DHCP4o6 Active Leasequery

Presenter: Lishan Li

Motivation

- DHCPv4 over DHCPv6[RFC7341] provides a mechanism for obtaining IPv4 configuration dynamically in IPv6 networks.
- DHCP 4o6 lease (Carried in DHCP 4o6 packets)
  - DHCPv4 lease
    - Including IPv4 address and other DHCPv4 options
  - Related DHCPv6 options
    - May be provided by client
    - May not include DUID
- Requirement: Provide active leasequery for DHCP 4o6
  - Example Use Case: Lightweight 4over6

Use Case

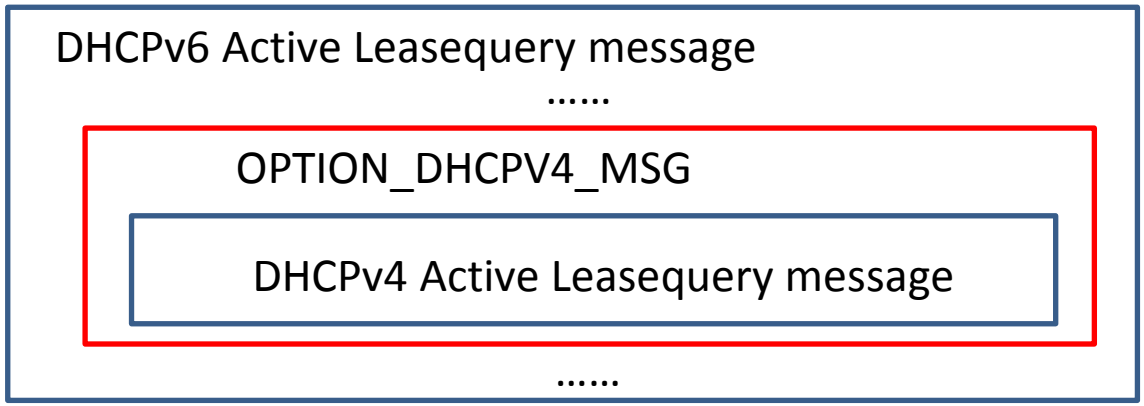
- Lightweight 4over6 (with dynamic provisioning)：
  - DHCP 4o6 server maintains binding information for each client: (IPv6 tunnel source address, IPv4 address, PSID)
    - IPv6 tunnel source address: In DHCPv6 message, an option provided by client
    - IPv4 address & PSID: In DHCPv4 message, allocated by server
  - LwAFTR works as requestor to get clients' real-time binding information from DHCP 4o6 server.

Motivation

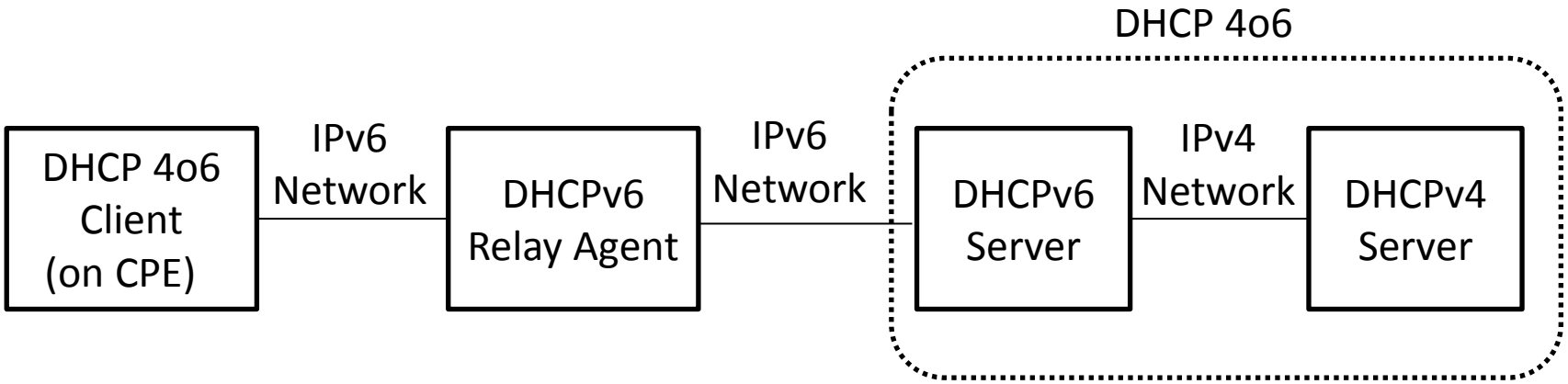
- Current mechanisms not enough
  - DHCPv4/DHCPv6 Active Leasequery
    - Allow client to get real-time DHCP address binding information via TCP
  - Only run DHCPv4 Active Leasequery: Cannot provide DHCPv6 options.
  - Run DHCPv4/DHCPv6 Active Leasequery separately: DHCPv4/DHCPv6 information can not be associated together. (No identifiers in DHCPv6 options)
- This document provides a mechanism to getting real-time DHCP 4o6 lease information.

Solution

- Extend DHCPv6 Active Leasequery to allow an entity get combined DHCPv4 over DHCPv6 lease information
- Similar architecture to DHCP 4o6
  - Using OPTION_DHCPV4_MSG (RFC7341) as container
  - DHCPv6 Active Leasequery messages contains OPTION_DHCPV4_MSG option
  - OPTION_DHCPV4_MSG option contains DHCPv4 Active Leasequery message
  - No new messages / options defined



Applicability



Next Step

- Add DHCP4o6 bulk leasequery for lwAFTR reboot/crash
- Any comments ?
- Move forward in DHC WG?