



# DNS-OARC

Domain Name System Operations Analysis and Research Center

## Members report, March - May 2020

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Dear OARC Members,

I hope this report finds you, your colleagues, and those close to you in security and good health in these difficult times.

Despite the many challenges facing everyone in our mid-[pandemic](#) world, here at OARC we've been busy. We were very fortunate to be able to have our [OARC32](#) workshop in San Francisco just before everything closed down, and like much of the industry OARC is making the switch to online events for the foreseeable future, and present our first: [OARConline – 32a](#) to you, on Tuesday 9<sup>th</sup>.

The OARC team are all work-from-home veterans, with remote working our normal mode of operation, so the impact on day-to-day running has been minimal, except for our ability to reach out to our Members and the community face-to-face during events. We have used this time to focus on and progress a number of projects to secure OARC's future, seeking major funding and developing software, services and infrastructure.

The pandemic has also created an unprecedented opportunity to observe the Internet in action, allowing us to gather data as the DNS sees a major traffic surge while much of society's activities move online. We have successfully completed our largest DITL (Day-In-The-Life of the Internet) data collection ever, which will enable comparative analysis with our long baseline of previous annual DITL datasets, and preserve this unique one-off/change for research posterity.

OARC remains keenly aware of its role in connecting the community that keeps the DNS and by extension the Internet functioning. We continue to support operational co-ordination between all the key players, and have some new tools and ideas to enhance this coming soon.

## 1. OARConline 32a Workshop

Our first online workshop, [OARC32a](#), is imminent, and will take place as a Zoom Webinar on the 9<sup>th</sup> of June. Attendance is free and open to all, but [pre-registration](#) via the event's Indico site is required. Our online format for now is of shorter, more frequent events, and OARC32a will focus on some unique findings in DNS operations and traffic as a result of the pandemic. We would appreciate feedback from Members on your preferred length and frequency of online events.

OARC events, both online and physical, are supported by our sponsors and patrons, and we particularly acknowledge the contribution of **Verisign**, our 2020 Workshop Promoter Patron.

## 2. New and Upgraded Members

Please join us in welcoming the following additions and upgrades to OARC Membership in the last 3 months:

- **ICANN** upgraded to a Diamond Member
- **Salesforce** upgraded to a Gold Member
- **Zvelo** as a new Bronze Member
- **Hamburg.nic** as a new Blue Member
- **Mythic Beasts** as a Supporter
- **B.R.Fidler** as a Supporter

Our only Member loss during this period were DomainTools, who did not renew in April. We are grateful to a number of Members who took the chance to pay multiple years' subscriptions in advance.

As ever we would appreciate your help in spreading the word about the benefits of OARC Membership, especially if you have contacts at the various remote working platforms people have turned to recently. To help you do this, you may find our [Brochure](#) and [Briefing](#) documents useful. See also our referral discounts, where existing Members who refer a new party to OARC who becomes a paying Member can receive a 10% discount. Supporters who refer a new paying Member can receive an upgrade to Blue Membership.

Please contact Sue via [<admin@dns-oarc.net>](mailto:admin@dns-oarc.net) if you have any questions and/or would like to upgrade your membership or donate to support our mission and the DNS community.

## 3. Software Development

OARC maintains a growing set of open source software related to DNS which we make new releases for regularly. Recent releases includes updates to *dsc* (v2.11.0, including DNSTAP support), *dnscap* (v1.11.0), and *dnssperf* (v2.3.4).

Updates have been made to the LaunchPad, openSUSE Build System, COPR and pbuilder platforms we use to build packages so that we now additionally build for Ubuntu Focal, EPEL 8, openSUSE Leap 15.2 and Fedora 32. An issue found with COPR has also been fixed. Our build and test platforms have had 32-bit Debian 10 and CentOS 8 instances added, and the Ubuntu and OpenBSD instances were also updated.

Our Members self-service Portal will be receiving an update in the coming weeks which will hopefully make account access level clearer, and will let you search for other Member contacts more easily.

