

IETF 81 Homenet

Name Resolution Discussion

SCOPE

- Local Naming in home networks.
- Discuss proposal from mailing list by Wouter Cloetens.
- Discuss DNS related items on home networks including DNS resolution.

Local Naming

Problem Statement:

Name discovery and resolution at the home network is complex and not well covered in the IPv6 space. There is a well defined need to resolve hosts from both inside and outside the home network.

There are currently several technologies that handle local naming within home network:

- mDNS
- UPnP
- SSDP discovery
- DHCPv4 and DHCPv6 names
- Manual configuration via the web UI

Mailing List Discussion

- Proposal from the mailing list:
<http://e2big.org/ietf/draft-cloetens-homenet-dns-delegation>
- Proposal: DNS delegation to gateway
 - ISPs delegate to the gateway for zones
 - ISP zone: example.com
 - Customer registers zone foo.example.com and the ISP delegates this zone to the customer gateway.
 - Reverse zones could also be delegated in the same manner to the gateway in support of a delegated prefix (or prefixes), and for the GW's public address, which it received via DHCPv6 or SLAAC.

Mailing List Discussion cont.

- Some questions, thoughts, and suggestions on this proposal
 - Creation of lame delegations when gateway devices are offline.
 - How do you notify authoritative DNS that delegation is no longer needed.
 - In larger networks this could become problematic and cause resource constraints on the upstream DNS.
 - DNS update on DHCPv6 lease expiration or layer 2 or layer 3 link loss detection.
 - Making the gateway an authoritative DNS server introduces some security risks.
 - Lack of secondary server in single gateway device configuration.

Mailing List Discussion cont.

- Why not use DDNS from the gateway or DHCP to handle creating the required zone updates?
 - There was a concerns raised with scaling DDNS to "internet of things" levels for this use case.
 - Perhaps we could use DDNS update to a pre-defined zone either registered by the user or ISP as we do now. There are plenty of examples of this being used today.
 - DDNS updates could also be handled by the DHCPv6 server.
- Do we need to populate RDNS for residential gateways?
 - Perhaps this is solved only for forward records.
 - Given the size and complexity for RDNS and IPv6, does it make sense building this to scale for potentially massive zones and resource records?
 - Perhaps we continue this work?
<http://tools.ietf.org/html/draft-howard-isp-ip6rdns-04>

Mailing List Discussion cont.

- Support for IPv4 and IPv6 hostname discovery should be included in the design.
- Some gateway devices have a built in DNS Proxy which handle local discovered hostnames, and forward out external requests. In some cases this does not work very well, and provides a poor user experience.

CACHING DNS

Problem statement:

DNS caching and proxying on some gateways is still an issue, and will continue to be an issue as we continue forward with IPv6 and DNSSEC rollout.

- RFC and BCP on DNS proxy recommendations for gateways:
 - <http://tools.ietf.org/rfc/rfc5625.txt>
 - Is this enough?
 - How does this impact service discovery and edge resolution on home networks?
 - Is this a problem that Homenet should engage in?

Thank you

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