



SSAC Update on Root Scaling Issues

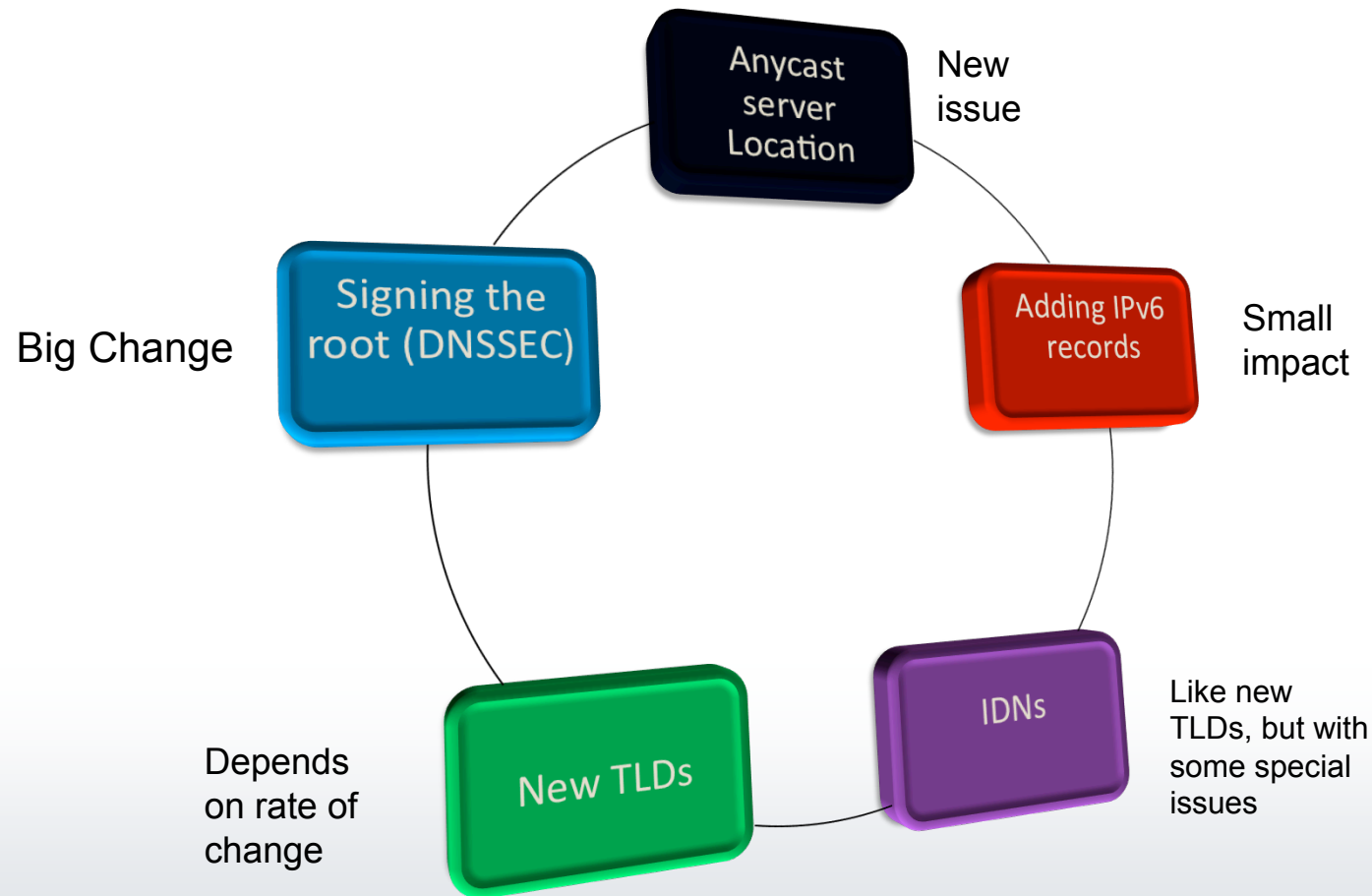


9 March 2010

Background

- February 2009: ICANN Board asks SSAC and Root Server System Advisory Committee (RSSAC) to coordinate a study:
 - To consider the potential impact on the stability of the root when adding:
 - DNSSEC
 - IPv6 address records
 - Internationalized Domain Name top level domains (IDN TLDs), and
 - New TLDs
- September 2009: SSAC began consideration of two reports: the Root Scaling Study Team's (RSST) Report and the TNO Report; and
- March 2010: SSAC has reviewed both reports and is considering recommendations.

Multiple changes, some large, some small



Signing the Root (DNSSEC) – A Big Change

- Signing the Root is underway
- Anticipated to be in full operation in July
- Lots of testing in progress
 - Some of the root servers have the signed zone with the test key
 - Large responses are being returned
 - Nothing bad has happened
 - This appears to be moving along smoothly
- Conclusion: Among the multiple factors, this was clearly the largest. If this continues to proceed smoothly, we're in good shape.



Signing the
root (DNSSEC)

New TLDs – Depends on Rate of Change



- Will the addition of new TLDs overwhelm any part of the root server system?
 - If so, how many?
 - When?
 - How will we know?
- ICANN preparing to ramp up capacity to evaluate and approve new TLDs to a max of 924 per year a year or more after the initiation of the new gTLD program.
 - However, it is not clear that the legal department, the Board or the US Government can accommodate that many contract actions
- Can the Root Server Operators accommodate that many new TLDs?
 - Probably, but might depend on rate of change

IDN TLDs – New TLDs with special situations



- Adding IDN TLD to the root is a non-issue
 - Extensive testing was completed a long time ago
 - Adding an IDN TLD is exactly the same as adding a non-IDN TLD
- **Except**: There are requests for IDN TLD variants to be delegated to the root zone
- Technical and operational issues not yet thoroughly worked out:
 - Methods to ensure variants point to the same locations
- This issue is separable from the scaling issues
- But wrong approach can cause stability issues

Adding IPv6 records – Small impact

Adding IPv6 records

- IPv6 records have been added at a slow, steady rate
- Impact on the size of the root zone is very small
- This is business as usual without any issue at all
- There is no reason to interrupt future requests for new IPv6 records.

Location of Anycast Servers – New Issue

Anycast
server
Location

- Possibility that remote location of Anycast instances of the root might inhibit the growth of the root zone
- This would be a new consideration, not previously explicit
- The Root Server Operators have not spoken clearly on this
- Some Root Server Operators say this is not a problem at all
- Conclusion: Some straightforward discussion with the Root Operators is needed

Status and Conclusions to Date

- The RSST Report and TNO report are not sufficient to conclude the Root Scaling Study
- Several issues that may potentially impact the scaling of the root, including placement of Anycast instances;
- Communication between ICANN and the root server operators should/could be improved
- Further work
 - May not be required to start new TLD delegations
 - Could be required to continue new TLD delegations
- Targets
 - Completion of SSAC Recommendations: 2Q 2010
 - Initiate Scaling Study v2.0: 2Q 2010
 - Initiate Root Scaling End-User Impact Study: 3Q 2010



Questions?