Homenet Naming Architecture Update

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DNSSEC Handling

- Thought about doing something super-clever.
- It's too hard.
- So just require a global name and a delegation for DNSSEC
- DS should have the public keys of all of the HNRs
- HNR master for securely delegated zone signs with its own key
- If no stateful primary, every HNR signs zones it publishes.
- So we need an internal delegation for each per-link zone.
- No DNSSEC for reverse mappings.
- I think this works, would be nice to get some review.

Global Domain Name

- Mechanism similar to DNSSD SRP gets global domain name
- Relies on the ISP providing this service
- Or configure HNR with a domain in which to register
- Or manually configure HNR with a domain name
- Delegated names generated automatically by the registration server (unless chosen by the user)
- HNRs do not answer queries for the homenet domain from hosts not on the homenet

Publication of Names

- Can be handled by Discovery Proxies
- All HNRs must support Discovery Proxies, because mDNS
- Can also be done with stateful authoritative service
- Stateful requires DNSSD SRP, and is not MTI for HNRs
- How link names are generated is now specified in detail
- If there is more than one stateful server
  - Secondaries do zone transfers from primaries
  - When a primary goes away
    - A new one is elected from the remaining secondaries
    - Lost state can be recovered through SRP renewals

Resolution of Names on the Homenet

- The homenet TLD (default home.arpa) contains delegations to HNRs for per-link subdomains they proxy
- If the homenet TLD is stateful, then only HNRs that support stateful will be used to resolve names directly under it
- If it's stateless, every HNR can answer for the TLD
- The per-link delegations are determined using HNCP
- We used to require each HNR to act as a discovery broker
- Now we require each HNR to have a special DNS proxy

HNR DNS Resolver

- Looks at the domain to see how to resolve it
- If it's local, resolves it locally
- If it's non-local, forwards it to the ISP
- This needs to be a recursive resolver because recursion is required for answers on the homenet
- This could also be done with a discovery broker
- Multiple Provisioning Domains
  - Uses an EDNS0 option to indicate which PVD to use
  - Hosts that don't support this option are round-robined across ISPs

Remaining Issues

- I think the document is mostly complete as an architecture
- We need a section with normative language that specifies all of the behaviors for implementors
- There's a lot of innovation here
- We need (at least one) implementation to shake out issues
- Who's going to do it?