

Homenet Naming DHCP Options

draft-mglt-homenet-naming-architecture-dhc-options-01

draft-mglt-homenet-front-end-naming-delegation-03

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Homenet Front End Naming Architecture

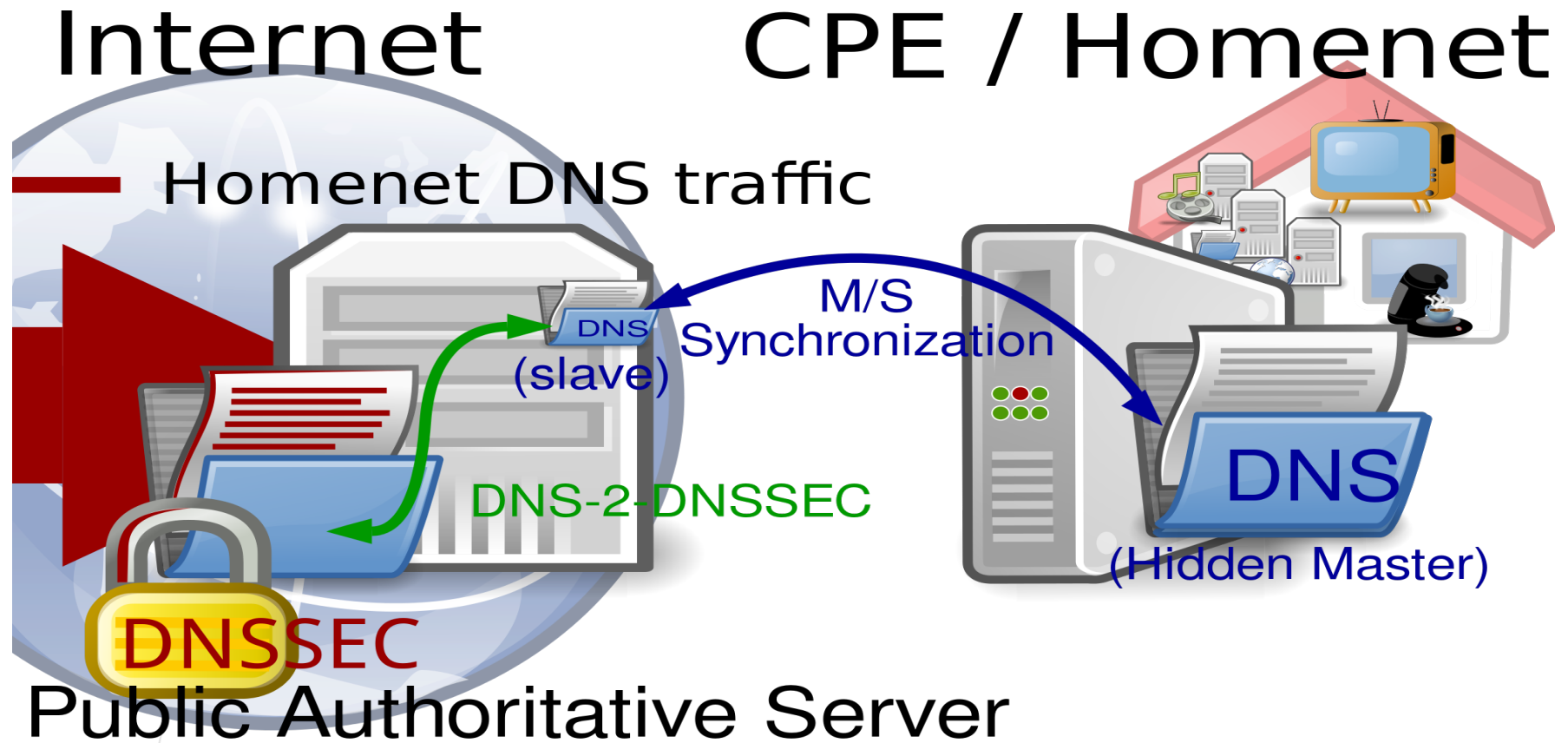
Homenet Front End Naming Architecture

- Enables the Homenet to outsource the public DNS/DNSSEC service
- Re-uses DNS master slave synchronization between:
 - ▶ A (hidden) master on the CPE
 - ▶ A Slave on the Public Authoritative Name Server Set
 - ▶ Publication is performed on the Public Authoritative Master
- Defines how to set the CPE

Homenet Front End Naming Architecture does NOT:

- Specify how to set the public zone
- Specify how DNS works within the Homenet

Front End Naming Architecture



Homenet Front End Naming Architecture

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- Defines the Front End Homenet Naming Architecture.
- Defines how the CPE SHOULD set it.

