GAO Engagement on the Internet Domain Name System Discussion Guide

Background on GAO's Engagement

GAO has been asked by the Chairs of the House Energy and Commerce Committee and its Communications and Technology Subcommittee to review the National Telecommunications and Information Administration's (NTIA) planned transition of its oversight of the Internet Assigned Numbers Authority (IANA) functions to the global multistakeholder community. We are meeting with key people and organizations to gather input on

- the process used to develop a transition proposal and how the process considers risks associated with the transition as identified by stakeholders and
- the extent to which NTIA's core requirements for the transition provide an effective framework to evaluate the transition proposal.

Topics for Discussion

1. What is your experience related to the IANA functions and NTIA's role?

Answer:

The IANA functions relevant to the Internet Number Community are:

- the allocation of blocks of Internet Number Resources (namely IPv4 addresses, IPv6 addresses, and Autonomous System Numbers, AS Numbers, or ASNs) to the Regional Internet Registries (RIRs)

- the registration of such allocations in the corresponding IANA Number Registries

- other related registry management tasks including the management of returned IP address space, and general registry maintenance; and

- the administration of the special-purpose "IN-ADDR.ARPA" and "IP6.ARPA" DNS zones, in accordance with IPv4 and IPv6 allocations, respectively.

The direct customers of the IANA Numbering Services are the five Regional Internet Registries (RIRs). It is through the RIRs, that distribution of the number resources is made within their respective regions based on the Internet Registry structure. The RIRs have been very satisfied with the performance of ICANN in the role of the IANA Numbering Services Operator thus far. Because NTIA's role is as contract holder with ICANN, NTIA's direct involvement with the RIRs is limited but has been sufficient.

For others in the number resources community, they interact with RIRs within their region, or with their Local Internet Registries (LIRs) who are the account holders with an RIR (s). Therefore, while they may recognize the presence of the RIRs, both as the distributor or the number resources within their region, and as facilitator of open, inclusive and the bottom up policy development forum, and have knowledge of the role of the IANA in terms of its Numbering Services, they are not likely to be conscious about the IANA Numbering Services when receiving distribution of the number resources. Further, as for the role of the NTIA, many active members are likely to have knowledge about NTIA and its role, but not a small number of the community members may be unaware of the role of NTIA as the contract holder on the IANA functions, especially those who are new to the community, or do not have strong interests for the address management system, more than receiving the number resources.

2. How would you describe NTIA's current role with regard to the IANA functions (e.g., stewardship, administrative/clerical, backstop, etc)?

Answer:

For the IANA Numbering Services, NTIA currently acts as a backstop in ensuring that the services provided by the IANA operator to the RIRs, meet the expectations of the service level required for stability of the operation. NTIA is the current contract holder for IANA functions and has an oversight role in the provision of the services through its contract with ICANN. The NTIA IANA Agreement currently defines obligations of the IANA Operator for Internet Number Resources. The ultimate consequence of failing to meet the performance standards or reporting requirements is understood to be a decision by the contracting party (NTIA) to terminate or not renew the IANA Functions Agreement with the current contractor (ICANN). As for the IANA Numbering Services, they are provided to the Internet Number Community through the Regional Internet Registries ("RIRs") without operational involvement by the NTIA.

Given that the NTIA's role has been purely as a contract holder and has not involved in policy development or operations of the IANA functions with regard to number resources, a transition of the NTIA's role should have no significant impact on the Internet Number Community.

The policies under which the IANA Numbering Services are provided are developed and agreed within the Internet Number Community via an open, transparent, and bottom-up policy development process. The community engages in regional policy development processes facilitated by each RIR; these processes are open to all stakeholders regardless of specific background or interest or geographic location of residence or activity. This bottom-up policy development process takes place within the Internet Number Community and is independent of the NTIA.

3. If you consider the implications of transitioning NTIA's role to a global

multistakeholder community, what are the potential risks, if any, that come to mind?

    a.   What risks can you identify if the transition does occur (i.e., such as any technical, operational, or accountability risks that are currently mitigated by NTIA's contract with ICANN)?

    b.   What are the potential risks if the transition does *not* occur?

    c.   Are you aware of the list of contingencies being considered by the cross-community working group on enhancing ICANN accountability (CCWG-Accountability)? If so, to what extent do you think this is a comprehensive list? Which risks, if any, are present regardless of NTIA's oversight role?

