OARC24 Workshop
Buenos Aires, Argentina
31st March – 1st April 2016

SPONSORS

PREMIUM

BENEFACTOR

PATRON

CONTRIBUTOR

What is Where

- WiFi:

  - SSID: *DNS-OARC*

  - PSK: *OARC24-BA*

  - IPv6 (only, via tunnel) *use SSID: DNS-OARC-v6*

  - Thank You to Silica Networks for connectivity sponsorship !

- Break, lunch and toilet locations

- Dietary requirements

- Fire alarm procedure

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What is Where

- Social event 6:30pm Thursday

  - Name badge required for admission

- Continuous PGP signing

  - Ondrej Sury

  - http://oerdnj.github.io/dns-oarc-keysigning/

  - Keys to <pgpsign@dns-oarc.net>

- Badge lanyards:

    - Staff, PC

    - Board

    - First Timers

    - Please return lanyards & holders to desk when you leave

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We are Webcasting

- Google Hangouts/YouTube:

  - https://plus.google.com/+DnsoarcNetPlus/

- Jabber room:

  - xmpp://dns-operations.dns-oarc.net

- Please set your beeping devices to silent

- Please queue at microphone stand, and identify yourself and affiliation before asking a question

- Social media hashtag *#OARC24*

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Speakers

- Please see me if:

    - You didn't upload your slides yet

    - You have special AV requirements

- Good timekeeping helps ☺

- Timeslots *include* Q&A

    - *countdown is to end of slides*

- Devices ➔ ✈ mode

- We appreciate your contribution !

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Domain Name System Operations Analysis and Research Center

DNS-OARC Q2 2016 Status Report

Keith Mitchell

DNS-OARC
OARC24 Workshop

March 2016

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:

- *promote and conduct research with operational relevance through data collection and analysis*

- *offer useful services and tools*

- *build relationships among its community of members*

- *facilitate an environment where information can be shared responsibly*

- *enable knowledge transfer by organizing open workshops*

- *increase public awareness of the DNS's significance*

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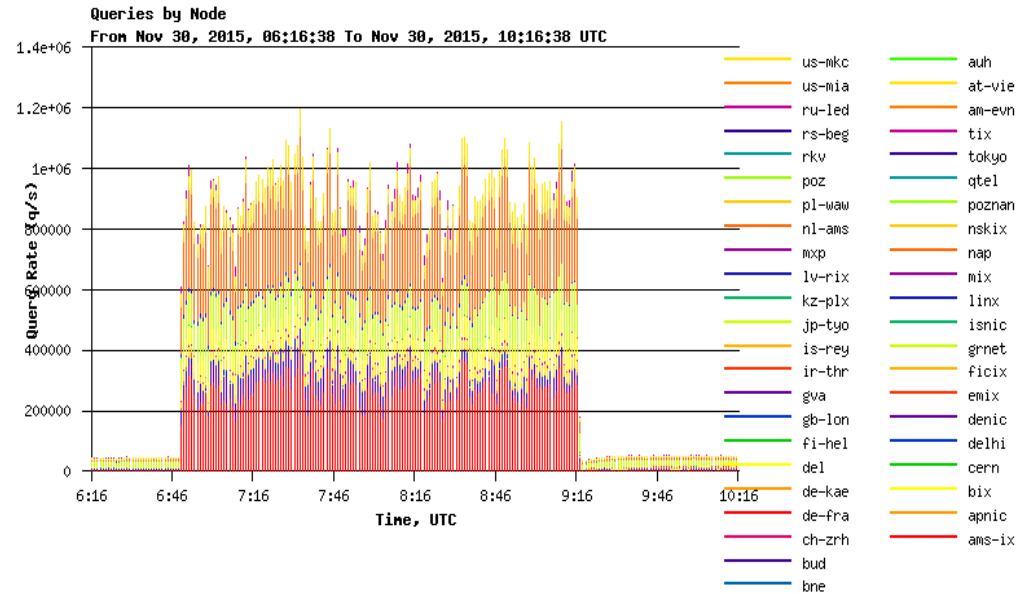Domain Name System Operations Analysis and Research Center
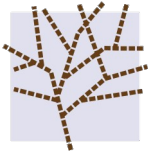
OARC's Value Proposition

