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March 28, 2011

Ms. Fiona M. Alexander
Associate Administrator
Office of International Affairs
National Telecommunications and Information Administration
1401 Constitution Ave N.W., Room 4701
Washington D.C. 20230

RE: Request for Comments on the Internet Assigned Numbers Authority (IANA) Functions

Dear Ms. Alexander,

On behalf of Cisco Systems, I submit for your consideration the attached response to Notice of Inquiry (NOI) 0660-XA23. Should you have any questions about these comments, my staff and I are at your disposal.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Pepper", with a long horizontal line extending to the right.

Robert Pepper
Vice President, Global Technology Policy
Email: rmpepper@cisco.com



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RE: Request for Comments on the Internet Assigned Numbers Authority (IANA) Functions

Cisco is pleased to respond to your Notice of Inquiry (NOI) 0660-XA23. Cisco has been a leading provider of Internet products and services since 1984, ranging from optical transmission gear to voice, video, security, and collaboration systems. Our entire range of products and services are centered on 1) changing the way people live, work, play and learn through the use of ICTs and the Internet, and 2) interoperability. The IANA function manages resources that are essential to interoperability, and hence the growth of our industry. The IANA function offers unique and essential registration functions in five key areas: protocol parameters, Domain Name Service (DNS) root zone management, IP address and autonomous system number assignment management, direct management of ARPA and INT domains. A global, multi-stakeholder, and community-based policy development process governs each of these areas. *Cisco stresses that this process is a key factor leading to the success of the IANA function.*

In considering the questions that you have posed, we would assert that there are five core principles that are key to the Internet's success:

1. **Stability**– The operational services that the IANA function operator provides must remain available in order for the Internet to function. Names must be globally and uniquely resolved to the correct addresses, and addressees must be similarly resolved back to names. Otherwise, web browsers stop functioning, E-Mail stops getting delivered, and Internet-based voice and video services fail to connect.
2. **Trust**–The IANAfunction operator must be trusted by all parties from all nations to deliver correct information. Absent trust, consumers, governments, and businesses alike could not be confident that they were communicating with the people they intended to reach. Trust also entails thesecure delivery of information.
3. **Transparency**– Any business ecosystem requires an understanding of the rules that are in play, so that we can properly plan and develop new products and services.

4. **Interoperability**—The Internet architecture requires that there be a common registry of protocol parameters. Global IP addresses, domain names, autonomous system numbers and other parameters must be globally unique. Otherwise, for example, someone intending to connect to the world wide web might otherwise be connected to a mail service.
5. **Competent Technical Decision Making**— The delivery of a stable, trustworthy service is impossible without a competent IANA function operator. The IANA function operator does not make decisions on its own or in a vacuum, but rather adheres to global multi-stakeholder community-based policy development processes and expert advice. We are pleased that many Cisco employees provide that advice as subject matter experts in these communities.

By focusing on this ingenious combination of success factors, the IANA function operator has performed admirably and, by any measure, has met the needs of more than 1.5 billion people around the world who use the Internet. We congratulate and thank the people who have made this possible.

We now turn to the specific questions that are posed in the NOI.

1. *The IANA functions have been viewed historically as a set of interdependent technical functions and accordingly performed together by a single entity. In light of technology changes and market developments, should the IANA functions continue to be treated as interdependent? For example, does the coordination of the assignment of technical protocol parameters need to be done by the same entity that administers certain responsibilities associated with root zone management? Please provide specific information to support why or why not, taking into account security and stability issues.*

As mentioned in our introductory comments, the entire Internet relies on the stability of the services offered by the IANA functions, and as such, any changes should balance substantial benefit against that risk. **Cisco believes that the benefits of breaking up the IANA function do not offset the risks.** The world is in the process of a significant transition to DNSSEC. Any transition of root responsibility must carefully take into account who has had possession of sensitive keying information, and relationships that have been established between the IANA function operator and the top-level domain authorities.

We also take note of several practical matters. ICANN has entered into a memorandum of understanding, in its role as the IANA function operator, with the IETF. Predictability and stability demand that this agreement remains in place. If it is not possible to retain the current agreement for whatever reason, a similar agreement must be made with whoever takes over as an IANA function operator. Second, the IETF makes reference to the IANA in every approved output document. Any transfer of protocol parameter responsibility to another party should take into account the needs of this key stakeholder.

In order for the Internet to grow, IPv6 addresses must continue to be allocated to regional Internet registries (RIRs) as part of one of the IANA functions. As is the case with its other functions, any transition of responsibility must not interrupt this critical service. Finally, some IANA functions are inter-related, if not interdependent. Address assignment requires coordination with the .ARPA domain, for instance. Multicast address assignment in particular is often related to service discovery, which in turn is related to TCP and UDP port allocations.

2. *The performance of the IANA functions often relies upon the policies and procedures developed by a variety of entities within the Internet technical community such as the IETF, the RIRs and ccTLD operators. Should the IANA functions contract include references to these entities, the policies they develop and instructions that the contractor follow the policies? Please provide specific information as to why or why not. If yes, please provide language you believe accurately captures these relationships.*

Cisco is aware that the organizations named above already expect that the IANA function operator will act as described above, and as we have stated in our introductory remarks, we believe that the IANA function operator's use of the Internet technical community and adherence to the community-based policy development process to make decisions have led to the stability and success of the Internet. In at least one case, this has been codified in a memorandum of understanding that was documented in RFC-2860. Whether similar memoranda of understanding are used or the relationship is codified in the contract, we support either approach so long as the above principles are followed.

3. *Cognizant of concerns previously raised by some governments and ccTLD operators and the need to ensure the stability of and security of the DNS, are there changes that could be made to how root zone management requests for ccTLDs are processed? Please provide specific information as to why or why not. If yes, please provide specific suggestions.*

Cisco is aware of no changes that would improve the stability or security of the root zone at this time. However, the IANA function must be performed in the context of multi-stakeholder community-based policy processes. We suggest that any concerns be raised within the appropriate process.

4. *Broad performance metrics and reporting are currently required under the contract. Are the current metrics and reporting requirements sufficient? Please provide specific information as to why or why not. If not, what specific changes should be made?*

We believe that this question is best addressed through the multi-stakeholder processes that exist for each of the IANA functions, as the impacted parties have both the expertise and the experience to assist the IANA function operator in fine-tuning the metrics.

5. *Can process improvements or performance enhancements be made to the IANA functions contract to better reflect the needs of users of the IANA functions to improve the overall customer experience? Should mechanisms be employed to provide formalized user input and/or feedback, outreach and coordination with the users of the IANA functions? Is additional information related to the performance and administration of the IANA functions needed in the interest of more transparency? Please provide specific information as to why or why not. If yes, please provide specific suggestions.*

We are currently satisfied with the IANA function operator's processes and performance.

6. *Should additional security considerations and/or enhancements be factored into requirements for the performance of the IANA functions? Please provide specific information as to why or why not. If additional security considerations should be included, please provide specific suggestions.*

Once again, we believe that specific security requirements be addressed through the current multi-stakeholder processes that are in place.

In summary, Cisco believes that the IANA function operator performs a vital function to the Internet, and that the current arrangement has admirably served the needs of the Internet. We thank you for the opportunity to contribute to this important discussion.