Simple Homenet Naming Architecture

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Status

- Changed the organization of the document
- Document is not entirely correct—e.g. it says it's a full architecture, but it's not
- Says a full-service resolver is required; it's not, a proxy will do as long as it splits out queries for local zones
- Most new sections are sketchy, need to be expanded

New Structure

- Now structured based on the elements that need to be implemented
- Name
- Authority
- Resolution
- Publication
- Host Configuration
- Trust

Name

- A forward domain name for the homenet
- In the simple architecture, this is always "home.arpa" although in theory the user could put in some other name.
- Simple homenet naming architecture provides no support at all for delegation of a global name, so if the user wants that, they can't use simple naming.

Authority

- An authoritative DNS server
- Sounds like more than it is
- In simple homenet, this is a Discovery Proxy
- There is no stable storage
- Supports the following locally-served zones using Discovery Proxy:
  - home.arpa
  - fc.ip6.arpa
  - 10.in-addr.arpa
  - 168.192.in-addr.arpa
  - 16.172.in-addr.arpa
- Also answers queries for all other locally served zones

Resolution

- Listens on port 53 and answers any questions hosts on the local wire may ask
- Could be a DNS proxy
- Could be a DNS caching resolver
- Must support diversion of locally-served zones
- Diversion is to the local authoritative name server

Publication

- Services can:
  - Publish information about services they provide
  - Publish information about how to reach them
- Manages the lifetime of such information

Host Configuration

- Gets IP addresses of local resolvers to hosts

- DHCPv4 (if IPv4 supported)

- DHCPv6 (optional)

- IPv6 RA (mandatory)

- Given a resolver IP address, then the client can use RFC6763 "discovery of browsing domains" to figure out how to do DNS-based DNSSD.

- Because it is very lightweight, we have explicit support for doing this discovery using mDNS in the Discovery Relay document

Trust

- Some basis for establishing trust
- For simple naming, this is a mechanism that provides a way to assure that a service registration is coming from the local link
- mDNS registration can be assumed to be coming from a local link (IOW, this is free)
- Although not used there, Simple Naming must define a way to validate that each DNSSD registration protocol update came from a local link, and which link it came from

Related Work

- I intend to start Advanced Naming Architecture document (individual submission for now)
  - Why? We need to make sure that the Simple Homenet Naming Architecture actually provides what's needed for Advanced Naming to build on
  - I think this is actually necessary for success of Homenet in the long term
  - If that's true, sooner is better

Next steps

- Flesh out the new sections of Simple Naming to the point where they are believed to be complete
- Finish Security Considerations section
- Review of this new version of the document would be appreciated, we will announce on the list when ready
- Finish DNSSD software implementations required to implement the architecture
- Build a version of OpenWRT that has this built into it and see if it works (discover omissions in document)
- Stuart and I (at least) will be working on this between now and the Montreal meeting
- WGLC, sooner is better assuming all the above is done