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- Defines DHCP Options to set the Front End Homenet Naming Architecture
- Achieve Zero-Conf or Least-Conf

What information the CPE needs?

- Necessary information to setup the DNS Homenet Zone
 - ▶ The Registered Homenet Domain
 - ▶ Public Authoritative Master (NS, FQDNs, IPs)

- Necessary information to synchronize the DNS Homenet Zone
 - ▶ Public Authoritative Name Server Set
 - ▶ Security credentials secure the communication

- Necessary information to synchronize the DNS Homenet Reverse Zone
 - ▶ Reverse Public Authoritative Name Server Set
 - ▶ Security credentials secure the communication

DHCP Zone Template Option

Necessary information to setup the DNS Homenet Zone:

```
dig "Zone Template FQDN" @"Authoritative DNS Server IP6" AXFR
[-k TSIG_KEY] [-k SIG-0_KEY ] [+dnssec]

 0                               1                               2                               3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|  OPTION_DNS_ZONE_TEMPLATE  |  option-len  |
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|
|          Authoritative DNS Server IP6
|
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
| Security          |
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|
|          Zone Template FQDN
|
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
```

Example of Zone Template

```
$ORIGIN example.com
$TTL 1h
```

```
@ IN SOA public.autho.servers.example.net
        hostmaster.example.com. (
    2013120710 ; serial number of this zone file
    1d        ; slave refresh
    2h        ; slave retry time in case of a problem
    4w        ; slave expiration time
    1h        ; maximum caching time in case of failed
              ; lookups
        )
```

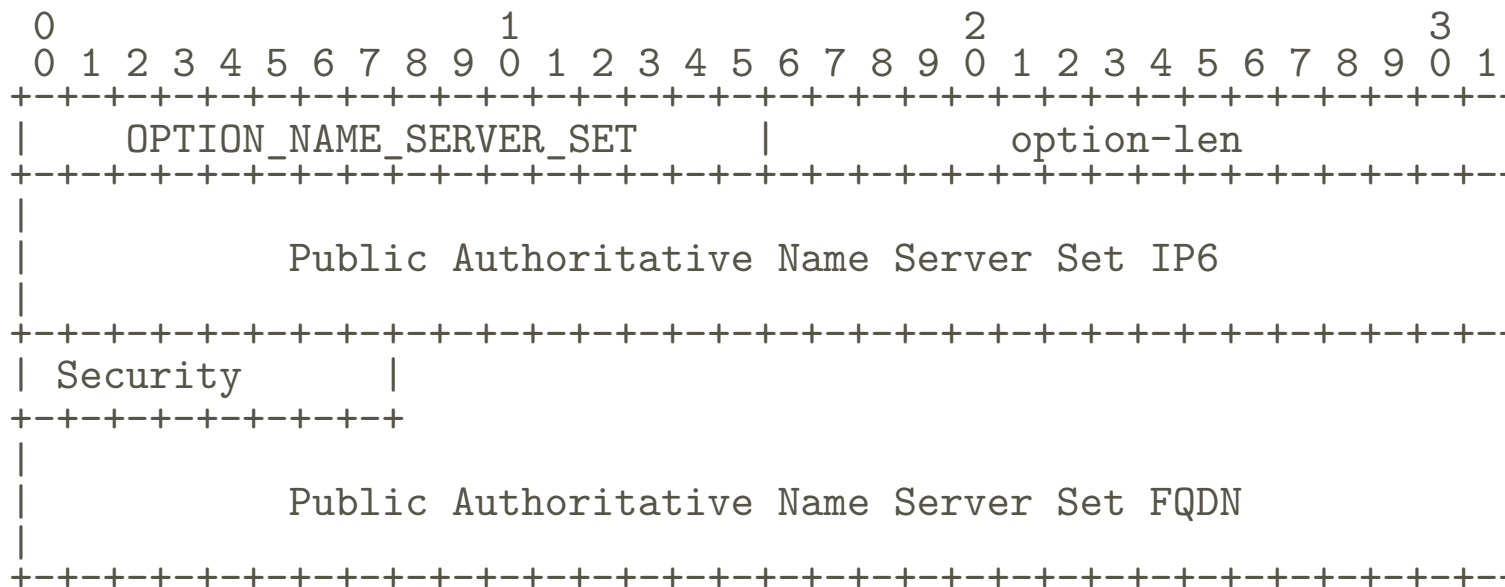
```
@ NS public.autho.servers.example.net
```

```
public.autho.servers.example.net A @IP1
public.autho.servers.example.net A @IP2
public.autho.servers.example.net AAAA @IP3
public.autho.servers.example.net AAAA @IP4
```

```
[TO BE COMPLETED BY THE CPE]
```


