AMSTERDAM APRIL 2017
DNS MEASUREMENTS
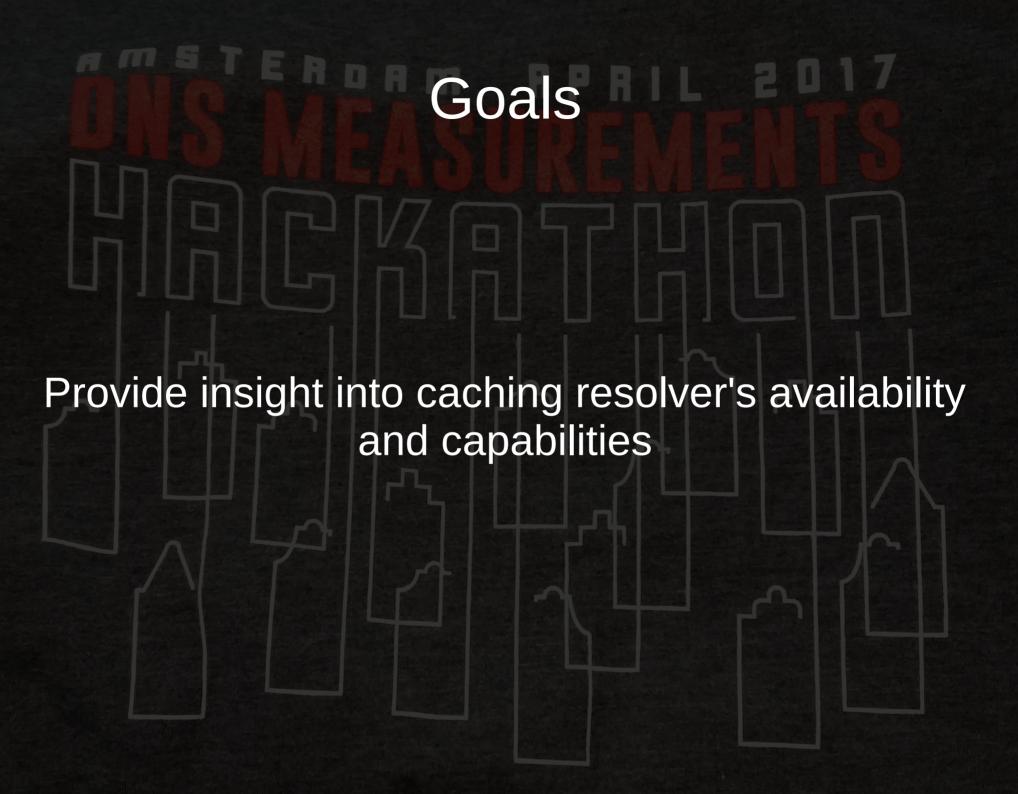
"Everything you ever wanted to know about caching resolvers but were afraid to ask"
- DnsThought

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Goals

Provide insight into caching resolver's availability and capabilities

Output

- A hackathon quality DNS server written in Go
  - Get the "exit resolver" A/AAAA (aka whoami)
    $ dig ripe-hackathon.nlnetlabs.nl ANY
  - Check that it re-queries over TCP
    $ dig tc.ripe-hackathon.nlnetlabs.nl
  - Check that it can lookup an IPv6 only delegated domain
    $ dig ripe-hackathon6.nlnetlabs.nl AAAA

https://github.com/DNS-OARC/ripe-hackathon-dns-caching

Output

- A domain to test DNSSEC validation against
  - $ dig secure.ripe-hackathon2.nlnetlabs.nl A
  - $ dig bogus.ripe-hackathon2.nlnetlabs.nl A
- A domain to test NXDOMAIN hijacking
  - $ dig nxdomain.ripe-hackathon2.nlnetlabs.nl A

