

OARC Systems Update

DNS-OARC Workshop

Los Angeles, US

Oct 12, 2014

DNS-OARC Services

- To recap, there are a number of services DNS-OARC provides
 - Access to data archives (mostly DITL captures)
 - Mailings lists, websites, accounts, database servers, ODVR, don't-probe, kitchen sinks, etc.,
 - Data collections (DITL, OARC testing services logs)
 - Dedicated capture systems to receive and process imported data types (DSC, ODVR and DITL data)
 - Various collections of support systems, like DNS, out-of-band management and network switches
 - Monitoring systems such as TLDMon, ZFR and DSC
 - And in one corner, custodianship of AS112 number resource registrations plus website

System Status

- All looking good as of today
- All old servers have been retired, migrations have been completed
 - No more systems older than 2009 are in operation
- Heartbeat patches were applied as they came
- Shell-shock patches for bash as well
 - This one is more insidious, as all sorts of things use bash and derivatives
 - Again, usual patching, and where required restarts/reboots
- SHA1-based SSL certificates have all been upgraded to use SHA256

Data Archives Status

- fs2, 6.5TB of 17TB used
- fs3, 21TB of 22TB used
- fs4, 42TB of 45TB used
- Thump1, 0TB of 14TB used
- Thump2, 0TB of 14TB used
- Thump3, 7TB of 13TB used (mirror of fs3 log holdings)
- Thump4, 14TB of 15TB used
- Total: 90.5TB used, 140TB total possible
- Access to that data available via analysis servers!
- As of August 16, 2014 fs1's 129TB of storage now holds a copy of *all* data with 85.4TB in use and almost 44TB free
- To be pedantic, 175.9TB used, of 239TB total capacity

Backup Strategy

- Tape backup isn't a viable solution (without the added complexity of high-density tape robots)
- But backups are routinely performed on all systems using BackupPC
 - Except DITL and DSC data
- Retention between 30-45 days, including full and incremental versions
- For larger data sets, it's best to mirror them on dedicated platforms, hence fs1.
- To date there are no holes with regards to data backup.

Data Access

- Data access is made through 4 dedicated systems: an1, an3 (both FreeBSD) and an2, an4 (both Linux)
- Members and research users are encouraged to make use of limited resources in a responsible manner
 - The alternative is to enforce a quota system and forcibly limit access to CPU and memory
- All these systems, including the file servers now have jumbo frames enabled (9000 byte MTU) for better NFS throughput

OARC Portal Status

- For some, the bane of their existence
- For others, it just works
- Improvements mainly to help make back office operations more efficient
 - Can now move users between member orgs
 - Can update fields related to the agreement version, etc.
 - Expose member ID field as this is useful with some of the above
 - Catch duplicate entries of users due to code bug and resolve
- Member requests for improvements welcome.

Portal Reminders

- Members are automatically subscribed to the closed members mailing list
 - Please note: You must use the same email address to post to the list as entered in the Portal or your message will silently bounce and be discarded
- For those who ask for a secure Jabber account (@dns-oarc.net), they are automatically created nightly on the Jabber server
 - This is a secure jabber server, channel-wise, but does permit loose associations with other Jabber servers on the Internet

Future Paths

- Initiate 10Gb/s networking within the analysis LAN
 - Myricom NICs plus 10Gb/s fixed configuration switch
 - Look to deploying first low-scale cluster using a small group of servers
- Fs5, a clone of fs1, not located on the west coast of the US.
 - All eggs in one basket is another extreme not considered wise to follow, unless there are multiple baskets, hence fs5
 - Any suggestions for possible co-lo locations welcome
- Encourage greater visibility within the Internet2 (research) community for more mutual research opportunities (increase the 'R' in OARC).

Supplemental Slides: Monitoring Status

TLDmon, ODVR, ZFR, AS112 and
Friends

TLDMon

- A set of Nagios scripts monitoring TLD DNS servers
- Crossed the 723 TLD's monitored milestone Sep 29, 2014
- As of May 1 (second day of 2014 Warsaw workshop) reached 573 TLDs
- Most notifications related to monitoring of TLDs goes to ICANN
 - If you (members that is) would like to receive notices directly for your TLD, please contact admin@dns-oarc.net
- <https://tldmon.dns-oarc.net/nagios/>

ODVR

- Open DNSSEC Validating Resolver
- ODVR gets quite a lot of use
 - It is highly probable that the *use* is more like *abuse* rather than testing DNSSEC
- Access to service may be restricted to those who require it, instead of being as open as it is now, however:
 - There is a wealth of data there to be mined and it shouldn't be let go to waste
 - Some thought is being given to expand the service to test other DNS servers, since this open resolver is quite popular
- Nonetheless, blatant abusers have been blocked if the system or service is affected.
- <https://www.dns-oarc.net/oarc/services/odvr>

DSC

- DNS Stats Collector
- As an OARC system, continues to operate normally
- ISC is the latest returning contributor (AS112 node)
- Uploading and processing of XMLs has benefitted from performance gains using jumbo frames on the analysis network
 - But during the summer we switched to a local machine to process them directly instead of over NFS
- As of Sept 10, a special binary now handles processing of the 5 minute interval XML files
 - 5 minutes of DSC XMLs now processed in 0.7s, was 2s for the same amount before, and before the jumbo upgrade, 3.6s
- The unintended consequence is email notifications coming from the system stating that it doesn't have anything to process...
- We encourage members to consider a restart of DSC uploads, although in order of preference, via rsync of post-processed XMLs followed by the usual upload method having us do the processing
- View more via the Portal
- <https://www.dns-oarc/net/tools/dsc>

DSC as Software Package

- Some renewed interest recently for DSC
- However, we're running into the yummy/yasty/rpm-y crowd
 - “Do you have an rpm for that?”
 - There already is an independent Debian package that could be used in a pinch
- May consider doing binary distributions but this may be more work than is worth.
 - Perhaps someone in the community would care to contribute?

ZFR

- ZFR records changes in a select bunch of zones monitored
 - Recorded in subversion repository
- Has served the community well
- Can be expanded to track more TLDs and has the capacity to do so
- Accessible via dedicated web portal or via the analysis servers
- Suggestions of which zones to add are welcome, contact admin@dns-oarc.net
- Same for those TLDs who wish to use us to monitor on their behalf to act as a double blind.
- <https://www.dns-oarc.net/oarc/data/zfr>

AS112 Update

- Progress made on AS112 on two fronts:
 - *draft-ietf-dnsop-rfc6304bis* updates include IPv6 transport and some new advice for reserving the AS112 project ASN and netblocks in the IANA special use registry, plus other fixes
 - *draft-ietf-dnsop-as112-dname* addresses the problem of delegating new zones to AS112 operations without relying on AS112 operators making required changes to their nodes for every change
- Both have passed WGLC and are in IESG review at the IETF.
- But we know who the authors are, and if there's anything we've missed...
- <https://www.as112.net/>

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