

From: Jun Murai
Date: Thu, Nov 25, 2010 at 8:30 AM
Subject: rssac response to the root scaling report
To: ICANN of Directors Board
Cc: RSSAC

Dear ICANN Board,

After we have received your request for the RSSAC response on the root scaling issues, the group has been discussed f2f and online quite intensively. The report below is the committee's consensus view on root scaling at this time.

Jun Murai, Chair, RSSAC

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RSSAC Comments on root scaling

Root system scaling is a term that recently has been used to encompass several different additions to the DNS root zone and the system used to publish it, including the introduction of IPv6 addresses for root and TLD servers, the introduction of DNSSEC and new TLDs (IDN or otherwise). This extension has been done in a cautious but determined way, balancing the desire to provide additional services quickly with the caution determined by stability considerations. The recent successful introduction of DNSSEC in the root zone is a good example of how to proceed with new capabilities.

With regards to further expansion, which at the time of writing is considered to involve mainly the introduction of more TLDs into the root zone, the root name server operators have informed RSSAC of their capacity and of their capacity plans. However, the absolute size of the root zone is but one of the parameters that determine the service provided.

As a first step, RSSAC is beginning work to determine and make available a list of parameters that define the desired service for the root zone system. These parameters include the desired latency in the distribution, the frequency of the updates and their size. With knowledge of these target parameters in hand, RSSAC will then seek to produce estimates of acceptable zone size and dynamics that ensure the system works within the desired range. This will involve RSSAC working closely with the root server operators to gather best estimates for what size and update rate of the root zone would cause service to be outside the desired parameters. This work will be available in draft form by 11 March 2011 and updated twice yearly thereafter.

For the cases where the augmentation of the root zone involve the introduction of new capabilities, such as the use of new Resource records (see for instance the introduction of IPv6 addresses or DNSSEC), which create technical discontinuities, specific studies should be commissioned to examine the impact. These studies will be initiated by RSSAC as it becomes aware of the need, either by direct participation of its members in the standards process, ICANN's processes or any other means that raise RSSAC's awareness of the desired changes.

In the case of the proposed gradual expansion of no more than 1000 entries per year for the next several years, RSSAC expects the system to remain stable and robust. Further study will be performed by RSSAC in order to model the theoretical capacity of the root name server system including zone propagation and responses and thus discover possible size-related service discontinuities. RSSAC will also monitor the system's performance (again, the important ones being zone latency and response latency/capacity) for trends and thus discover any gradual (continuous) service degradation.