OARC is a prestigious library specializing in the DNS. We do our best to index a large collection of data in perpetuity, and because we're a neutral organization we strive to make the library accessible and welcoming to all researchers and operators of the DNS. For our members we offer private meeting rooms (mailing lists) where they can discuss and collaborate on current DNS Operations. At our upper levels you'll find our most precious archives and artifacts, set aside behind glass for safe keeping. We also have a Friends of the Library Program, where an exclusive group of members and guests gather on a semi-annual basis at our workshops to share their ideas, incentivize and encourage research, and catch up on the latest industry news.

..or to put it another way:

- Yet more bad stuff has been happening to the DNS lately

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OARC's Value Proposition in Action

- Gathered real-time data during end-2015 attacks

- Post-incident DITL-style upload of attack PCAP from H and K root (thank you !)

- Provided co-ordination resources to root-ops

- Forums for analysis/discussion of what happened, including closed member session at this workshop

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OARC's Functions

- Facilitate co-ordination of DNS operations community

- Ongoing data gathering

- Operate community info-sharing resources

- Maintain/host DNS software tools

- Outreach via external and shared meetings

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2015-6 Achievements

- Brought over 300TB of new storage capacity online, consolidated and mirrored >80TB dataset

- Record 9TB DITL 2015 data gathering completed

- Collating RSSAC-002 data from root operators

- Significant subscription revenue growth

- Clean-up of legacy non-paying inactive participant categories

- Non-member workshop registration charging introduced

- Hired Software Engineer

- Hosting diversity and re-location plan under way

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Welcome New OARC Members

Participant	Level
Catchpoint	Bronze
Anomali (Threatstream)	Bronze
Integrated Strategy & T.	Blue
Tel Aviv University	Supporter
Int'l Computer Sci. Inst.	Supporter
Duke University	Supporter
University of Michigan	Supporter

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Membership Category Changes

- Replaced Associate/Affiliate/Contributor and Beneficial status with a single non-paying non-voting "Supporter" category

- New entry-level paying member category "Blue"

  - limited to organizations below $1M revenue or 10 employees

- Contributions in-kind required at least once per year

  - requires formal commitment which is being tracked

- Most Beneficial members, some non-paying Participants, migrated to Supporter or Blue category

- Many legacy inactive Participants, and some Members, have now been purged

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Participant Clean-up

- No longer members:

  - AfriNIC, Cogent, CONAC, LACNIC, UMD

- Merger losses:

  - Internet Identity, AusRegistry

- Now 17 Supporter and 6 Blue out of total of 85 members

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Thank you Upgraded Members

Silver

- ISC

Beneficial to Blue

- USC/ISI
- HostmasterUA

Beneficial to Supporter

- RTFM
- Netnod
- UCSD

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DNS-OARC Staff Resources

- President, Secretary (Keith Mitchell, Ohio) *0.75 FTE*

- Systems Engineer (William Sotomayor, Ontario) *1.0 FTE*

- Software Engineer (**Jerry Lundström,** Stockholm) *1.0 FTE*

- Membership Coordinator (Sue Graves, Oregon) *0.6 FTE*

- Events Coordinator (Denesh Bhabuta, London) *0.25 FTE*

- Under contract from ISC:

  - Finance/Admin functions (Pam Stone)

  - Infrastructure services (Ops) *(ceases June 2016)*

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OARC Systems Update

Reminder: DITL 2016

- Is this coming week. Yes really!
  - Do you know where your packets are?
- Some changes this year:
  - Last year SSH DSA public keys are supported
  - First year that xz compression will be supported for uploaders
  - First year HPN-SSH is openly supported
  - First year that DITL archives will be stored using XZ compression in CLEAN/ mixed with non-xz archives
- Will not speculate on who participants are, you'll just have to watch https://ditl.dns-oarc.net/

