DHCPv4 over IPv6
Server option

IETF84
draft-mrugalski-softwire-dhcppv4-over-v6-option-00

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Lightweight 4over6 Architecture

CPE (NAT)

IPv4

DHCPv4

AFTR Per-subscriber binding table

<table>
<thead>
<tr>
<th>IPv6</th>
<th>IPv4</th>
<th>Port Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001:db8::1</td>
<td>192.1.2.3</td>
<td>1024-2048</td>
</tr>
<tr>
<td>2001:db8::2</td>
<td>192.1.2.3</td>
<td>2048-3072</td>
</tr>
</tbody>
</table>

IPv6

DHCPv6

- CPE IPv6 address
- CPE IPv6 delegated prefix
- DNS resolver
- Concentrator IPv6 address
- IPv6 address of DHCPv4 server

IPv4

DHCPv4 (over IPv6)

configures CPE Initiator IPv4 address and port set

IPv6

CPE implements:
- DHCPv4 Client Relay Agent (over IPv6) to configure initiator IPv4 address and port set

Initiator

Concentrator

IPv4

DHCPv6

DHCPv4 (over IPv6) configures CPE Initiator IPv4 address and port set
DHCPv4-over-IPv6

- DHCPv4-over-IPv6 defined in draft-ietf-dhc-dhcpv4-over-ipv6-03
- CRA (Client Relay Agent) needs to discover tunnel end-point
- A simple DHCPv6 option to convey tunnel end-point is needed
Two possible approaches

- FQDN
  - Pro: Similarity to DS-Lite option
  - Con: More complicated (DNS interaction)
  - Con: More failure modes
    - Need DNS
    - What if there is no AAAA?
    - What if there are multiple AAAAs?
    - Malformed FQDN
  - Con: Slower (DNS RRT)
- A single IPv6 address
  - Pro: Simpler
  - Pro: Faster
  - Pro: No external dependency on DNS
Next steps

- Change FQDN->IPv6 address (?)
- Would it be suitable for adoption in DHC?
- Call for adoption (DHC? Softwires?)
Thank you