We are grateful to Member **EURid** for funded development of a major new version of *dsc-datatool*, (pre-release v1.0.0). This is a complete rewrite of the tool from Perl to Python, which has made dependency management a lot easier, and made major updates to some of the plugins. You can find this in our pre-release channels, testing and feedback would be much appreciated.

See Jerry's Development Updates [#2003](#) and [#2005](#) for the latest on our Software Engineering activities to find out more. A list of all our software is here:

<https://www.dns-oarc.net/oarc/software>

Finally, don't forget that OARC can develop new, or enhance features of existing, tools via a custom for-hire development contract. OARC Members will receive priority for such work, and at a discounted rate depending on their membership tier.

#### 4. Systems Engineering

##### 4.1 DITL

The May 2020 DITL was an excellent success. With all of the contributor data now uploaded, we have 1,320,679 capture files, totaling just over 17TB, from 21 contributors.

In addition, we got a surprise contribution in the week after the DITL collection from H-root. After renumbering the server almost 5 years ago, traffic has continued to arrive at the legacy address. They have been planning to decommission the old address, and captured and sent a couple days of traffic before doing so. This was done during a separate time period, after the end of the regular DITL collection.

We're also co-operating with Member **PIR** to support community involvement in their upcoming DNSSEC algorithm roll of the .ORG TLD I. If you are interested in participating in this, you can sign up to the project mailing list at: <https://lists.dns-oarc.net/mailman/listinfo/org-algorithm-roll> .

##### 4.2 Data-store

We've had several new hardware issues with the old data-store infrastructure over the last few months, however progress is being made on replacement hardware. We have some good acceptable quotes, and are ready to place an order. As was mentioned on the Members' mailing list earlier in May, we are currently hung up on arranging acceptable payment terms with our preferred vendor. There are several workarounds that we're exploring, and we hope to be able to finally place an order within the next few weeks.

We're anticipating delays in the supply chain, but it's our hope that we'll be able to have the new clustered storage configured, tuned, and ready for production use by the end of September. In the meantime, we're doing our best to process the backlog of DITL collections on the old hardware, but ask for Member patience while we migrate everything.

##### 4.3 ZFR

Over the past several months we have been working to re-implement the software that manages our Zone File Repository; the archive of root and TLD zones we have going back to 1993. The original Perl code was only able to deal with downloading zones from an individual URL, and had been hacked to expand it to support the original Centralized Zone Data Service (CZDS) run by ICANN, and then in 2018 it was expanded again to be able to do simple AXFR retrieval of zones. When ICANN further updated the CZDS API in 2019, the hacked code was not able to easily move to the new download process.

The new software has been written from the ground up to be easily modifiable in the event that we need to support new methods of download. It is currently being beta tested, and should be moved into production soon. Expect a blog post from us in the near future detailing all of its interesting features, and future plans.

These changes and moves mean we now have gaps in the collections of several zones. We'll be making a request to the members and general DNS community for help filling those gaps once the new software is in place.

#### 4.4 Chat Platform

While we are compelled to do all our interactions online, and operational co-ordination is more critical than ever, it's clear that real-time secure communications between OARC Members, and for the wider DNS community, are crucial. It has also been increasingly clear the XMPP-based Jabber chat platform OARC has been providing for many years is not meeting these needs, nor is the current mix of that with ad-hoc, unsupported use of Slack and other platforms sustainable. We have therefore created a strategy for future use of chat platforms within OARC, to support properly confidential real-time communications between Members, and easy access for researchers and workshop participants. We'll be announcing this and launching a new modern open chat platform in the next couple of weeks, watch this space for further information.

#### 4.5 Connectivity

Thanks to assistance from Cogent, we now have an IPv6 path from our core infrastructure to C-Root, which should address some issues people were experiencing with *DNSVIZ*.

### 5. Privacy Sub-Committee

This Board sub-committee has been making further progress, and is working to split up the existing Participation Agreement into several separate documents which will address handling data vs information, and privacy, confidentiality and data sharing matters independently, while respecting modern legal privacy regimes such as GDPR and CCPA. In the absence of a May workshop to receive a presentation on this, Members should expect a written progress update from the Board shortly. Volunteers to contribute to the Privacy sub-committee work would be welcome, please contact George Michaelson via <[chair@dns-oarc.net](mailto:chair@dns-oarc.net)> if you'd like to help.