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News for Data Catalogue

- H root renumbering, plus happened to capture some data on the December DDOS

- Hopefully also L root IPv6 renumbering

- ICANN is contributing long-term data from its two AS112 nodes to add to current OttIX AS112 global node collection

- We are now up-to-date in terms of mirroring all known publicly published RSSAC-002 metrics

- More RIPE DSC data is also available

- All available on analysis servers

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System Status

- Services, Systems and Data archives all operating normally.
- New offsite and complete data mirror built and populated via 10Gb/s network between Canada and Redwood City
- Ottawa interim site arrangements at OttIX and CIRA, will review during Q3
- Current total dataset size sitting at 124TB, not including 2 duplicates.
- 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

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Future

- DNS-OARC is relocating all its systems in Redwood City (ISC) to Fremont (HE) by late May 2016
    - Main DNS, web sites, root-ops, data, ZFR, TLDMon email lists
    - Looking to peer at SFMIX and other IXPs within reach
- All services will be unavailable at that point, watch for email announcements confirming dates and times
- Beyond that, stay tuned for more capacity growth

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OARC Software Development

New Recruit

Jerry Lundström

Software / Systems Engineer
Stockholm Sweden
Previous at IIS (.SE)
https://github.com/jelu

Work:

- OpenDNSSEC

- PDT

- Crypt::PKCS11

- Zonalizer / Zonemaster
  https://zonalizer.makeinstall.se

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Development @ DNS-OARC

- Moving software to GitHub

- Using Continuous integration

- Multiple platform support

- Packaging

- Consolidating services and shared code

- Revitalizing visualization

https://github.com/DNS-OARC

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Development @ DNS-OARC

- DSC

  - Compatibility fixes for the collector

  - Restructuring components into individual repositories

  - JSON output format available for testing
    https://github.com/DNS-OARC/dsc/archive/develop.tar.gz

- Picking up previously reported issues

- Funded development opportunities

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OARC Governance and Development

OARC Governance

- Independent legal entity

- Diverse member base

- Financially self-supporting

  - ~$700k annual revenue ~= expenses

- Self-governing, neutral

- Elected Board reflecting member interests

- Contracted Executive Staff and Secretariat services

- Volunteer workshop Programme Committee

- *501(c)3* non-profit public benefit corporation

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2015-6 OARC Board

- John Crain, ICANN, Director
- Paul Ebersman, Comcast, Director
- Ondrej Filip, CZ.NIC, Chairman
- Dave Knight, Dyn, Director
- George Michaelson, APNIC, Director
- Duane Wessels, Verisign, Treasurer

2015 Board Retreat Conclusions

- Need to work on articulating OARC's value proposition, to retain and grow member base

- Workshops working well

- Time to re-start initiative for future of DSC

- Data collection faces increasing challenges

  - privacy, contributions, geodiversity, friendliness

- Need to do further stakeholder survey polling

- Continue work on identifying project priorities

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OARC Development Progress

- Attempts to use Project Development Manager to increase non-subscription income last year were not successful

    - One big RFP bid ate available resource, lots of (member) competition, did not win $$$k

    - Chicken vs Egg approach – which is best ?

- Subscription revenue growth allows us to hire dedicated Software Engineer for 2016

    - Re-energize, clean up and evolve our existing tools

    - More smaller development funding opportunities coming in already

    - Continue with organic growth for now

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Possible OARC Neutrality Principles

- Do not offer commercial for-profit DNS services

- No exclusivity or discrimination in dealings with Members or Registries

- All data, tools and services available to Public, or to Members on an equitable basis

- Do not operate DNS production infrastructure on behalf of individual Members

- No revenue sharing with Members

- Transparency and Board oversight of all contracts and arrangements with Members that are not covered by the Participation Agreement

- DNS-OARC shall be able to engage in software/service development and research/analysis projects, either alone or in partnership, in order to fund its continuing operations or further its mission. Such projects shall be approved by the Board on a case-by-case basis.

