Outsourcing Home Network
Authoritative Naming Service

draft-ietf-front-end-naming-delegation-10

Migault, Richardson, Hunter, Weber, Griffith, Cloetens
Channels between the HNA and the DM

Synchronization Channel uses DNS

Control Channel runs over DNS over TLS

- HNA retrieves AXFR responses from the DM (NS, AAAA, A, SOA)
- HNA sends DNS updates to the DM (secondary, DS, STOP)

We have a proof of concept developed by Ray.
Motivation for using DNS:

- DNS libraries are installed anyway
- HTTP libraries are not necessarily installed:
  - code complexity (multiple libraries, various versions...)
  - increases attack surface

Downside:

- May make hard the usage of OAUTH.
WHY using OAUTH?

Currently the expected procedure for registration is based on:

1. User would go to the web interface of the home router,
2. Select a compatible DNS provider,
3. buy the domain, process payment
4. get a link and copy /paste that link on the web interface

OAUTH improves automation:

1. User would go to the web interface of the home router,
2. Select a compatible DNS provider,
3. buy the domain, process payment
4. redirect back to the home router
How to take advantage of OAUTH?

How DNS over TLS could carry authorization from AS?

- using DNS over HTTPS
- Maybe: RFC8705 OAuth 2.0 Mutual-TLS Client Authentication and Certificate-Bound Access Tokens
Thanks!