DHCP Name Server Set Option

Necessary information to synchronize the DNS Homenet Zone

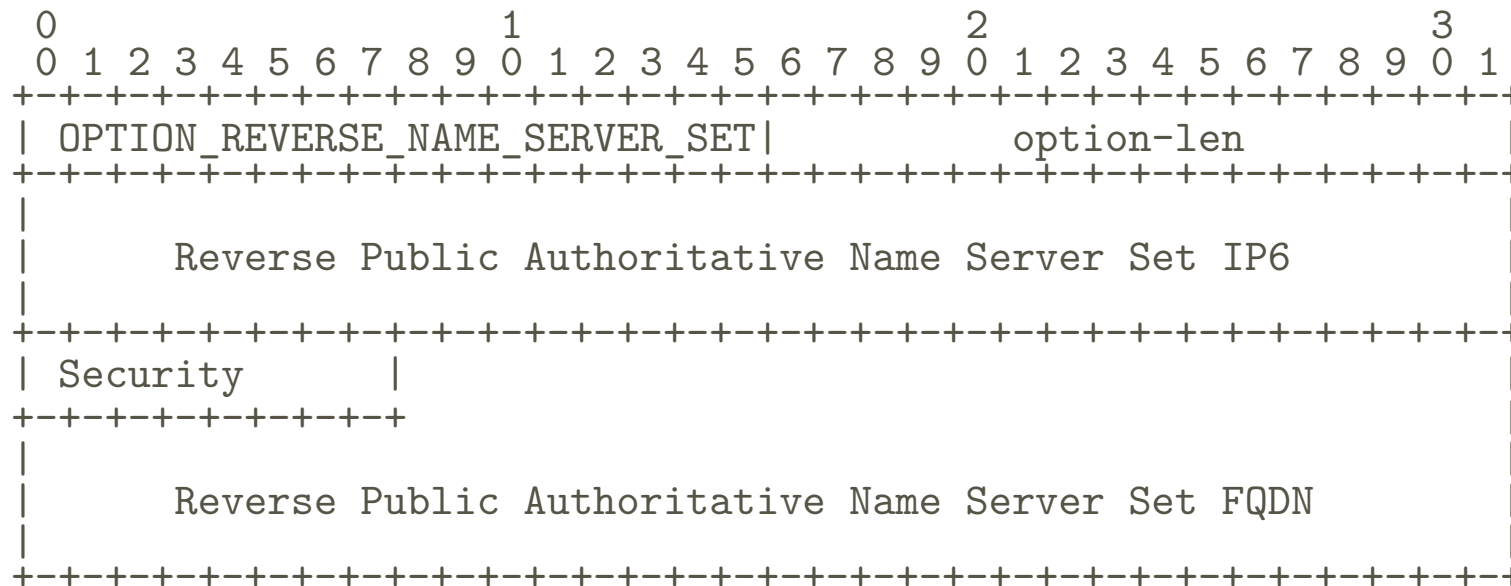


CPE (Hidden) Master

- Sends a NOTIFY to "Public Authoritative Name Server Set IP6"
- Secures the communication with "Security" (NULL / TSIG / SIG-0)