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Participation Agreement

- New version 2016-03, mostly minor changes:

  - Effective 1st April 2016

  - New fee levels (Schedule A)

  - Penalty for late payment

  - Blue and Supporter discretionary approval

  - Clean-up of Data Sharing Appendix A

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Data Sharing Agreement

- Defines "Information" as something different from "Data", and is shared among Members only

    - attack/vulnerability intelligence, outages, confidential new research, contact info

- Original text from 2014 AGM had some bugs and contradictions

- Text revised to make researcher obligations over use of OARC data clearer, and clarify publication attribution, notifications, sanctions, confidentiality defaults

- Clarify Member sub-hosting arrangements for data access, new sites make this more possible

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OARC Conduct Policy

- Seems prudent to have a policy which makes it clear certain behavior is not appropriate within OARC Forums

- Set standards *before* there are any issues

- In-line with current industry best practice, e.g.

  - https://www.ripe.net/participate/meetings/ripe-meetings/ripe-meeting-code-of-conduct

  - https://wiki.uknof.org.uk/Respect_at_UKNOF

- Keep it **simple**

- Initial intention is for workshops, but could expand to cover all OARC activities

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2016 Budget

DNS-OARC Financials

- 2015 accounts audit under way

  - figures presented here are *unaudited*

- 2015 finished with $69k *planned* deficit

- 2016 YTD figures mostly just January

- Projected ~$110k total deficit for 2015+2016 is intentional growth investment

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OARC Membership Fees Increase

- First increase since incorporation in 2008

- Average ~11%, based on US CPI since then

- Effective 1st April 2016

Category	Previous	New
Blue	$1.0k	$1.0k
Bronze	$5.5k	$6.0k
Silver	$8.5k	$9.5k
Gold	$12.5k	$14.0k
Platinum	$20.0k	$22.5k

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Financial Overview

	2014	2015	2016 YTD	2016 Budget
Income	$465k	$524k	$45k	$702k
Expenses	$450k	$593k	$45k	$744k
Assets	$436k	$407k	$463k	
Cash	$347k	$303k	$320k	$261k

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Income Summary

	2014	2015	2016 YTD	2016 Budget
Member fees	$406k	$458k	$45k	$569k
Donations	$9k	$20k	$0k	$20k
Workshop Sponsorship, fees	$50k	$66k	$0k	$83k
Project Funding	$0k	$0k	$0k	$30k
TOTAL	$465k	$524k	$45k	$702k

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Expenditure Summary

	2014	2015	2016 YTD	2016 Budget
Consultants/ Professional	$279k	$385k	$28k	$458k
Capital Equipment	$37k	$63k	$8k	$78k
Co-location	$12k	$12k	$1k	$26k
Workshops	$50k	$76k	$0k	$80k
Other	$72k	$57k	$8k	$102k
TOTAL	$450k	$593k	$45k	$744k

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OARC Workshops

# Member Workshops

- Summer 2015 survey re-validated earlier findings:

  - 2 workshops per year

  - 1.5-2 days long

  - co-locate with RIPE/NANOG/ICANN/IETF

- Strong support for co-locating with IETF, but has been challenging this (first) time around

- Co-location can reduce connectivity costs, but generally raises all others

- Always seeking sponsors !