Answer:

    a)   The Internet Number Community clearly recognizes that a transition does carry with it potentials risks that must be mitigated.

Firstly, because the current arrangement has the U.S. government holding the contract, moving to a different model carries with it the potential risk of capture by special interest groups, consortiums or governmental interests. There is also the risk of a more complex structure resulting in issues of accountability and ensuring proper execution of the IANA functions. However, for the IANA Numbering Services, both these concerns have been considered by the Internet Number Community and incorporated into the stewardship transition planning process and addressed in the Internet Numbers Community proposal; It ensures accountability of the IANA Numbering Services through the RIRs, as non-profit organizations, facilitating open, inclusive discussion forum for the number community. The RIR structures are transparent, inclusive and bottom-up, with mature well-developed, and well tested processes. Therefore we feel that the risk for capture is well mitigated through the transfer of the Stewardship of the IANA Numbering Services to the RIRs. The proposal also focuses on the changes affected by the NTIA's role today, rather than trying to address additional issues, to minimize the impact of the transition and to avoid a more complex structure as a result of the stewardship transition.

Secondly, as current arrangements have been in place and served the Internet community well over the years, a transition that involves too many changes to those arrangements, would carry the risk of potential instability. The RIRs have been very satisfied with the performance of ICANN in the role of the IANA Numbering Services Operator. Taking this into account, and considering the Internet Number Community's strong desire for stability and a minimum of operational change, the Internet Number Community has proposed that ICANN should remain in the role of the IANA Numbering Services Operator for at least the initial term of the new contract. Therefore, the Internet Number Community itself

expects no practical change in the provision of the IANA Numbering Service and we do not observe risks in the operation of the IANA Numbering Services, which would have technical implications as a result of the stewardship transition.

b) If the transition does not occur, there is a risk to the continued current IANA functions operations if the global, multistakeholder community decides it does not wish to continue operating under the current model. A complete failure to transition the IANA functions would weaken the credibility of the global, multistakeholder governance structure. The expectation has always been that the transition to the global, multistakeholder community would occur; and if it becomes evident it will not occur, the global community may turn to other options that may not operate as well as the current model. This may include government-led and intergovernmental institutions attempting to take over such a role.

c) Some members of the numbers community follow the list of contingencies being considered by the cross-community working group on enhancing ICANN accountability (CCWG-Accountability). However, many of the risks identified are not directly related to the IANA Numbering Services or considered to be the risks which needs to be addressed as a result of the stewardship transition, rather than risks which exist today. Additionally, many of the risks identified in the CCWG-Accountability stress test, are risks that pertain to the ICANN organization. As ICANN is not the policy development body for the Internet Numbers Community, the risks identified in relation to the ICANN organization whether pre or post transition, will have minimal impact, if any, on the Internet Numbers Community.

From this community's perspective, if the NTIA oversight function transfers to the global, multistakeholder community, any relevant risks or contingencies would be addressed principally via the contract with the IANA Number Services Operator (which is currently ICANN).

> 4.   Who, specifically, of the multi-stakeholder community might be most impacted by a transition of NTIA's role? Are these potentially-impacted stakeholders sufficiently represented by the discussion and efforts to develop a transition proposal?
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>   a.   [If stakeholder is from one of the multi-stakeholder constituency groups in ICANN] What is the process for raising concerns that arise from the perspective of your constituency to the multi-stakeholder community and to what extent do you think this process is effective in ensuring that all issues are considered in policy development and decision-making?

Answer:

The communities which are involved in directly receiving services from the IANA are the IETF for the protocol parameters, RIRs for the number resources and the names community for naming related functions. In this aspect, the ICG' process of requesting

each of the operational communities sufficiently ensures that potentially impacted stakeholders are sufficiently represented.

At the same time, how strongly a particular stakeholder feel about impact to them may depend on the interpretation of the symbolic stewardship role NTIA has played in ensuring accountability of ICANN as an organization and not necessarily correlate with the actual impact in terms of relationship.

Any changes in the Number Community resulting from such a change would be borne primarily by the Regional Internet Registries (RIRs) themselves, specifically relating to their changed relationship with the IANA Number Services Operator. The RIRs are non-profit membership-based associations that work closely with all stakeholders in their regional communities, and these communities (including the RIR memberships) have driven the development of this proposal, via online discussions, community forums and the CRISP team (two-thirds of which are volunteer representatives of those RIR communities). This process is extensively detailed in Section VI. of the Internet Number Community proposal.

