Layer 2 Relay Agent
DHC WG
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Little bit of history

• During Chicago WG meeting, we discussed draft draft-joshi-dhc-layer2-relay-agent-01. This draft described the Layer 2 Relay Agent [L2RA] functionality and some extension to it. This draft focussed on extension assuming Layer 2 Relay Agent functionality is widely known.

• In WG meet and on mailing list, it was discussed that an Informational document on Layer 2 Relay Agent is required which describes the Layer 2 Relay Agent functionality and how some of the existing Layer 2 Relay Agent implementations works.

• This is why draft ‘draft-joshi-dhc-l2ra-00.txt’ is created.
Layer 2 Relay Agent

- A layer 2 device that snoops DHCP messages and appends/removes relay agent information option before forwarding them.

- Need of a Layer 2 Relay Agent [L2 RA]
  - In some network scenarios, a DHCP server can not uniquely identify the end host using the Relay Agent Information appended by Layer 3 Relay Agent [ L3 RA]. In these cases, the closest layer 2 device appends/removes Relay Agent Information option.
  - Some Layer 2 devices snoops DHCP messages to create MAC-IP binding table. This helps in preventing MAC and IP spoofing attempts
## L2RA – L3RA

<table>
<thead>
<tr>
<th>L2RA</th>
<th>L3RA</th>
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</thead>
<tbody>
<tr>
<td>• Adds Option 82 but does not set ‘giaddr’.</td>
<td>• Adds Option 82 and populate ‘giaddr’ as it deems appropriate.</td>
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<tr>
<td>• Does not has DHCP server information</td>
<td>• Has the DHCP server information</td>
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<tr>
<td>• Broadcasts the upstream DHCP messages towards L3RA or DHCP server.</td>
<td>• Unicasts the DHCP messages to the DHCP server</td>
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<tr>
<td>• May intercept unicast DHCP messages if it maintains lease information</td>
<td>• Usually does not intercept unicast DHCP messages</td>
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Network Scenario #1

- Intercepts the DHCP broadcast message and appends option 82 but does not set giaddr
- Intercepts the reply message and removes option 82 and may use it to identify the outgoing interface
- Some existing implementation intercepts unicast DHCP request and reply message and appends/remove option 82.
- Echo back option 82 in the reply
- Some existing implementation does not support this as ‘giaddr’ is not populated
- Some existing implementation does not support echoing back option 82 in reply to a unicast message.
Network Scenario #2

- **Layer 2 Relay Agent**
  - Intercepts the DHCP broadcast message and appends option 82 but does not set giaddr
  - Intercepts the reply message and removes option 82 and may use it to identify the outgoing interface
  - Some existing implementation intercepts unicast DHCP request and reply message and appends/remove option 82.

- **Layer 3 Relay Agent**
  - Should be configured with trusted circuit
  - Sets appropriate ‘giaddr’ and send it to the server
  - Echo back option 82 in the reply
  - Some existing implementation does not support echoing back option 82 in reply to a unicast message.

- **Service Provider’s IP Network**
  - DHCP Server
Next Step

- Working Group Item?
- More review on mailing list for both L2 RA draft.
Thanks!