Tracking Static/AutoConfigured IPv6 Addresses

draft-asati-dhc-ipv6-autoconfig-address-tracking

IETF 86

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Agenda

- Motivation
- Solution
- Next step

Motivation

- Need a way to convey SLAAC (or Static) assigned IPv6 addresses to the backend for various Use-Cases:
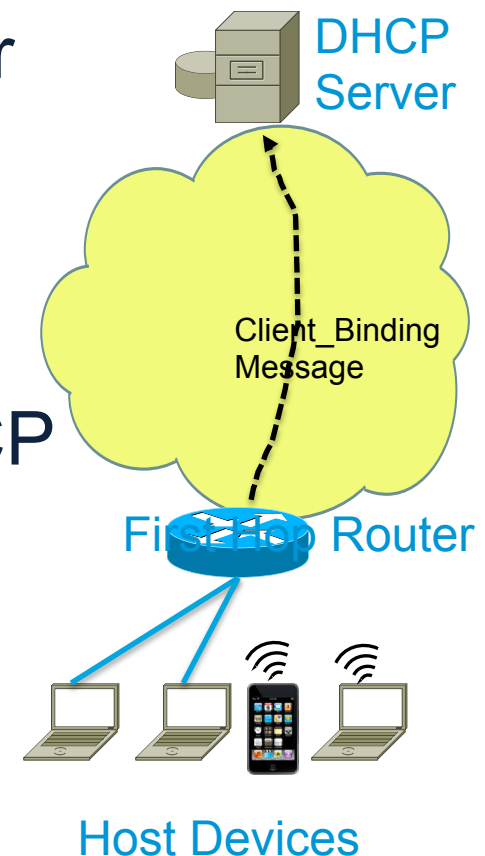
    1. IP address *Logging*

    2. IP address *Tracking*

    3. Compliance

- Avoid host changes/dependency (note BYOD)

Solution

- First Hop Router conveys the "Neighbor Cache" entries to the backend using DHCPv6

- New DHCPv6 messages and new DHCP option defined

   Add an IP:MAC binding entry

DHCP Server

Client_Binding Message

First Hop Router

Host Devices

Solution

- ## Host Behavior

  No changes required.
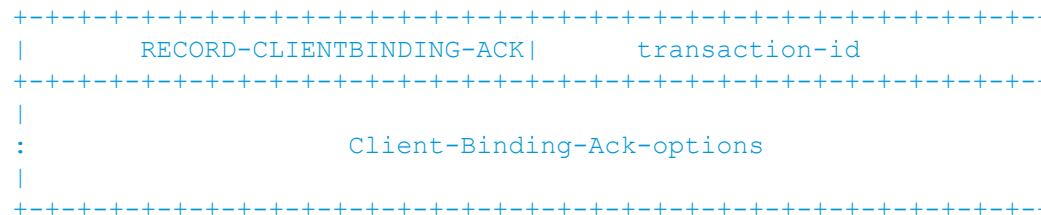
- ## Router Behavior

  Uses the DHCP message to send one or more IP:MAC bindings (from Neighbor cache) to the DHCP server
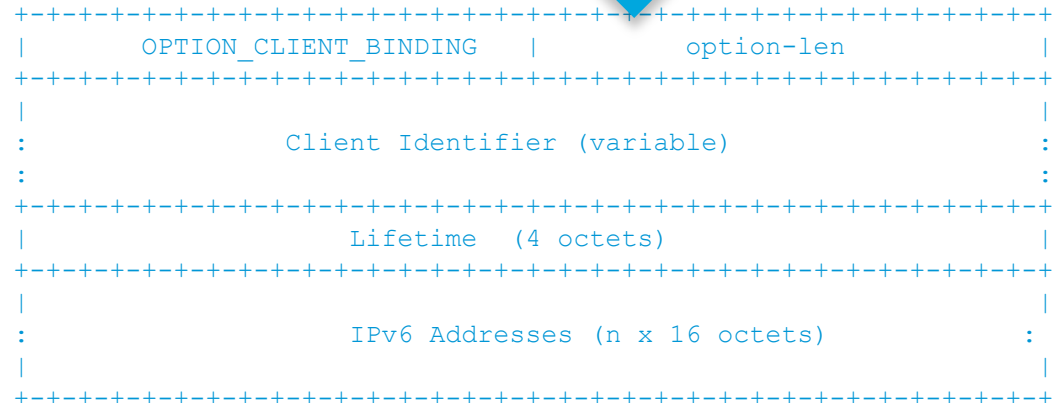
- ## Server Behavior

  Receives/Stores the IP:MAC bindings

Solution – DHCP Message & Option

Message

```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     RECORD-CLIENTBINDING-ACK|      transaction-id           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                             |
:              Client-Binding-Ack-options                     :
|                                                             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Option

```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|       OPTION_CLIENT_BINDING   |         option-len          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                             |
:             Client Identifier (variable)                   :
:                                                             :
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|              Lifetime  (4 octets)                           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                             |
:             IPv6 Addresses (n x 16 octets)                 :
|                                                             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Next Steps

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    Already had some discussion on the mailing list

    Already had good interest off-list

- Welcome Contribution/Participation

- Solicit usefulness/WG Adoption

Solution – Why DHCP?

- If DHCP is used for address assignment, then DHCP server already records the IP:MAC binding per host

- DHCP server has been the de facto placeholder for storing the IP-MAC binding information