Lightweight DHCPv6 Relay Agent
draft-miles-dhc-dhcpv6-ldra-00

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IETF 72 - DHC Working Group
Problem Statement

- Insert Relay-Agent Options on non-routing devices
- No IP configuration (suitable for wholesale DSLAMS)
- Minimal Footprint and interaction with clients (avoid ND, ICMPv6, etc)
- DHCPv4 L2 Relay Agent equivalent
- No changes to client, relays or server
DHCPv6 Relay Agent Behaviour (RFC 3315)

Client

Relay

Server

- Src Client
- Dst All_DHCP
- SOLICIT
- Option1
- Option2
- OptionX

- Src Relay
- Dst Server
- RELAY_FWD
- Hop Count
- Link Addr
- Peer Addr
- Relay Option1
- Relay Option2
- Relay OptionX

Relay-Message Option

- SOLICIT
- Option1
- Option2
- OptionX
Lightweight DHCPv6 Relay Agent

Client

LDRA

Server

Src
Client

Dst
All_DHCP

SOLICIT

Option1
Option2
OptionX

Hop Count
Link Addr
Peer Addr

Interface
ID
Relay
Option1
Relay
OptionX

Relay-Message Option

Src
Client

Dst
All_DHCP

RELAY_FWD

Option1
Option2
OptionX

4 | draft-miles-dhc-dhcpv6-ldra | August 2008
Lightweight DHCPv6 Relay Agent

Client side:
- DA
- SA
- Etype
- IPv6
- Dest
- Src
- UDP
- msg type
- trans id
- options

Network side:
- Link Layer
- IPv6
- relay fwd
- hop
- link addr
- peer addr
- intf id
- relay msg
- client msg

- msg type: RELAY_FORW(12)
- link addr: unspecified (::)
- intf id: opaque value
- hop: 0 (or hop-count+1)
- peer addr: client address

5 | draft-miles-dhc-dhcipv6-ldra | August 2008
Client-side Relay

Client

relay

LDRA

Server

Client message

hop 0

hop 1

relay-opts

relay-opts

relay-opts

client message

hop 0
Closing

- All DHCP messages are intercepted (UDP + 547)
- Only Network-originated Relay-Reply messages are processed
- Interface-Id is validated or used to indicate client-port for Relay-Reply messages
- The LDRA may add additional relay-agent options as required
- The LDRA does not support unicast DHCP server operation
- The LDRA exists without any IPv6 address assigned to it (not even link-local)
- The LDRA does not implement ICMPv6 / Neighbour Discovery
- The LDRA does not support IPv6 fragmentation
- Link-layer addresses are preserved if applicable (source MAC is the client addr)