

DNS-OARC Systems Update

DNS-OARC Workshop

Dallas

October 15, 2016

Relocation of Systems

- DNS-OARC relocated all its systems in Redwood City (ISC) to Fremont (HE) in May of 2016
 - Main DNS, web sites, root-ops, jabber, data, ZFR, TLDMon, email lists and so on
 - peering established via SFMIX with a few people
 - 10Gb/s Ethernet backbone expanded to include fs5
 - Allows us to implement better power distribution
- All services were restored
 - Except for DNS lab, not enough power for it: “Insert coin to continue.”

Other DNS-OARC Sites

- CIRA and OttIX between them are hosting additional systems for ‘business continuity’ purposes:
 - Complete mirror of data catalogue holdings
 - Future Jabber cluster site, DNS, secondary MX, etc.
- Netnod have also donated systems and hosting for:
 - Development server
 - Secondary DNS, mx host and TLDMon node

System Status

- Services, systems and data archives all operating normally.
- Main website backend upgraded and precipitated new interface, moving from Drupal 6 to Drupal 8
 - Pages had to be restored manually which was good for review of content
 - Compare: <https://legacy.dns-oarc.net> vs <https://www.dns-oarc.net/>
- Current total dataset size sitting at 161TB used of 236TB total, not including 2 duplicates of 129TB each, therefore 0.5PB total capacity:
 - Fs1: 128TB, 129TB capacity
 - Fs2: 45TB, 45TB capacity
 - Fs3: 30TB, 45TB capacity
 - Fs4: 22TB, 80TB capacity
 - Fs5: 64TB, 66TB capacity
 - Fs6: 128TB, 129TB capacity
- Switchover to xz compression for the whole archive pending to maximise disk and network transport savings at the cost of decompression performance
 - Researchers note well the penalty, CPU and memory costs
 - ODVR PCAP data already compressed

New Data Arrivals

- DITL 2016! Thank you contributors!
 - 6.1TB raw, 4.2TB clean, 10.3TB total
 - Includes BGP tables from select DNS nodes
- We are up-to-date in terms of mirroring all known publicly published RSSAC-002 metrics
 - E is the latest addition as of September 2016
- Long-term AS112 queries, multi-week durations of collections

Mini-DITL in Oct. 2016

- Fs4 was upgraded from 45TB to 90TB using 8TB disks, in time for this collection, thank you to ICANN & Verisign
 - Processing and databases were also relocated here as a result
 - In time for...
-A 'mini' DITL query-only collection Oct 1-4 2016, just completed
- This was for tracking the effects of the ZSK rollover in the root
- 7.4TB raw dataset
- Processing right now
- Look for it in /mnt/oarc-pool4/ at an analysis server near you soon

