Outsourcing Home Network Authoritative Naming Service

draft-ietf-homenet-front-end-naming architecture
draft-ietf-homenet-naming -architecture-dhc-options

Migault, Weber, Hunter, Griffiths, Cloetens

Position

The draft has been put on hold since it was believed it would be preferred to have the homenet naming architecture more advanced.

We believe the draft is pretty much baked and has benefit from a large number of comments.

Position

Simple naming architecture makes services, hosts reaching, discovering each others <u>WITHIN</u> the homenet with <u>no configuration</u>.

- Reaching homenet services / hosts from outside the homenet is out of scope
- DNSSEC is out of scope

Front End makes services hosts of the homenet reachable OUTSIDE the homenet by outsourcing the Homenet Zone <u>OUTSIDE</u> the homenet

- <u>outsourcing</u> makes sense only to reach services / hosts from outside the homenet
- Requires configurations
- DNSSEC is in scope

Motivation

DNSSEC Homenet Zone

DNSSEC Homenet Zone

Outsourcing Infrastructure

Internet
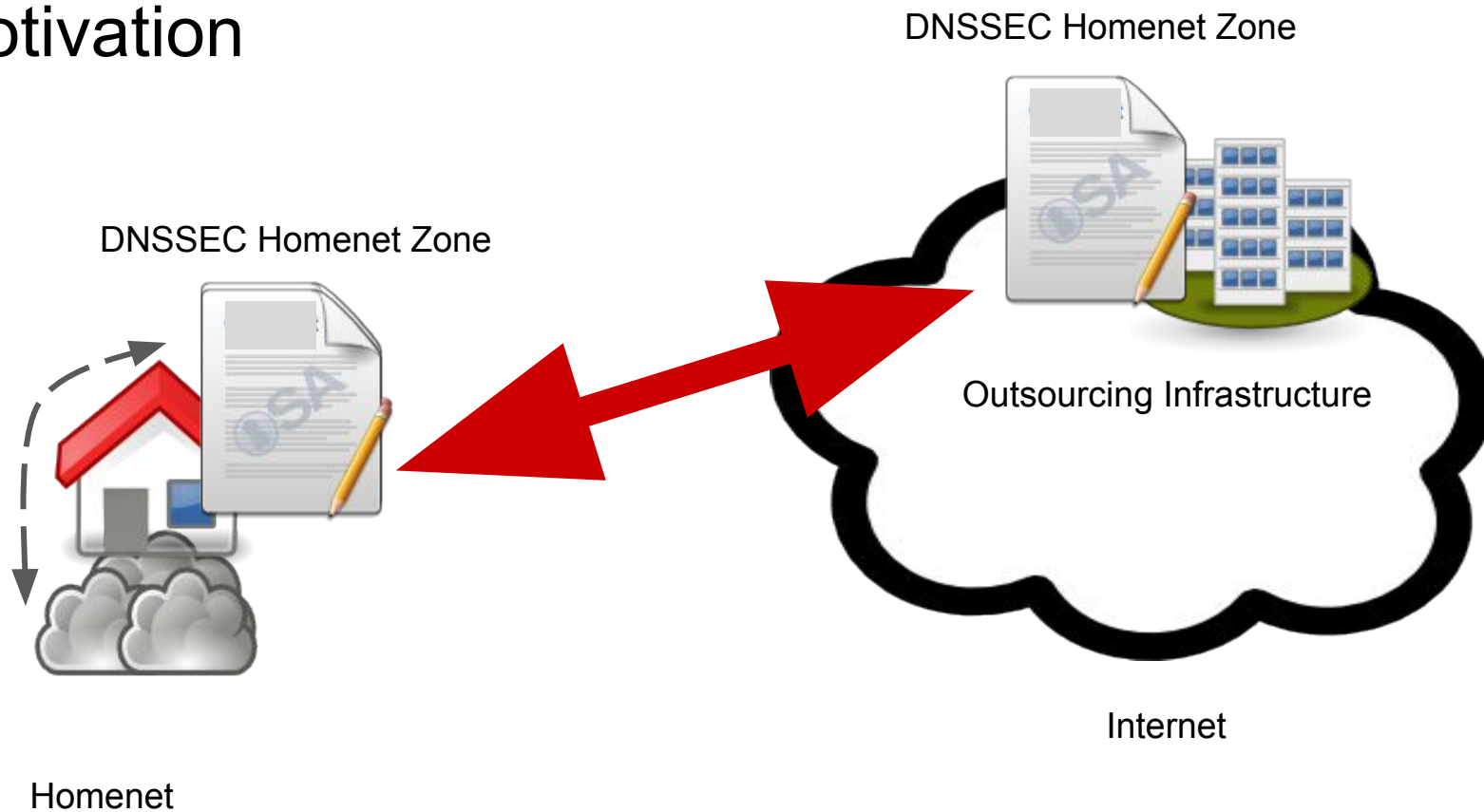
Homenet

Description

The Homenet requirements recommends that the Homenet Zone remain reachable in case of connectivity issue:

- Homenet Zone is "published" inside the Homenet and in the Outsourcing Infrastructure (Public Homenet Zone).
- Synchronization uses a Hidden Primary mechanisms
- DNSSEC signing can be handle by one or the other organization
  - The draft recommends it being performed by the HNA
- HNA also handles reverse homenet zone
  - Prefix proved by IS

HNA Configuration (synchronization)

- Synchronization Server: The associated FQDNs or IP addresses of the Synchronization Server.
- Authentication Method: How the HNA authenticates itself to the Synchronization Server (IPsec, DTLS and TSIG)
- Authentication data: Associated Data (PSK, certificates)
- Public Authoritative Server(s):   The FQDN or IP addresses of the Public Authoritative Server(s).
- Registered Homenet Domain: The domain name used to establish the secure channel. To index NOTIFY when HNA being renumbered.

