DHCPv6 Route Option
(draft-dec-dhcpv6-route-option-02.txt)

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DHCPv6 - Route Option
Main changes from draft 01

• Clarified the scenarios (hopefully also addressing routing related comments raised)
• Pending conclusion of wider discussion, revision does not address comments regarding common RA-DHCP formats, etc.
Scenario:
- Single shared VLAN connects both clients
- It’s desired that both clients use Router B as their default gateway (0/0)
- It’s desired that only Client1 uses Router A as its primary gateway for destination subnet X/Y: A more specific route to X/Y via Rt A is required.
- It’s preferred to have client configuration managed via a DHCP server
- Addresses assigned to clients can be using SLAAC, DHCP, etc.
DHCPv6 - Route Option
Scenario 2 – Multi-homed Client

Scenario:
- Dual links (physical or logical) from client1 to Router A and B
- It’s desired that client uses Router B as its default gateway (0/0)
- It’s desired that Client1 uses Router A as its primary gateway for destination subnet X/Y. More specific route to X/Y is required.
- It’s preferred to have client configuration managed from a DHCP server
- Addresses assigned to clients can be using SLAAC, DHCP, etc.
DHCPv6 - Route Option
Scenario 1 – Shared VLAN

1. Client Requests DHCPv6 route option using ORO (likely among other options)
2. Server replies with Route Option for Prefix X/Y via Router A.
3. Client installs Route X/Y with Link-Local Next hop (Router A)
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Additional Background

• IGPs solve the problem but are often not feasible for deployment (eg Broadband DSL)
  – Simple on-demand configuration is preferred

• Existing operational practice with IPv4 (DHCPv4 option defined in rfc3442)

• ICMPv6 (rfc4191) presents an RA based solution to this problem, however:
  – Requires operator to provision the edge router (not always possible, eg when router is operated by different organization).
  – Scenario 1 requires all Clients to have the same route
  – Can be an operational issue when DHCPv4 practice is used
  – Does not integrate with centralized management

• Mechanism is primarily envisaged to be used by broadband RGs acting as DHCP Clients (PD, etc) towards the SP network
Next Steps

• Authors would appreciate feedback from the WG
  – (Feedback on some inconsistencies in the draft and editorial issues has already been received)