Assuming there is consensus on the way forward, the plan is to propose these new documents to replace the existing Participation Agreement via resolutions at the AGM in September.

### 6. Grants and Funding Activity

OARC currently has the good fortune of a strong financial position, having done break-even or better for several years, with a significant increase in our membership revenues for 2020, thanks to a number of major Member upgrades and a modest fee increase, and lower Q2 events/travel expenses. The coming year or two likely contains economic uncertainties for everyone, however, and we need to address years of under-investment in our infrastructure. It therefore seems prudent to build on our successes, and seek as many possible sources of funding to uphold OARC's mission through any wider economic down-turn.

With this in mind, and extra uninterrupted time available due to reduced events/travel, we have been working on various funding proposals to a number of grant-awarding bodies, with some success thus far.

For the new Data Store infrastructure, we are seeking \$20k towards the \$90k total cost, and have thus far received \$3k from Member **Gransy**, smaller contributions from **SOX** and **Quad9**, for which we are grateful, and have been notified another \$10k grant will be forthcoming. Further donations for this project via <https://www.dns-oarc.net/donate> would be welcome

OARC has also been collaborating with partners **CAIDA** (UCSD) and **Casey Deccio** (BYU), on a larger proposal to the US National Science Foundation (NSF), on which OARC would be a sub-contractor to support the development of *DNSVIZ* as part of a wider research project. Some of you may recall OARC was founded back in 2005 with similar funding from NSF via CAIDA. If successful, this will support 2 years' effort including a dedicated project developer, as well as publication of the *DNSVIZ* historical database in an open format that will allow integration with other research projects.

I mentioned in my previous report we were seeking funding to add DoH (DNS-over-HTTPS) capability to the *dnsperf* performance testing tool. We submitted applications to two grants bodies for this, and have been notified at least one of these was successful. Additional *dnsperf* funding will allow us to do enhancements to and some necessary re-factoring of the *dnsperf* code base as part of this work.

There is of course a balance between fiscal prudence and achieving our mission, and we will as ever be careful to plan, monitor and spend our funds wisely to deliver on what we are committed to while ensuring OARC has a secure future. Thank you to all the above organizations for their financial and wider support.

## 7. Future workshops and 2020 AGM

It became clear that holding a physical workshop as planned for OARC33 in Paris was unlikely, and when ICANN decided it would not be holding its co-located IDS, GDD and RoW events during May, we took the step to postpone OARC33 to the planned dates and location for OARC34 in late September, co-located with RIPE81 in Milan.

It has however just been announced that RIPE81 will take place as a virtual meeting. No OARC venue commitments had yet been made in Milan though, and it seems unlikely many industry events will take place physically during the remainder of 2020. We have not decided exactly what we will do for [OARC33](#) yet, so will wait to see how our first online event goes, review Member and attendee feedback from that, and make a decision no later than end July 2020.

The OARC 2020 AGM however needs to take place whatever we do with workshops, and the Board has decided this will be held on Mon 28<sup>th</sup> or Tue 29<sup>th</sup> September, in a format which will permit fully interactive remote participation and online voting, independently of the date/venue of OARC33.

Our plans to co-locate OARC34 with NANOG81 in Atlanta in February remain in place, but must be regarded as provisional until it is clear how the pandemic plays out.

Opportunities are open for sponsorship and patronage of all OARC's events, including a new option for online workshops, please see:

- <https://www.dns-oarc.net/workshop/patronage-sponsorship>

and contact Denesh via [<sponsor@dns-oarc.net>](mailto:sponsor@dns-oarc.net) for further information.

Finally, I would like to thank you our Members, for your continued strong support for OARC through these difficult times, financially, through your volunteering, and other help, when your organizations and home lives are already at an unusual stretch. It is not taken for granted, and demonstrates the true value of Community. We are here to make a difference, and to help you all to keep the DNS and Internet working. Please let us know what we can do to assist.

Keith Mitchell  
OARC President

June 2020