

Requirements for Naming on The Homenet

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Options

- Just do hybrid DNSSD, keep it simple
- Do stateful DNS
- Do Stateful DNS with DNSSEC

Just Hybrid DNSSD

- Homenet has hybrid DNSSD proxies on each link
- Queries are done using DNS protocol
- Unlike DNSSD mDNS hybrid, link names are not exposed either in domain names or human-readable names, which requires a shim

Just Hybrid DNSSD (2)

Advantages:

- Stateless
- Relatively easy

Disadvantages:

- No global DNS
- Requires all services to support multicast
- No security

Stateful DNS without DNSSEC

Advantages:

- Zone transfers
- Public names

Disadvantages:

- Requires setting up a delegation
- Requires figuring out how to maintain zones when primary can be removed without notice
- Requires a management API
- Requires maintaining state for mDNS services

Stateful DNS with DNSSEC

Advantages same as without DNSSEC, plus:

- Helps with security model
- Allows for secure delegation
- Allows for secure service publication/defense

Disadvantages:

- Requires setting up a *secure* delegation
- Requires a key management strategy that doesn't just make the whole thing *less* secure.

Management API

- Needed if end user is to set up delegations
- If we are going to require it, it should be standardized so that we don't get differentiation and lock-in
- Probably some kind of HTTP-based API
- Should work for web UIs as well as apps
- Allows on-device or offline encrypted storage for key backup

Delegation

- Could be done automatically with help from ISP
- Must allow the end user to register a domain and set up that delegation
- Could also do delegations through a delegation provider, e.g.:
 - my-homenet.example.com
 - Example.com is the domain of the delegation provider, so this can be a lightweight process not involving a normal registrar, and potentially can be cheaper. This makes sense if the end user wants a global name but doesn't care what it is.
- Secure delegation requires ZSK and KSK to be generated and provided to ISP somehow
 - Could be some kind of DHCP-PD thing
 - Could be an API
 - Could be done by an app, rather than by homenet routers

Question for the working group

What do we actually want?

(I want full DNSSEC)

Why go to all this trouble?

(My answer is that especially taking into account current events, delivering security to the homenet is work seriously thinking about, even though it's hard.)

Requirements doc

I am working on a requirements doc, currently:

`draft-lemon-homenet-dns-requirements-00`

Goal is just to capture this somewhere, not to publish.

Please help to finish the document:

- Add requirements

- Flesh out implications

- Explain pros and cons

Comments?