Statement of Work and Scope
Tool to Gather A Local Perspective of the Root Server System
7 April 2020

Background

The DNS Root Server System (RSS) has over 1000 instances deployed all over the world in an effort to provide fast, reliable service to the entire Internet. There will, however, be certain parts of the Internet where the service level is not as good as others. The RSSAC wishes to have a tool or set of tools that can easily measure the local perspective of the RSS at various points of the Internet. This will allow Internet users to share measured data from their network perspective and help inform root server operators (RSOs) where best to deploy new instances for better global coverage. The tool(s) should collect enough information to identify some of the reasons why the local perspective is performing at the measured level to differentiate potential mis-configurations (such as inefficient routing), or inadequate infrastructure from the true need for a new instance.

Scope

The document will:

- Define a set of measurements that can determine the level of service provided by the RSS at a location (latency, reliability, etc). This is complementary to work of the RSS Metrics Work Party[1] in that it measures the user's perspective versus the performance of the RSS.
- Define a set of supporting measurements that could help identify improvements in routing or configuration to improve RSS performance (traceroutes, AS paths, etc)
- Identify any constraints that make practical deployments of new instances ineffective (slow "last-mile" connectivity to a small community).
- Identify a set of platforms that the tool(s) can run on such that deployment and measurement is easy to accomplish (source code, executables, mobile phone apps, atlas measurements, etc)
- Identify a target audience for users of these tools such that data gathered helps identify topological strengths and weaknesses in the distribution of root server instances.
- Identify a method to collect data measured by tools for research or reporting to RSOs so that appropriate actions can be considered. Describe privacy concerns and protections.
- Identify factors that can help determine root service (latency, reliability, etc) improvements in underserved areas and advise geographic distribution of the deployment of new instances.
- Describe benefits to users of these tools to encourage them to run the tools and participate in the data collection. Benefits might include seeing their own data as compared to

[1] "RSSAC Advisory on Metrics for the DNS Root Servers and Root Server System" -- to be published

global statistics, providing valuable information that could improve root zone service in their network location, etc

The work party is encouraged to implement tools described in the document for use by the global Internet community. Where practical, implementations can be deliverables of this work party. Some implementations may require resources outside of the work party and would not be subject to the timelines of the work party.

Deliverables

A final draft of the document will be delivered to RSSAC for approval and publication. Any tools developed by the work party should be made freely available to the public with sufficient documentation.

Date of Delivery

The work party shall submit a first draft to the RSSAC prior to December 2020. The work party shall submit the final draft to the RSSAC no later than April 2021. Submission prior to the deadline is welcome.

Guidelines

This work will occur in an RSSAC Caucus Work Party. The RSSAC requests that this work party adhere to RSSAC operational procedures in its work. The work party should choose a work party leader. The work party leader will report progress on this work to RSSAC as appropriate. In the event that the deadline will not be realized, the work party leader should inform RSSAC immediately and provide details of the work that cannot be completed by the deadline.

RSSAC support staff will assist the work party deliberation of the work, including setting up a mailing list for the work party, arranging and supporting regular teleconference calls, taking notes of meetings, and drafting background materials, as needed.

Prior Relevant Work

- "RSSAC Advisory on Metrics for the DNS Root Servers and Root Server System" -- to be published (as of 18 Feb 2020). Current copy at https://docs.google.com/document/d/1vC2OTSOdWKjmUQanYx4ZlUGnu-5npwvJzRRSFg1BjQE/edit