May 2017 Workshop Report
16 June 2017

The RSSAC conducted its fourth workshop from May 2-4, 2017, hosted by Verisign and supported by ICANN. Eleven Root Server Operators (RSO) and RSSAC liaisons attended the workshop.

The DNS Root Service refers to the collective services provided by all of the server instances, managed by all of the RSOs on behalf of the ICANN Community, for the benefit of the global Internet community. The workshop's primary focus was the issue of DNS root service accountability and how to answer the following questions:

- To whom are the RSOs accountable?
- Who are the stakeholders?
- What are the accountability measures in place for the RSOs today?
- What should the accountability measures be in the future?
- How should accountability measures be implemented?
- How will accountability be governed?

The RSSAC believes significant progress was made in addressing these questions. What follows is a high-level summary of the outcomes of the workshop.

Codifying RSSAC's Definition of Consensus

Since the RSSAC's decisions are consensus driven, the committee determined that it is prudent to codify RSSAC's approach to consensus. For RSSAC, consensus is based on general agreement after an issue has been openly discussed and all objections have been reviewed, even if not all are fully resolved in the final outcome. Decisions are ratified by a simple majority vote only after consensus is achieved. If a vote is close or highly contentious, the vote may be delayed for further discussion to resolve the remaining differences and reach consensus.

Stakeholders

The workshop built upon previous discussions regarding the DNS Root Server System (RSS) and RSO accountability. Specifically, the workshop focused on trying to answer the question, "accountable to whom, and for what?" "Accountable" in this context is a matter of authority; "stakeholders" in this context are the groups and organizations that have a vested interest in the proper operation of DNS Root Service, and have the authority to influence policy, technical, and operational matters related to the service. RSSAC identified stakeholders as each operators' own organizations, the IETF (Internet Engineering Task Force) and IAB (Internet Architecture Board) in their oversight capacity over the DNS protocol, the Internet technical community, and the ICANN community. RSSAC came to the consensus that stakeholders have the right to point out root service issues, whether technical or operational, and have them adequately investigated. This consensus will be documented in more detail in a forthcoming statement.

Components of the DNS Root Server System

Workshop participants continued their analysis of the existing RSS by delineating attributes existing both today and potentially in the future, as well as attributes that are held by the RSOs versus external entities. In particular, during this discussion, emphasis was placed on RSS components that designate an operator. The material generated during this discussion is expected to serve as both building blocks and a requirements checklist in future discussions.

Asset Transferability

The RSSAC reached consensus that a DNS root server is identified by inclusion of its IP addresses (identifiers) in address records as referenced by name server (NS) records at three sources: the root hints file, the root zone, and the root-servers.net zone. The details included in these sources are specific to an RSO. **In essence, the inclusion of identifiers in these three sources designates an RSO.** Discussion during the workshop determined that the RSOs do not directly control the inclusion of their identifiers, however it was also determined that there is a presumption of inclusion based on historical context. It was agreed that an RSO does not "own the right" to be included. The consensus validated a previous statement that there is currently no defined process to add or remove an RSO's identifiers from these sources. As a result, policies need to be developed as suggested in RSSAC016.[1]

The discussion also reviewed questions about the transfer of operator assets in the event that an operator can no longer fulfill the responsibilities of an RSO, specifically control of an RSO's identifiers or other attributes. Ultimately, the RSSAC concluded that RSO ownership change and the transfer of an RSO's identifiers should be subject to yet-to-be developed community processes. In support of this conclusion, the RSSAC will soon release advice on this topic.

Root Server Association

During the workshop, the RSSAC discussed the possibility of forming a legal entity representing RSOs in order to facilitate further interaction with the wider community, including policy making and technical bodies like the ICANN and IETF communities. This entity would be tasked with multiple responsibilities, including establishing contractual relationships and SLAs with the appropriate entity for RSS services, coordination of RSO operations, registration and ownership of common RSO assets, and participation in evaluating the addition and removal of RSOs based on policies to be defined by the ICANN community. In evaluating RSOs, this entity would conduct accountability audits, including financial and operational audits, based on standards and policies to be defined by RSOs and the ICANN community. The RSOs within RSSAC agreed to continue this discussion within the group as well as with their respective organizations, and will provide feedback at future meetings and workshops.

Workshop participants noted that the development of such an entity is an area very much under active discussion within the RSO organizations, with no conclusions reached.

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[1] See RSSAC016: RSSAC Workshop 2015 Report, https://www.icann.org/en/system/files/files/rssac-workshop-07jan16-en.pdf

Service Expectations of Root Servers

One of the many questions probed was "how are RSOs held accountable today, and how should they be held accountable in the future?" With this question in mind, the RSSAC001v1 ("Service Expectations of Root Servers") document was reviewed by the group. It became clear during this exercise that RSSAC001 requires updating since some gaps were identified. There are multiple reasons for producing a new version of the document. These include: resolving ambiguities in the document that will better define the reliability of DNS root service; augmenting the existing accountability requirements with specific measures and thresholds (e.g. SLAs or KPIs) that can be audited; adding new service expectations; and rephrasing to improve the clarity of the document. RSSAC took action to produce a work party statement explaining the rationale for producing RSSAC001v2 that would enable a new RSSAC Caucus work party to be formed in support of this effort.

The 50,000-foot Apolitical Mind Map

The content generated during this three-day workshop helped to further define the mind map that was created during the October 2016 RSSAC Workshop. The iterative process of refining the *50,000-foot Apolitical Mind Map* continues to add clarity to the high-level view of the evolution of the global DNS root service system with a proposed model of governance and accountability. The RSSAC believes that the mind map is approaching a level of maturity and expects to publish it in the near future.

Conclusion

The dominant theme of this workshop was DNS root service accountability. RSSAC made significant progress in addressing questions on this topic. In particular, this workshop will soon yield advice and a statement on this theme. It is evident that a future model is evolving. The content generated during this workshop will inform future RSSAC advice to the ICANN community.

The RSSAC would like to express its gratitude to ICANN for supporting its May 2017 Workshop, to Verisign for hosting it, and to all individuals involved for their tireless efforts in making it a success.