HNA Configuration (Homenet Zone)

- Public Authoritative Server(s):   The FQDN or IP addresses of the Public Authoritative Server(s).
- Registered Homenet Domain: The domain name used to establish the secure channel.

Status

Pretty much finalized.

The homenet naming architecture is rather orthogonal to this draft:

- However, we may have better text reference now that the naming architecture is moving forward.

We believe that next iteration the draft can be ready to be sent to the IESG.

There are implementations ongoing

Thanks you!

DHCPv6 Option for Homenet Naming Architecture

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Zero configuration...

… or at least reduce configuration burden.

There are little ways for the HNA to know out of the box the configuration parameters unless:

- Provisioned once for all - across HNA
- Provided upon booting by the infrastructure

Base Scenario

The base scenario considers that the ISP already provides:

- A domain name to the CPE / Homenet
- IP address and so the Reverse Homenet Zone
- Has specific relation to authenticate the Homenet

As a result, the draft leverage this information already provided by the ISP in order to provide a use case where end users plug an HNA that get automatically configured.

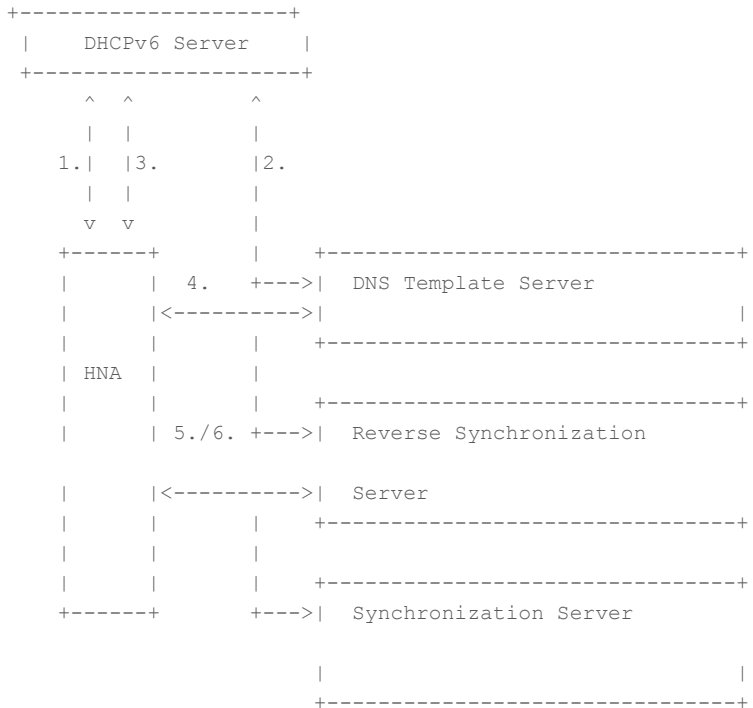Communication is performed using DHCPv6

Other scenarios

Other use cases with are also described in the draft:

- Third Party Registered Homenet Domain
- Third Party DNS Infrastructure

Communication could be extended using other protocols (HTTPS)

Overview

```
+--------------------+
|   DHCPv6 Server    |
+--------------------+
    ^  ^        ^
    |  |        |
 1.|  |3.      |2.
    |  |        |
    v  v        |
 +------+       |   +------------------------------+
 |      | 4.    +--->|   DNS Template Server        |
 |      |<--------->|                              |
 |      |       |   +------------------------------+
 | HNA  |       |
 |      |       |   +------------------------------+
 |      | 5./6. +--->|   Reverse Synchronization    |
 |      |       |
 |      |<--------->|   Server                     |
 |      |       |   +------------------------------+
 |      |       |
 |      |       |   +------------------------------+
 +------+       +--->|   Synchronization Server     |
                |                              |
                +------------------------------+
```

1) OPTION_PUBLIC_KEY + ORO [OPTION_DNS_ZONE_TEMPLATE, OPTION_SYNC_SERVER, OPTION_REVERSE_SYNC_SERVER]
2) Provisioning to secure DNS transaction:
   a) Client Public Key, Zone Template FQDN,
   b) Client Public Key, IPv6 subnet
   c) Client Public Key, Registered Domain
3) Responding with OPTION_PUBLIC_KEY, OPTION_DNS_ZONE_TEMPLATE, OPTION_SYNC_SERVER, OPTION_REVERSE_SYNC_SERVER
4) AXFR request
5) 6) Provisioning

Third Party Registered Homenet Domain scenarios

Third Party Registered Homenet Domain

- CNAME, DNAME CNAME+DNAME

Third Party DNS Infrastructure:

- Zone Template, Reverse Zone may still be managed by the ISP
- Communication between the Synchronization Server / HNA may be configured manually via a GUI:

Thank You!