Output

- New Atlas measurements:
  - https://atlas.ripe.net/measurements/8310237/ (google 'whoami')
  - https://atlas.ripe.net/measurements/8310245/ (akamai 'whoami')
  - https://atlas.ripe.net/measurements/8310250/ (qname minimisation test)
  - https://atlas.ripe.net/measurements/8310360/ (TCP IPv4 capability)
  - https://atlas.ripe.net/measurements/8310364/ (TCP IPv6 capability)
  - https://atlas.ripe.net/measurements/8310366/ (IPv6 capability)
  - https://atlas.ripe.net/measurements/8311760/ (DNSSEC reference)
  - https://atlas.ripe.net/measurements/8311763/ (DNSSEC bogus)
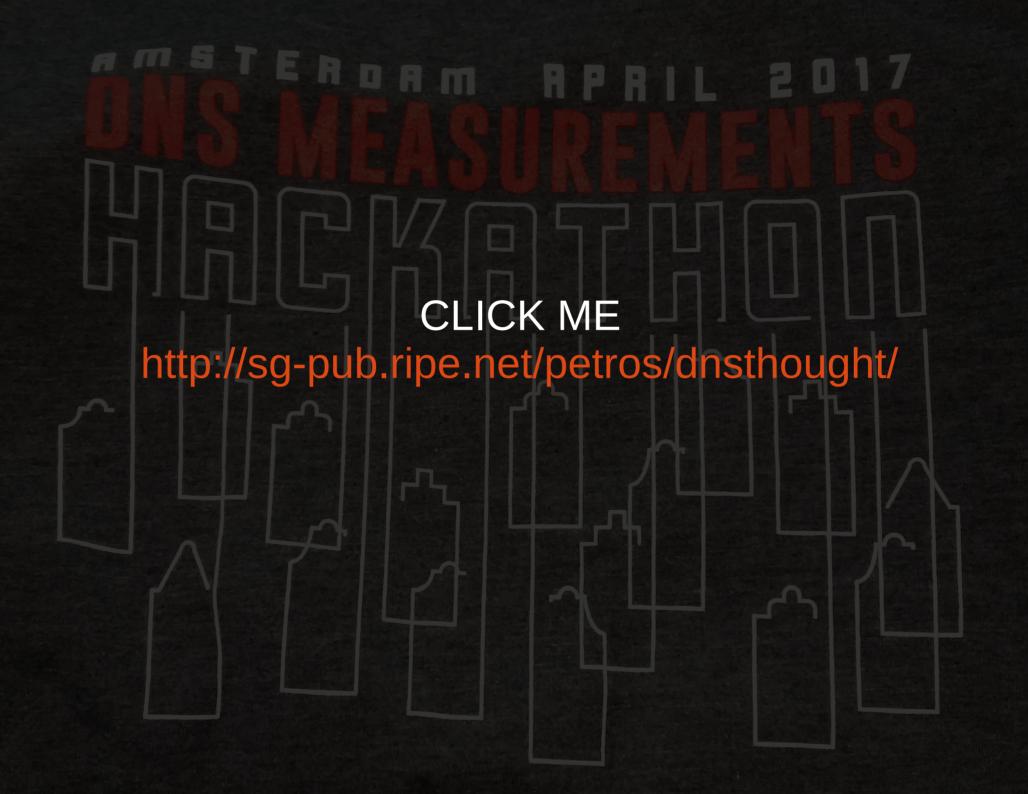 - https://atlas.ripe.net/measurements/8311777/ (NXDOMAIN hijacking)

Output

- Awesome bug-free code to crunch all the data
  - Using measurement and streaming APIs
  - Merged all the different measurement sources
  - Extract information about the last N hours of availability of the local DNS resolvers
  - Create a Top 20 resolver list
  - Produce JSON to feed to other tool

https://github.com/DNS-OARC/ripe-hackathon-dns-caching

Output

- Atlas Feature Requests
  i.e. Generate work for RIPE NCC

  - Get ripe atlas anchors to do a whoami.akamai.net type service

  - Ability to set QR bit / EDNS1 / EDNS2

  - Are probe resolvers statically configured or not?

  ...

Output

A DASHBOARD TO SHOW IT ALL!

-"Who said 'demo time'?"

CLICK ME
http://sg-pub.ripe.net/petros/dnsthought/

DNSThought

MAIN NAVIGATION

- 📕 Home
- 📕 Per probe
- 📕 Per resolver
- 📕 Global Map
- 📕 About

LABELS

- ⭕ Important
- ⭕ Warning
- ⭕ Information

Top Resolvers *Prototype*

Map of RIPE Atlas Probes — ✕

Legend:

Probes using Top 20 resolver
Probes not using Top 20 resolver

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RIPE DNS HACKATHON @AMSTERDAM 2017

Version Prototype