The Internet Number Community has created a proposal for the transition of the stewardship over the IANA functions related to number resources. This was a proposal prepared through a concerted effort of engaging the communities of each of the five RIRs and addresses the most important issues voiced by the global Internet Number Community. The process was open to all parties wishing to voice a concern and all feedback was considered by the team tasked with preparation of the Internet Number Community's proposal. The proposal as well as the process used in creating the proposal can be found at the following link:

https://www.nro.net/nro-and-internet-governance/iana-oversight/consolidated-rir-iana-stewardship-proposal-team-crisp-team

This process ensures that all issues are considered in policy development and decision making, relevant to the number resources.

5. What are the most important issues for the transition proposal to address? Do you have a view on what structure or approach could most effectively address these issues?

Answer:

The Internet Number Community's proposal focuses on stability, transparency and supporting the multistakeholder model.

The Internet Number Community proposes maintaining the current operation of the IANA functions by establishing a contractual relationship between the present IANA

service operator (ICANN) and the Regional Internet Registries.

A key concern of all stakeholders in the Internet Number Community expressed throughout this process is the continuity and stability of the IANA Numbering Services. These services have been provided effectively and efficiently by ICANN since 2000. Therefore, the Internet Number Community's proposal suggests no changes to the current operation of the IANA Numbering Services, and is designed to ensure this can continue and that that any evolution of these services (such as a change of IANA Numbering Services operator) would take place in an orderly, considered and broadly coordinated manner.

In addition, it proposes for the RIRs to exchange an SLA with the IANA Numbering Services operator (which is currently ICANN) and conduct a review of the service level by community-based Review Committee. The RIRs are mature, transparent, bottom-up organisations, which are trusted to shoulder the stewardship role of the IANA Number services in a fair, open and multistakeholder fashion.

6.   What factors should be considered when evaluating transition proposals? To what extent do NTIA's core requirements address potential risks? NTIA will require that the proposal:

   a.   supports and enhances the multistakeholder model of Internet governance,
   b.   maintains the security, stability, and resiliency of the Internet domain name system (DNS),
   c.   meets the needs and expectation of the global customers and partners of the IANA services;
   d.   maintains the openness of the Internet, and,
   e.   does not replace NTIA's oversight role with a government-led or intergovernmental organization solution.

Answer:

In the Internet Number community, it was felt that the NTIA criteria were sound, reasonable and important.

The NTIA's core requirements address the risk associated with potential capture by special interest groups, consortiums, and governmental interests. These risks are specifically addressed through the requirements of supporting the multistakeholder model of Internet governance and that principle that NTIA's oversight role may not be replaced with a government-led or intergovernmental solution. Indirectly, the requirement that an acceptable proposal meet the needs and expectations of the global customers and partners of the IANA services also helps provide accountability to the global community.

Of utmost importance is maintaining the stability and consistency of Internet operations as well as maintaining the openness of the Internet. The current operations

of the Internet Numbering Services are effective and have served well for the global customers and partners. As long the final IANA stewardship transition proposal allows continued operation in this present mode and incorporates the mechanisms provided by Number Community in its proposal, the Number Community does not see a significant risk posed by the IANA stewardship transition process.

While there have been additional expectation expressed from the NTIA to incorporate stress test as a part of the proposal to be submitted from ICANN Accountability CCWG, we believe the NTIA's requirements sufficiently address the important considerations that need to be covered.

1.   What is the role of the Address Supporting Organization (ASO) in the policy development process for the numbers community? What, if any, role do the other ICANN supporting organizations or ICANN advisory committees play any role in policy development for the numbering community

Answer

Internet Number Resource Policy development does not take place within the ICANN community, but within the five separate regions of the RIRs, in a bottom-up, open and inclusive manner. Further, there are two types of policies: global and regional.

Each RIR community develops its own "regional number resource policies" according to their established bottom-up policy development processes, based on the needs within that community. These processes are well established and documented, and are open to any interested party or stakeholder group, without restriction. Distribution of the resources from the RIRs to its account holders are based on the respective regional policies of the RIR.