DHCP Reverse Name Server Set Option

Necessary information to synchronize the DNS Homenet Reverse Zone



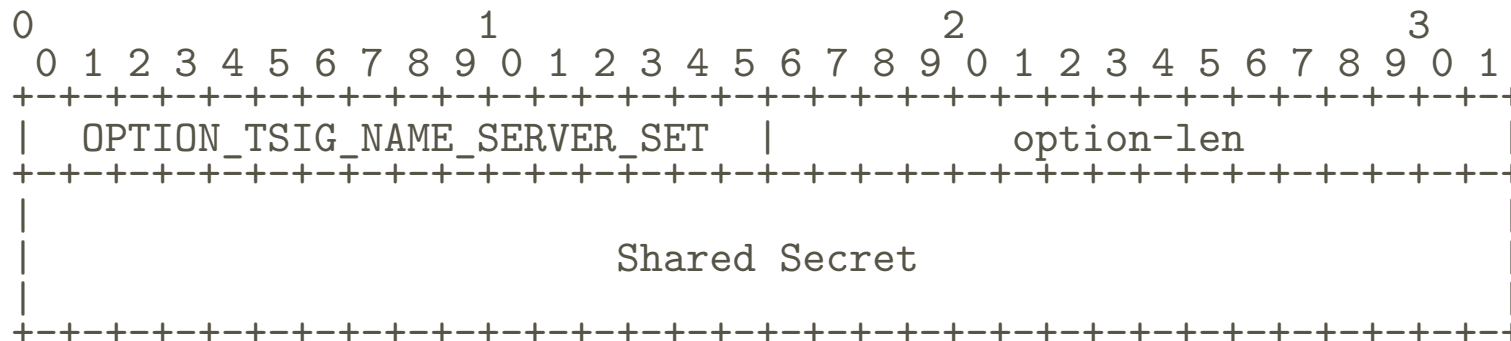
CPE (Hidden) Master

- Sends a NOTIFY to "Public Authoritative Name Server Set IP6"
- Secures the communication with "Security" (NULL / TSIG / SIG-0)

DHCP TSIG * Option

When TSIG is used to secure the exchanges, it can be provided:

- DHCP TSIG Public Authoritative Name Server Set Option
- DHCP TSIG Reverse Public Authoritative Name Server Set Option
- DHCP TSIG DNS Zone Template Option



Scopes

In order to ease the design of DHCP Options we assume:

- A single Registered Homenet Domain is provided
- A single Public Authoritative Name Server Set is provided
- Various servers involved have at least 1 IPv6

Zero Conf ?

Scenario 1: Front End Naming provided by ISP

- End User registered its ISP with "myhomenet"
- The End User plugs the CPE
- The CPE set the FE Naming Architecture
- Anyone can resolve "device.myhomenet.isp" and reverse zone

EU interaction is needed for:

- "myhomenet":
 - ▶ Provided by the ISP to the End User
 - ▶ Agreed between the End User and the ISP
- Authorizing "device" to be publish:
 - ▶ Once authorized, it can be stored in the DNS Zone Template.

Zero Conf ?

In both case:

- No network configuration
- Settings can be done once for all
- Settings can CPE independent

Zero Conf ?

Scenario 2: Front End Naming provided by a third party

- A) Configure properly the DHCP Options
 - ▶ Cons:
 - Requires the ISP to permit this
 - Configuration by the End User
 - ▶ Pros:
 - Guidance can be provided by the third party
 - Settings can be done once for all
 - Settings can CPE independent

Zero Conf ?

- B) While registering to the third party
 - ▶ DNAME the registered Zone to "myhomenet.isp"
 - ▶ Pros:
 - No network configuration
 - Settings can be done once for all
 - Settings can CPE independent

Thank you for your attention