**OARC 28th Workshop
San Juan, Puerto Rico
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DNS-OARC Software

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Software Projects & Funding

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

- Overview page for software developed and maintained by OARC

- How to fund development, links to GitHub project pages and mailing lists

- OARC's Open-Source Software Licensing Policy

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Funded Development

Root Server Statistic Measurements

- Project funded by Verisign

- Update the RSSM plugin for DNSCAP to RSSAC002v3

    - Output RSSAC002v3 YAML

    - Scripts for merging RSSAC002v3 YAML results

- Improve capturing

    - Reassemble IP v4/v6 fragments

    - Support ongoing TCP session

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Root Server Statistic Measurements

- pcap-thread: IP fragment reassembly extension

- dnscap: TCP reassembly

- dnscap: peak into ongoing TCP streams

  - No need to see SYN/ACK

  - Various ways to reset the state

  - "byte for byte" parsing of stream to sync where DNS starts

- dnscap: Parse padded DNS correctly

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Root Server Statistic Measurements

- plugins/rssm:
  - Update to RSSAC002v3 specification
  - DNS must be valid and complete in order to be counted, malformed or truncated is ignored
  - Output YAML with custom metrics to support writing stats more frequently
  - Script to merge custom metrics for the 24h file as per specification

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Releases

dnscap Releases

- v1.6.0
    - rzkeychange: Now collects RFC8145
    - royparse: Parse DNS like your Roy Arends
- v1.7.0, v1.7.1
    - IP fragmentation, padded DNS
- v1.8.0
    - TCP reassembly, ongoing TCP, RSSM
- v1.9.0
    - BFP apply all, RSSM "fixes"

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drool Releases

- v1.0.1
  - First "stable" release!
- v1.0.2
  - TCP options workaround removed, Month 00
- v1.1.0
  - Timing code rework based on PoC by Petr Špaček
- v2.0.0 (not released yet)
  - Rewritten into dnsjit Lua

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dnsjit 0.9.x alpha

https://github.com/DNS-OARC/dnsjit

"dnsjit is a combination of parts taken from dsc, dnscap, drool, and put together around Lua to create a script-based engine for easy capturing, parsing and statistics gathering of DNS message while also providing facilities for replaying DNS traffic."

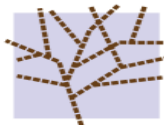*more in my the next presentation*
or come by the demo booth

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Other Releases

- PacketQ v1.4.1
  - Fix in-memory DNS records, could "leak" information to the next record (seen with FormErr records)

- ripeatlas Go bindings
  - Metadata interface for Measurements and Probes

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New Stuff

Check My DNS CLI

https://github.com/DNS-OARC/cmdns-cli

- cmdns-cli

  - Written in Go

  - Get full JSON stream of checks

  - Able to query via specified resolver

```
$ ./cmdns-cli -res 8.8.8.8:53 -done | grep rating
connecting to wss://cmdns.dev.dns-oarc.net:443/ws/
{"rating":{"text":"A","class":"success"}}
$ ./cmdns-cli -res 9.9.9.9:53 -done | grep rating
connecting to wss://cmdns.dev.dns-oarc.net:443/ws/
{"rating":{"text":"B","class":"success"}}
```
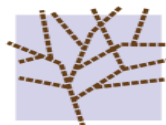
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drool – Next Up

https://github.com/DNS-OARC/drool/projects/15

- Project: Performance and Responses
    - Funded by Comcast Innovation Fund
    - Development will be for dnsjit
    - Increase performance by having a configurable thread model and atomic queues
    - Looking to use CZ.NIC respdiff for statistic analysis of queries and responses
    - More statistics

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Questions?

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Demo Booth

- Show OARC's software, tools and services

- Hands on with dnsjit, drool, dnscap, packetq and cmdns-cli

- Click around in DSC Grafana and Check My DNS

- Code your own Lua/dnsjit program!

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