AFRINIC: http://www.afrinic.net/en/community/policy-development <http://www.afrinic.net/en/community/policy-development>

ARIN: https://www.arin.net/policy/pdp.html <https://www.arin.net/policy/pdp.html>

APNIC: https://www.apnic.net/community/policy <https://www.apnic.net/community/policy>

LACNIC: http://www.lacnic.net/web/lacnic/proceso-de-desarrollo-de-politicas <http://www.lacnic.net/web/lacnic/proceso-de-desarrollo-de-politicas>

RIPE: https://www.ripe.net/participate/policies <https://www.ripe.net/participate/policies>

There is also a limited set of policies that apply to the allocation of Internet resources

by IANA to the RIRs, called "global policies". There are currently three global policies, for the allocation of IPv4 addresses, IPv6 addresses and AS numbers respectively, from IANA to the RIRs. These policies act as the framework for the relatively simple and administrative task of allocating blocks of such number resources to the RIRs by IANA.

The global policies are also developed in a bottom-up manner, through each regional RIR community, with each RIR community ratifying the proposed global policy. The role of the ASO Address Council (ASO AC), is to receive the coordinated proposal, review the process by which the proposal was developed and ratified and, under the terms of the ASO Memorandum of Understanding, and pass it to the ICANN Board of Directors for ratification as a global policy. According to its bylaws, ASO should be"formed through community consensus" and composed of three representatives from each of the five RIR region, with fifteen members in total. The ASO does not develop, approve, or implement regional or global Internet number resource policies. See <https://www.nro.net/policies> for more details.

REFERENCES

ASO Memorandum of Understanding

https://aso.icann.org/documents/memorandums-of-understanding/memorandum-of-understanding/

Internet resource global policies

https://www.nro.net/policies/global-policies-development-process

2. In its transition proposal the numbers community has proposed that a new contract be established between the IANA Numbering Services Operator and the five RIRs. This arrangement would allow the RIRs to cancel and rebid the contract if needed, for example, to find a new IANA Numbering Services Operator. If such a circumstance were to arise, how easy or difficult would this be in practice and to what extent might this create any disruptions?

As stated in our proposal, there are no concrete needs or plans to change its operator at this point. The Internet Numbers community is proposing the ability for the RIRs to choose the IANA Numbering Services operator as a possibility if needed. The arrangement to terminate and rebid the contract if needed already exists in the contract between the NTIA and ICANN as the IANA Functions Operator.

The SLA provides the RIRs with the option to terminate the SLA during its term if the Operator failures to perform and, after going through arbitration, fails to remedy such failure to perform, or not to renew the SLA at the end of its term.

With regards to termination, we note that the NTIA contract provides the US government with the same reasons for termination (page 2 of the NTIA contract and sections E.2.g.1.ii and I.67.i of the NTIA contract). Additionally the NTIA contract gives the option to the US government to terminate the NTIA contract for more reasons (sections I.51 and I.52 of the NTIA contract).

Based on the above, we believe that the SLA provides fewer reasons for the termination of the SLA than the NTIA contract and thus it would not be easier to terminate and rebid the SLA.

With regards to rebidding for the contract, the NTIA has a rebidding process today called "Request for Proposal", which allows proposals from anyone interested in serving as the IANA Functions Operator, not limiting candidates of the bidding to the existing IANA Functions Operator (as an example of this process we refer to the last re-issue of the Request for Proposal (RFP) made on April 16, 2012, published on the NTIA website).

Further, the numbers community have listed "Continuity of Operations" in the numbers proposal, as a principle to be reflected in the SLA, "If, at the end of the term, the RIRs decide to sign an agreement for provision of IANA Numbering Services by a different party, the previous IANA Numbering Services Operator will be obliged to ensure an orderly transition of the function while maintaining continuity and security of operations."

As stated in the number resources proposal, the Internet Number Community has expressed its strong desire for stability of the IANA Numbering Services. RIRs, as the direct customers of the IANA Numbering Services, will be more strongly affected than NTIA, if any disruptions are created as a result of a cancelation or rebidding of the contract. It is in the interests of the RIRs to ensure continued stability of the IANA Numbering Services in a possible event of changing the IANA Numbering Services operator.

REFERENCES

The proposal from the numbers community: Response to the IANA Stewardship Transition Coordination Group Request for Proposals on the IANA from the Internet Number Community

https://www.nro.net/wp-content/uploads/ICG-RFP-Number-Resource-Proposal.pdf

First version of the SLA draft: Call for Comments for a Draft SLA for the IANA Numbering Services

https://www.nro.net/news/call-for-comments-for-a-draft-sla-for-the-iana-numbering-services

IANA Functions Contract: With RFP published

http://www.ntia.doc.gov/page/iana-functions-purchase-order