nonprofit controlled by a consortium of TLD registries and root server operators to run the DNSA; 4) Complete the transition by September 2015, when the IANA contract expires.

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Introduction

Non-governmental administration of the domain name system (DNS) has been a policy goal of the Internet Corporation for Assigned Names and Numbers (ICANN) regime from its inception. The 1998 Department of Commerce National Telecommunications and Information Administration (NTIA) White Paper setting the policy framework for ICANN openly recognized that “an increasing percentage of Internet users reside outside of the U.S., and those stakeholders want to participate in Internet coordination.” The U.S. proposed to globalize the governance of Internet identifiers by delegating authority to a private sector non-profit, which would govern by means of private contracts. The contracts would reflect policies made by a multi-stakeholder process - not by national governments or intergovernmental treaties (NTIA, 1998).

The U.S. failed to complete the transition. For 16 years, ICANN remained a US government contractor rather than an independent, multi-stakeholder governance institution. But it is incongruous to allow one national government to have exclusive authority over aspects of Internet governance that are critical to all states and all peoples. In October 2013, the Directors of all the major Internet organizations agreed. ICANN, the Internet Engineering Task Force, the Internet Architecture Board, the World Wide Web Consortium, the Internet Society, and all five of the regional Internet address registries issued a statement calling for “the globalization of ICANN and IANA functions, towards an environment in which all stakeholders, including all governments, participate on an equal footing.”

Agreement on principles and methods for globalizing the IANA function could be a tangible achievement of the Brazil Meeting. A specific blueprint and timetable for this reform should be part of the roadmap produced by the Brazil meeting. This paper sets out a blueprint and supporting analysis. In essence, it proposes to:

?Structurally separate the IANA functions from ICANN’s policy process

?Integrate the DNS-related IANA functions with the Root Zone Maintainer functions performed by Verisign, and put them into a new, independent “DNS Authority” (DNSA)

?Create a nonprofit controlled by a consortium of TLD registries and root server operators to run the DNSA.

?Complete the transition by September 2015, when the IANA contract expires

Structure of the present system

Root zone management involves four roles that are performed by three different entities through two separate legal agreements. These roles are diagrammed in Figure 1 and described below.

1.The first role is global policy maker for the DNS. This role is occupied by ICANN and its so-called bottom-up policy development process. Formally recognized by the U.S. in 1999 as the “NewCo” called for in the 1998 White Paper, ICANN makes policies that affect the registries’ and registrars’ contracts in the generic top-level domains, and determine what new top level domains go into the root zone file.

2.The second role is that of the Internet Assigned Numbers Authority (IANA) Functions Operator. IANA is responsible for managing the content of the root zone based on the policies adopted by ICANN. It transmits requested changes in TLD data to the Root Zone Maintainer (Verisign) and the Administrator (NTIA). The IANA function is defined by a U.S. Commerce Department contract which has been awarded to ICANN.

Figure 1: Internet Root Zone governance structure

3.The third role is the political oversight function, referred to as the “Administrator” in the IANA functions contract. The Administrator approves any changes, additions or deletions from the root zone file, ostensibly to ensure that are authorized by policy. This role is currently held by the NTIA.

4.The fourth role is the Root Zone Maintainer. This is performed by Verisign under a Cooperative Agreement with NTIA. Verisign is a commercial corporation that operates .com, .net and several other top level domains. Amendment 11 of its agreement requires

Verisign to implement only those changes in the root zone file that NTIA approves. While IANA is supposed to determine the content of the root zone file, VeriSign (or any successor entity designated by the Commerce Department) actually edits the root zone data, cryptographically signs it (DNSSEC) and distributes the resulting content to the root server operators.

Why the U.S. role is a problem

The IANA functions contract does far more than empower the US Commerce Department to authorize changes to the root zone. It regulates very detailed aspects of ICANN's behavior and requires ICANN to be incorporated in, maintain a physical address in, and perform the IANA functions in the U.S. This makes IANA subject to U.S. law and provides America with greater political influence over ICANN. Because the contract must be renewed every three years, the U.S. can modify the contract to shape ICANN's behavior, or threaten to award it to someone else. This tie to one government undermines the global and multi-stakeholder nature of Internet governance.

While it is common to assert that the U.S. has never abused its authority and has always taken the role of a neutral steward, this is not quite true. During the controversy over the .xxx domain, the Bush administration caved in to domestic political pressure and threatened to block entry of the domain into the root if ICANN approved it (Declaration of the Independent Review Panel, 2010). It took five years, an independent review challenge and the threat of litigation from a businessman willing to spend millions to get the .xxx domain into the root. Even if this had never happened, the U.S. role has a major, ongoing impact on the autonomy and integrity of the ICANN policy development process (McGillivray, 2014). The need to regularly renew the contract, the fact that the Assistant Secretary of Commerce that runs NTIA is a political appointee and that NTIA is funded by the U.S. Congress, which can threaten to cut its budget or pass legislation affecting it, all make the claim of neutral stewardship disingenuous. Furthermore, bilateral agreements between ICANN and NTIA, such as the Affirmation of Commitments, clearly reflect the policy priorities of the U.S. government on controversial issues such as Whois/privacy or encryption standards, to cite two examples. While some may prefer U.S. oversight to oversight by any other government or group of governments, those are not the only choices we have.

