DNS + YANG ?!
Aliasing in DNS ?!?
TLS to auth!!!

- IETF 103
- 3-4 November, 2018
- Bangkok

YANG: Hackathon Plan

- Forge one configuration API to rule them all (DNS servers)
  - draft-lhotka-dnsop-iana-class-type-yang-00
  - + ad-hoc attempt to unify very basic zone management
- YANG wrapper around existing configuration tools? (different for each DNS server?)

YANG: What got done

- Prototype works!
  - Knot DNS + NSD can create/delete zone
    - using the same RESTCONF API
  - BIND in works, no known roadblock

YANG: What we learned

- Once again!
  - changing *.conf files is a nightmare
- DNS servers seriously need APIs for configuration
  - at least proprietary
  - YANG/RESTCONF/NETCONF can be easily built on top

Alias: CNAME + DNAME - Hackathon Plan

second level domain aliases (CNAME + DNAME):

ʿαπλω.xyz → haplo.xyz

www.ʿαπλω.xyz → www.haplo.xyz

ietf.org → ietf.org.cdn.cloudflare.net

- `draft-sury-dnsop-cname-plus-dname`
- Does it work in the wild?
- RIPE Atlas DNS measurements for CNAME + DNAME aliases

Alias: CNAME + DNAME

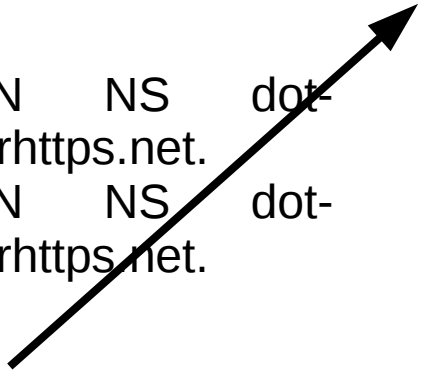
- CNAME then DNAME (worst case):
  - Apex alias (CNAME) 17009 resolvers on 9577 probes
    NOERROR: 98.63% SERVFAIL: 1.37%
  - Sub alias (DNAME) 17020 resolvers on 9572 probes
    NOERROR: 97.69% SERVFAIL: 2.31%
- DNAME then CNAME (happy path):
  - Sub alias (DNAME) 17008 resolvers on 9572 probes
    NOERROR: 99.55% SERVFAIL: 0.45%
  - Apex alias (CNAME) 16973 resolvers on 9551 probes
    NOERROR: 99.68% SERVFAIL: 0.32%

Alias: What we learned

- It works almost perfectly without caching, otherwise +-2.31% breakage

TLS to authoritatives

- SPKI discovery using NS names?!?
- *almost* implementation for Knot Resolver



base64.encode(base32.decode(pad("sih4xzehttk3is2apilgfcfblbwibgacw2hyeh6tqgejqcl4sawa")))= 'kg/L5Iec1bRLQHoWYoihWGyAmAK2j4If04GImAl8kCw='

```
;; AUTHORITY SECTION:
dottest.dnsoverhttps.net.      3600    IN      NS      dot-sih4xzehttk3is2apilgfcfbl……a.dnsoverhttps.net.
dottest.dnsoverhttps.net.      3600    IN      NS      dot-sih4xzehttk3is2apilgfcfbl……b.dnsoverhttps.net.

;; ADDITIONAL SECTION:
dot-sih4xzehttk3is2apilgfcfbl…..a.dnsoverhttps.net. 3600      IN      A       104.236.178.232
dot-sih4xzehttk3is2apilgfcfbl……b.dnsoverhttps.net. 3600      IN      AAAA    2604:a880:1:20::51:f001
```

Wrap Up

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Willem Toorop – NLnet Labs

Manu Bretelle - Facebook

come to
DNSOP WG
and
DPRIVE WG!