

DNS-OARC Status and Fall Workshop Report

Keith Mitchell

**31st CENTR Technical
Workshop
November 2014**



DNS-OARC

Domain Name System Operations Analysis and Research Center

OARC's Mission Statement

The Domain Name System Operations Analysis and Research Center (DNS-OARC) is a non-profit, membership organization that seeks to improve the security, stability, and understanding of the Internet's DNS infrastructure.

DNS-OARC's mission is:

- to build relationships among its community of members and facilitate an environment where information can be shared confidentially*
- to enable knowledge transfer by organizing workshops*
- to promote research with operational relevance through data collection and analysis*
- to increase awareness of the DNS's significance*
- to offer useful, publicly available tools and services*



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OARC's Functions

- Facilitate co-ordination of DNS operations community
 - 77 members: registries, operators, vendors
- Ongoing data gathering
- Operate community info-sharing resources
 - Mailing lists, jabber, website, trust vetting
- Maintain/host DNS software tools
- Outreach via external and shared meetings



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OARC Members

Afilias (.org, .info)

Dyn

Google

ICANN

Nominet (.uk)

Rightside

RIPE NCC

AFNIC

Akamai

APNIC

ARIN

Cisco

DENIC (.de)

EurID (.eu)

Neustar (.biz)

NIC.BR

SIDN (.nl)

.SE

ARI Registry Services

Bluecat

CentralNic

CIRA (.ca)

Cloudmark

CNNIC (.cn)

CORE

CZ.NIC

DK Hostmaster

DNS.PT

DNSpod

Donuts

dotBERLIN

IEDR (.ie)

Internet Identity

JAS Advisors

JPRS (.jp)

KISA/KRNIC

Mark Monitor

Minds+Machines

NIC Chile (.cl)

NIC-Mexico (.mx)

Nominum

Norid (.no)

NZRS

Orange

RESTENA

RTFM

Sky

SWITCH (.ch)

tcinet.ru

Verizon Edgecast

XYZ

Comcast

ISC

Microsoft

Verisign (.com)

AFRINIC

AFRINIC

CAIDA

Cogent

dotua

Eesti Internet

LACNIC

Measurement Factory

NASA Ames

Netnod

NLnet Labs

NTT

OTTIX

PowerDNS

Public Interest Registry

RTFM

Secure64

Team Cymru

University of Maryland

USC/ISI

WIDE



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Domain Name System Operations Analysis and Research Center

2014-5 OARC Board

- John Crain, ICANN, Director
- Ondrej Filip, CZ.NIC, Chairman
- Chris Griffiths, Dyn, Director
- *James Galvin*, Afilias, Director
- *George Michaelson*, APNIC, Director
- Duane Wessels, Verisign, Treasurer



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2014 OARC Programme Committee

- Sebastian Castro, NZRS (Chair)
- Mehmet Akcin, Microsoft
- Liam Hynes, Dyn
- Peter Koch, DENIC
- Sean Stuart, Verisign
- Paul Ebersman, Comcast
- Duane Wessels (OARC Board Liaison)



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DNS-OARC Staff Resources

- President, Secretary (Keith Mitchell) *0.75 FTE*
- Systems Engineer (William Sotomayor) *1.0 FTE*
- Membership Coordinator (Sue Graves) *0.5 FTE*
- Events Coordinator (Denesh Bhabuta) *0.1 FTE*
- Planned Hires:
 - Project Development Manager (1.0 FTE)
 - Software Engineer (1.0 FTE)
 - Website/Portal/Workflow: (one-off contract)
- Under contract from ISC:
 - Finance/Admin functions (Pam Stone)
 - Infrastructure services (Jim Martin/Ops)



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OARC Infrastructure

- Decade-old hardware (ix1) finally retired !
- Deployed new StoragePod (fs1) with 192TB of storage
- Rationalized entire dataset into single duplicate copy in one place
- Commissioned additional storage capacity on donated X4500 servers
- Improved maintainability and some functionality improvements to member portal
- 10Gb/s network core being deployed
- Ready to build OARC-dedicated stand-alone OpsT-based trust platform



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OARC's DITL Dataset

- “*Day in the Life of the Internet*” (DITL)
- Since 2006, at least once per year to provide “Internet Science” baseline
- Also during key DNS events such as DNSSEC signing of root, IPv6 enabling, potentially during incidents
- Used as primary data source for determining potential problem new gTLDs in ICANN's “Name Collisions” study in 2013
- Gathered from most Root and many Top-Level Domain (TLD) operators
- Full query traffic to authoritative servers for 48 hours at least once a year
- 80Tb dataset
- <https://www.dns-oarc.net/oarc/data/ditl>



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DITL 2014

- Completed during May with 3TB of RAW data collected
 - 1.8TB of data after cleaning
 - contrast with 5TB for 2013, 3.7TB for 2012
- Data available to OARC members, some analysis already published at workshop
- Thank you to all that contributed
- We would love to have additional participants for 2015 and beyond



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2014 Achievements

- Hired Membership Coordinator
- Infrastructure fully modernized and stable
- Brought over 200TB of new storage capacity online
- Reformed Member quorum requirements
- Revised membership categories
- Further progress against Strategic Development Plan
- 1.8TB DITL 2014 data gathering completed
- Formally established Programme Committee
- Fall workshop biggest yet



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New Projects and Services

- **Focus** on possibilities which give most benefit to OARC's members and address its sustainability needs
 - seek new funding from members and other grant sources
 - experience to date indicates dedicated resource is needed to define projects, solicit funds and manage development
- Possibilities include:
 - Next-Generation Domain Statistics Collection ("DSC++")
 - DNS Benchmarking
 - TLDMON
 - Zone flush notification service
 - Resolver live traffic testbed
- Next step is to hire Project Development Manager



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2014 AGM

Membership Changes

- Major revision to Participation Agreement
- Consolidate non-paying participation categories into single non-voting “Supporter” category
 - intended to reduce barriers to entry for new potential members
- New entry-level Membership category (“Blue”)
 - \$1000/year
 - restricted by revenue/staff size
- New modular Membership/Participation/Data-Sharing Agreement(s)



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Fall 2014 Workshop

- Held jointly with ICANN51 ccNSOTech Day, in Los Angeles 11-13 October
- 164 registered attendees
- 30 presentations – slides and audio available
- <https://indico.dns-oarc.net//conferenceDisplay.py?confId=20>
- Thank you Microsoft, ICANN, Dyn and Nominet as sponsors
- Agreement that OARC should implement the ccNSO's “*SECIR*” Trusted Contacts platform



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Notable Presentations

- *NSEC5: Provably Preventing DNSSEC Zone Enumeration*, Sharon Goldberg
- *Measuring the Leakage of Onion at the DNS Root*, Aziz Mohaisen
- *Analysis of TCP traffic in DITL data*, Duane Wessels
- *A Survey of Current DANE/TLSA Deployment*, Liang Zhu
- *Orient data vertically for faster analysis*, Adrian Beaudin
- *The Gift that Keeps on Giving: Open DNS Proxies*, Ralf Weber



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Future Workshops

- 9-10 May 2015
 - RIPE70, Amsterdam
 - Sponsored by SIDN
 - CFP deadline 5th March
- 3-4 October 2015
 - NANOG65, Montreal
 - Seeking sponsors
- Sponsor benefits documented at:
 - <https://www.dns-oarc.net/files/meeting-sponsor.pdf>
- 1-2 April 2016
 - IETF95, Buenos Aires
 - Hosted by NIC.AR
- October 2016
 - Seeking proposals



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Questions ?



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