Four principles to guide IANA contract reform

In this section, we make the case for four basic principles that should guide the reform of

the IANA functions:

1.Keep the IANA function clerical; separate it from policy

2.Don't internationalize political oversight: end it

3.Align incentives to ensure the accuracy and security of root zone maintenance

4.De-link globalization of the IANA function from broader ICANN policy process reforms

Each of these principles is explained below.

Principle #1: *Completely separate root zone file modification from policy-making.*

Many observers of the IANA controversy believe that root zone management is an appropriate site for public oversight and policy intervention. This is a mistake. The IANA function is a technical-clerical task. Its purpose is to ensure that all top level domain names are globally unique; that all technical data in the root zone file correctly maps each domain to the right nameserver IP addresses; and that requests for changes, additions or deletions in the root are accurately and securely executed. These implementation decisions are completely different from policy development. Policy determines which top level domain names are acceptable, how many there should be, how they are run, etc.

Policy development should take place within ICANN's open process, where all stakeholders can be represented in a balanced manner and there is a well-defined process for reaching collective consensus. Final implementation of root zone changes authorized by policy should not be a way for governments (or anyone else) to alter, override or block policy decisions made by the multi-stakeholder process. Nor should control of the root zone be used as leverage for non-DNS related foreign policy or economic objectives. This implies that the IANA functions should be organizationally separated from ICANN.

Principle #2: *Don't internationalize political oversight: end it*

Some observers believe that the U.S. should simply share its unique role as root zone Administrator with other states. They envision a multilateral IANA contract, or a new role for ICANN's Governmental Advisory Committee (GAC) as the Administrator, which would see the U.S. share oversight authority over IANA equally with all sovereigns. This approach, however, is inconsistent with Principle #1. Giving additional governments authority over root zone changes reinforces the link between the IANA function and policy

making. Multilateral oversight could not avoid making intergovernmental politics a key factor influencing the IANA functions. Governments that opposed the policies emerging from ICANN might strive for an after-the-fact veto during the approval process. The multilateral option would also make all the world's governments decision-makers regarding which organization would be awarded the IANA functions contract. This would encourage geopolitical struggles over the control of ICANN, and it is hard to see how that would make a positive contribution to global Internet governance.

Principle #3: *Align incentives to ensure the accuracy and security of root zone maintenance.*

There should be strong safeguards for maintaining the accuracy and security of root zone changes. But a centralized, manual review of updates by a government agency - or dozens of them - is a primitive way to accomplish that goal. A better method would be to put IANA functions in the hands of actors with a strong self-interest in ensuring timely service, security and accuracy. The root zone consists of data about TLD registries and root servers. A registry's customers and reputation suffers if updates are slow or the data is inaccurate. Thus, registries have strong incentives to ensure that the data about them are accurate and that changes are securely implemented. Our proposal, therefore, would take the DNS-related IANA functions out of ICANN, integrate them with the Root Zone Maintainer functions currently performed by Verisign, and put them into a new, independent organization we call the "DNS Authority" (DNSA). The DNSA would be a private nonprofit controlled by a consortium of TLD registries and root server operators, similar to SWIFT in banking and finance. In this way, root zone management would be globalized by delegating its operational aspects to all TLD registries, including ccTLDs.

Principle #4: *De-link IANA globalization from broader ICANN reforms*

The most troublesome issue concerning IANA globalization is its relationship to accountability. Many people consider the tether to the U.S. government an important form of accountability for ICANN. And it is true, as IGP and others have pointed out, that ICANN's accountability mechanisms are deficient and badly in need of comprehensive reform (Mueller, 2009; Weber and Gunnarson, 2010; IGP 2013). Thus, many people conclude that US control of the IANA contract cannot be ended before ICANN's accountability problems are solved. While these concerns are legitimate, they do not provide a good reason to maintain exclusive U.S. control of the IANA contract.

First, the IANA contract does not actually make ICANN accountable to its global community; it only makes it accountable to Washington. That inherently conflates the global public interest with U.S. national interest. If ending US oversight is contingent upon

ICANN reforms, then by definition the USG will be able to decide unilaterally whether the reforms provide an acceptable basis for letting go. That would give the US government privileged influence over the nature of ICANN well into the future.

Second, globalizing IANA as proposed here actually improves the accountability situation. The DNSA structure would introduce an important new safeguard into the way the domain name system is governed. Moving the DNS-related IANA functions out of ICANN and into the hands of a neutral consortium of registries dramatically limits ICANN's ability to "go rogue."