  - https://www.dns-oarc.net/files/meeting-sponsor.pdf

  - OARC24 will break even ☺ Thank You

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Workshop Attendance

DNS-OARC Per Meeting Attendee Growth
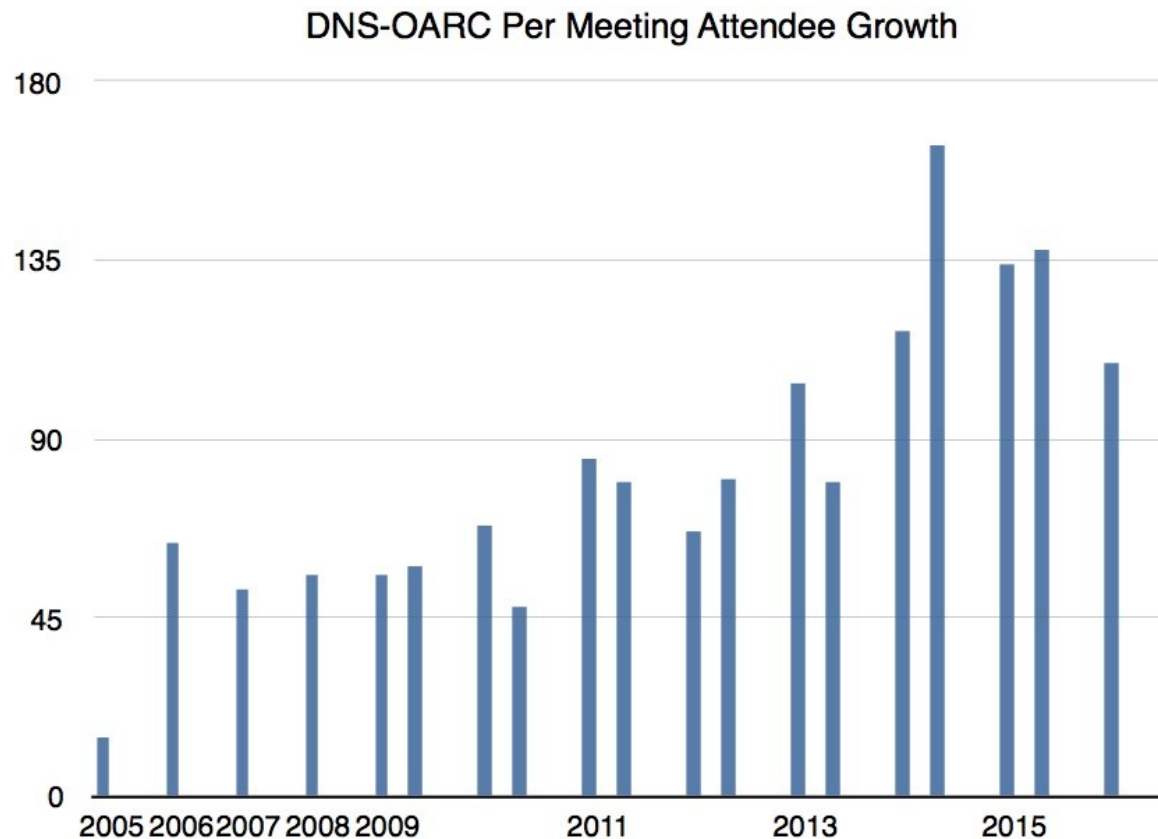
2016 OARC Programme Committee

- **Ray Bellis, ISC**

- **Anand Bhuddev, RIPE NCC**

- Sebastian Castro, NZRS (Chair)

- Mauricio Vergara Ereche, ICANN

- Liam Hynes, Dyn

- Geoff Huston, APNIC

- Sean Stuart, Verisign

- Duane Wessels (OARC Board Liaison)

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Future Workshops

- OARC25

    - Oct 15-16 2016

    - NANOG68, Dallas

    - Seeking sponsors

- OARC26

    - Spring 2017

    - IETF98/9, NANOG70, ICANN58/9 ?

    - Location: *Copenhagen, Chicago, Bellevue, Johannesburg, Prague ?*

- OARC27

    - Oct 20-21 2017

    - Joint meeting with CENTR Tech

    - Co-located with RIPE75

    - Location *TBC*

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Thank You !

- Paul Ebersman: 2015 PC Member

- Jim Galvin, Chris Griffiths:
  Former Board Members

- Luciano Minuchin:
  PC, OARC local liaison and NIC.AR help

- Jim Martin and ISC Ops Team

- All our OARC24 speakers, sponsors, PC, volunteers

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Questions ?

Contacting OARC

- Member Portal:

  - https://portal.dns-oarc.net/

- <admin@dns-oarc.net> +1 650 423 1344

  - <denesh@dns-oarc.net> +1 650 423 1455

  - <jerry@dns-oarc.net> +1 650 423 1448

  - <keith@dns-oarc.net> +1 650 423 1348

  - <sgraves@dns-oarc.net> +1 650 423 1323

  - <wfms@dns-oarc.net> +1 650 423 1447

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