Other News for Data Archive

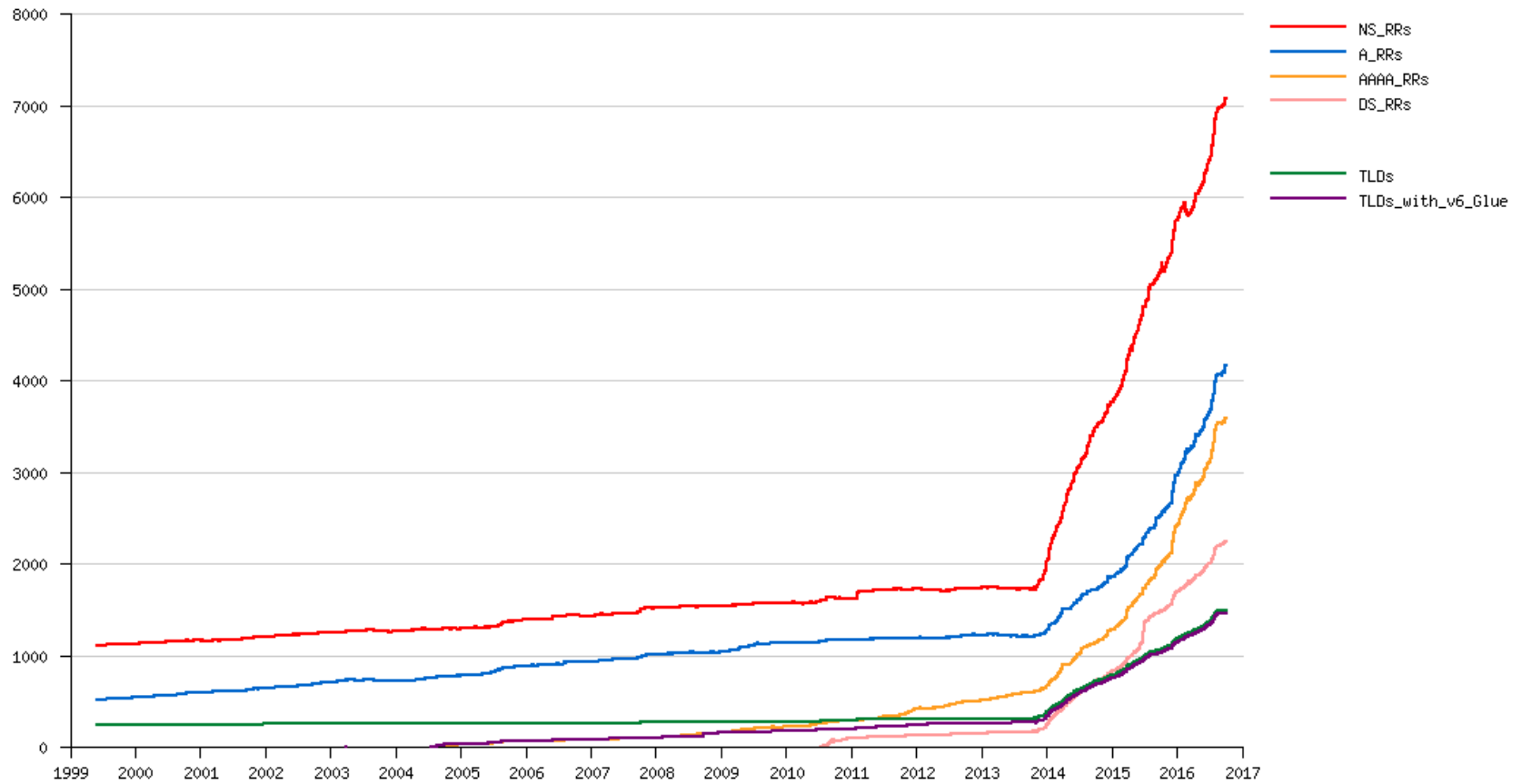
- ICANN is contributing long-term data from its two AS112 nodes to add to current OttIX AS112 global node collection (thank you to both)
- ODVR PCAP data was compressed using xz, reducing ODVR footprint from 22.8TB to 4TB
- Fs4 first in fileserver fleet upgraded to 8TB disks from 4TB yielding a ZFS pool of 90TB across 24 disks
- Fs5 was retrofitted as well to bring online 22TB plus fs4's former 45TB of capacity – nothing has gone to waste

Other Notes

- DANE test pages have been deployed
 - <http://dane.dns-oarc.net/>
 - Stats will be used to assess utility
- Tldmon noted 1500 TLDs as of Oct 2, 2016
 - Tldmon-ca is also monitoring a number of in-addr.arpa zones, interesting results
 - Clock Skew test has been retired
- ZFR still going strong
 - We now have 1 zone file each from 1993 and 1994
 - Welcome more

ZFR

Trends in the DNS Root Zone
1999-06-01 to 2016-10-03



TLDMon Expansion

- TLDMon was expanded over the last 12 months
 - Netnod hosting a server for an alternative view of the TLDMon world
 - <https://tldmon-se.dns-oarc.net/nagios/index.php>
- Experimental TLDmon node at OttIX
 - Monitoring various in-addr.arpa zones for fun and scaling, plus new versions of Nagios
 - <https://tldmon-ca.dns-oarc.net/nagios/index.php>
- Perhaps a plugin to detect if a monitored DNS server is actually anycasted

DNS Privacy Servers

- For general info on DNS-over-TLS, see RFC7858
- Over the summer two such *experimental* servers were turned up at DNS-OARC for protocol features or vulnerabilities
 - Using an ISI tool and Unbound both acting as proxies into ODVR – traces and logs available for research and abuse prevention purposes
 - 184.105.193.77 & .78, 2620:ff:c000:0:1::64::25
- See <https://www.dns-oarc.net/oarc/services/dnsprivacy>
- Not for production use!

My Analysis Cluster Proposal

- There's been talk of a demand for an analysis (compute) cluster
- Here's a proposal to demonstrate demand:
 - DNS-lab is idle, has a 'compute head' (dns-tender) plus 16 powerful but power hungry servers (compute nodes), not used in 3 years and complete with rich switching infrastructure (compute network)
 - What's missing? Storage! Wrong. We have it.
 - Cross connect internal network with Lab network, @ multi-gigabit
 - Repurpose DNSLab as a compute platform
- If demand outstrips the supply, then the justification is there to look into a larger cluster project.
- In other words, build a proof-of-concept.

Future

- More capacity growth using 8TB disks or larger in other file servers, or increase the number of file servers to increase spindle resiliency
- DITL 2017 plus more mini-DITL collections, stay tuned
- Intermediate collections if and when they are made will become available.
- Tldmon additional zones or nodes
- Eventual DR site consolidation
- Potentially offer to install and run AS112 nodes in certain locations.
- Further consideration towards an analysis cluster

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