IPv6 Home Network Front End Naming Delegation

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Goal of the Document

This document describes a Naming Architecture:

- Fulfills Home Network Naming requirements
- Does not exposes the CPE to resource exhaustion.

We considered comments from the previous presentation:

- ISPs has NO specific function
- Only uses widely deployed DNS configurations (Master/Slave)
Problem Statement

Internet  CPE / Homenet

Homenet DNS traffic
Problem Statement

Internet

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Homenet DNS traffic

CPE / Homenet

audio
Problem Statement

Internet

CPE / Homenet

Homenet DNS traffic

Public DNS Servers

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Architecture Requirements

- Public DNS Servers MUST handle Homenet DNS(SEC) queries coming from the Internet

- CPE MUST NOT handle DNS queries coming from the Internet

- CPE Hidden Master IP address MUST NOT be published in DNS zone data

- CPE MUST answer Homenet DNS(SEC) queries from the Homenet

- CPE MUST be able to manage the Zone hosted on the Public Servers

- CPE SHOULD be able to provide different views (Public, Private, ...)

Architecture Description
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- Homenet Resolving Server
  - DNS resolutions for Homenet Nodes
  - Internet or Authoritative Server
- Homenet Authoritative Server
  - Hosts the Homenet View
  - Answers Homenet nodes only
- Master Public Server
  - Hosts the Public View
  - Answers Internet nodes only
- Master / Public Server Synchronization
  - DNS Master / Slave mechanism, AXFR, IXFR, NOTIFY
  - Master only answers to Slave / Homenet Resolving Server queries
  - Transaction secured with TKEY, IPsec, DTLS...
CPE Configuration

Public Server informations are:

- Public DNS(SEC) Servers (Zone Configuration)
  - FQDN
  - IP addresses (Optional with DNSSEC)
- Public Server Management Name (Master/Slave)
  - FQDN
  - IP addresses (Optional with DNSSEC)
- Authentication
  - Method
  - Data
CPE Configuration

Setting the Views:

- Public Server
- Homenet Domain Name
- Rules Homenet / Public Views
- DNSSEC Data
Position toward Homenet Architecture

- Naming configuration is automatically performed by the CPE

- End User assigns names to device and CPE attached them to Internet Domain ("search" field)

- Co-exists with current Naming architecture

- Devices can be seen in multiple private / public Internet spaces

- Works in case the Internet connection is broken
Next Steps

- Address functions of MDNS within Homenet LAN
- Publishing details northbound via Hidden Master
Thank You for your attention