Moreover, accountability in the execution of the IANA functions, and accountability in ICANN's policy making process, are two separate and distinct problems. It is easier to solve them separately than to solve them together. Globalizing ICANN will be a complicated undertaking that could involve reincorporation of ICANN in a new jurisdiction, or the negotiation of a new international treaty instrument (See Corell, 2006; Lenard and White, 2009; Weber and Gunnarson, 2012; Kurbalija, 2013; Cerf 2014). There are diverse views regarding what shape the reforms should take. If we link globalizing the IANA function - a relatively simple, widely agreed step - to a complex, lengthy and contentious set of organizational and legal changes related to policy making, it could easily prevent any change at all. We therefore favor putting those processes on separate reform tracks.

The proposal

The current IANA contract expires September 30, 2015. This date should be taken as the deadline for globalizing the IANA functions. The Department of Commerce has the authority to relinquish its control by simply walking away from the IANA functions contract when it expires in September 2015 and announcing as a matter of policy that the transition referenced in the 1998 White Paper to NewCo is finished.

We propose to combine the IANA Functions and the Root Zone Maintainer roles in a new nonprofit corporation, the DNS Authority (DNSA). The DNSA would be exclusively concerned with the IANA functions related to the DNS root zone and associated databases. The IANA functions related to protocol parameters would be moved to the IETF, and the IP address-related functions would be retained by ICANN until such time as

new global policies regarding their disposition could be developed.

Figure 2: Proposed Internet Root Zone governance structure

The DNSA would be run by a nonprofit consortium of all the firms operating root servers and domain name registries (i.e., all companies with top level domains in the root and root servers), just as some of the early ccTLDs were jointly owned by that country's registrars. The owners would include generic TLD registries such as Afilias and Verisign, as well as country code TLD registries such as DENIC (Germany) and CNNIC (China). This would make governance of the DNS-related IANA functions highly diverse and globalized. A one registry, one vote structure might best ensure the neutrality of DNSA governance, but other structures (e.g., basing voting shares and financial support on the size of the registry) are worth considering as well. ICANN currently spends about US$ 7 million annually on the IANA functions; Verisign's expenditures on the Root Zone Maintainer functions are not known but are likely to also be in the low millions. We propose an initial grant from ICANN of about $12 million to support the initial formation and early operation of the DNSA; after that the consortium would have to work out a fee structure for its members to support operations.

The DNSA would require a binding contract with ICANN regarding the conditions under which it would agree to implement changes in the root zone or other associated databases to reflect policies emerging from ICANN's policy development processes. The contract should ensure that the DNSA has no policy authority but merely implements valid requests for additions or deletions emerging from ICANN's policy process. DNSA would promise to abide by ICANN policy directives on the condition that ICANN's policy decisions related to the root not be used to impose requirements on registries, via registry agreements, to regulate content or otherwise locally lawful behavior of registrants. The existence of this contract would provide the opportunity for developing an additional accountability check on ICANN. For example, if the contract was not in perpetuity but was renewable every five years, diverse entities might compete to replace the existing ICANN as the policy development authority. As for the DNSA, as a private association of incumbent registries, any attempt by it to manipulate root zone management to thwart competition or discriminate against eligible members would be easily challenged by competition law authorities in Europe, the U.S., or elsewhere.

The initial step for executing this proposal should be a Memorandum of Understanding (MoU) between multiple principals (governments, businesses, civil society organizations) and the agents (ICANN, and eventually, DNSA). Widely used by governments and non-governments to coordinate action in a variety of areas (Aust 1986, 2014), a MoU would be a non legally binding, amendable political commitment consistent with the principles and

organizational approach outlined above. An MoU or portions thereof could eventually be the basis for development of a treaty if desired by governments. In sum, the MoU should:

1. Outline root zone management procedures whereby:

a. the IANA Functions and Root Zone Maintainer roles as currently defined are situated within the DNSA;

b. New TLD entries in the root zone, re-delegating control of an entry, or decommissioning an entry are validated as authorized by the ICANN board, then implemented, signed and distributed to the root servers in ways that can be audited;

c. TLD registry and root server operators are able to audit changes to their own TLD entries in the root zone prior to distribution to the root server operators.

d. Appropriate sections of extant registry agreements containing the specific rights and obligations of ICANN and TLD operators are applied to DNSA's root zone management procedures.

2. Task a Working Group jointly led by ICANN's Registry Stakeholders Group and its Country Code Names Supporting Organization (ccNSO) to develop consensus on DNSA governance (articles of incorporation, bylaws, and operational rules). The WG should be open to stake- holders from business, civil society, individuals from governments and the technical community.

3. Contain an express provision stating that upon a) signing of the MoU by, at a minimum, the United States government, ICANN, 10 gTLD registries, 10 accredited registrars, 10 ccTLD operators, 10 member organizations of the GNSO Noncommercial Stakeholders Group, 10 member organizations of the Commercial Stakeholders Group, and 10 national governments and b) operational establishment of the DNSA, the IANA Functions Contract and Cooperative Agreement are terminated by the United States government.

Conclusion

The proposal above would succeed in globalizing the IANA functions, strengthening operational efficiency and improving the accountability of both root zone management and ICANN itself.

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