MIF DHCPv6 Route Options
Post WGLC Summary
draft-ietf-mif-dhcpv6-route-option-03

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-03 changes

- IA_RD option removed (was just a container)
- Route lifetime added
  - Does not govern renewal, this is done in the usual DHCPv6 way (info-refresh time option)
    info-refresh time option < route lifetime
  - Up to $2^{32}-2$ seconds, $0xffffffff$ means infinity
- Clarified about default route configuration
  - NEXT_HOP (addr) + RTOPTION (prefix, len, route lifetime, metric)
  - NEXT_HOP (addr) – this is for bandwidth limited networks only
- SHOULD NOT be used in dynamic routing environment
  - Resolves Routing Directorate concerns
WGLC in MIF

- WGLC in MIF completed
- Also requested for review in 6MAN and DHC
- Questions/comments received:
  - Separate option for default route?
  - Source routing?
  - Implementations?
  - Prefix format
  - RA vs DHCP preference
    - Proposed conflict resolution raised major concerns
Questions/Comments

• Why not provide source routing information?
  – That's a different problem. May define option for that later if needed.

• Separate option for default route?
  – No, one option type for all routes is enough.
  – Please don't ask again.

• MAC/link-layer address info?
  – No, not needed (redundant with ND), even harmful (operational concerns).

• Prefix format changed:
  – Fixed length (16) => variable length
Implementations

- “rough consensus and working code”
- Two independent implementations available
- ISC DHCP 4.2.3 (open source, BSD)
  http://www.isc.org/community/blog/201111/routing-configuration-over-dhcpcv6
- Dibbler 0.8.1RC1 (open source, GPL)
- Nominum
  - Ted Lemon confirmed that custom options can be configured
- ISC and Dibbler tested and are interoperable.
DHCPv6 vs RA: Conflict resolution (old)

- Proposal mentioned during WGLC:
  - In case of conflict (i.e. the same prefix reachable via different router) what should node choose?
- choose DHCPv6 over RA, choose secure

<table>
<thead>
<tr>
<th>DHCP</th>
<th>RA</th>
<th>DHCP</th>
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<tbody>
<tr>
<td>DHCP</td>
<td>RA(SEND)</td>
<td>RA</td>
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<tr>
<td>Secure DHCP</td>
<td>RA</td>
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Reasons:
- RA specify info for all hosts, DHCP is per host basis
- “Default” configuration (RA) can be overridden (DHCPv6) for selected hosts (or a class of hosts)
- DHCPv6 offers security
- Similar to DNS servers problem, adopting the same approach (but favor secure DHCP)
Post MIF comments

- Route options duplicate RA, so it more than doubles testing.
  - No obligation to support this.
- Syntax and semantics are different to RA. Keep it similar.
  - Agree. Will update option format.
- Conflict resolution: DHCPv6 route option should merge in with other data.
  - Agree. Will merge other routing info. We will get equal treating and the ability to override with DHCP using preference.
- Who actually needs this and why?
  - Roberta: http://www.ietf.org/mail-archive/web/mif/current/msg01412.html
  - Involved folks from Cisco, Nokia, Huawei, ISC and many more
  - TODO: expand section with use cases and motivations.
Next steps (1)

- WGLC seems to be concluded, except:
  - RA vs DHCP conflict resolution: merge not override
  - Syntax similar to RA
  - Expand motivation and use cases sections
- Presenting results in MIF and DHC WGs
- Will publish -04 with small significant changes
- Authors believe -04 draft will be ready for IESG Homenet review.
- Talk with Homenet revealed bigger problem...
Next steps (2)

Solve this:

- 2 DHCP servers with separate parameter sets (addrs, prefixes, options)
- Client chooses one server, gets parameters
- Chosen CPE goes down
- …

Solution:
Introduce mode where client gets uses all advertises. Big change for clients.
Thank you

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