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

Subnet A

Subnet B

Network

Client   LDRA   Relay   Server
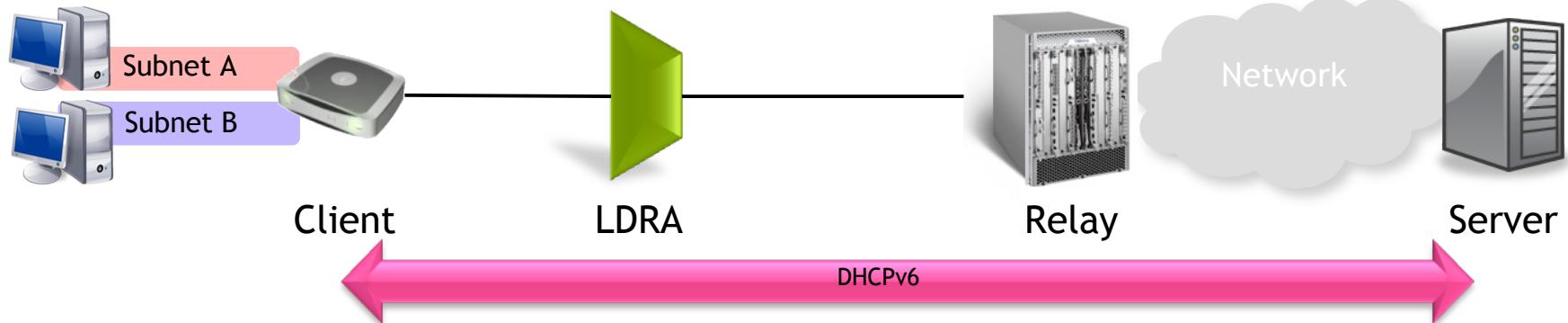
DHCPv6

DHCPv6 Relay Agent Behaviour (RFC 3315)

Client

Src Client	Dst All_DHCP	SOLICIT
Option1	Option2	OptionX
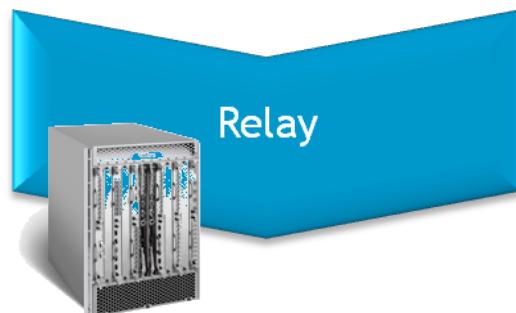
Relay

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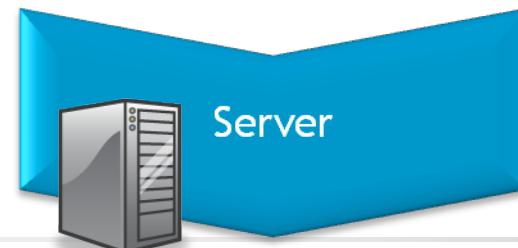
Relay-Message Option

		SOLICIT
Option1	Option2	OptionX

Server

Lightweight DHCPv6 Relay Agent

Client

Src Client	Dst All_DHCP	SOLICIT
Option1	Option2	OptionX

LDRA
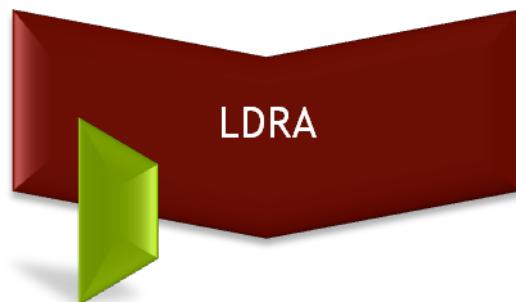
Src Client	Dst All_DHCP	RELAY_FWD
Hop Count	Link Addr	Peer Addr
Interface ID	Relay Option1	Relay OptionX
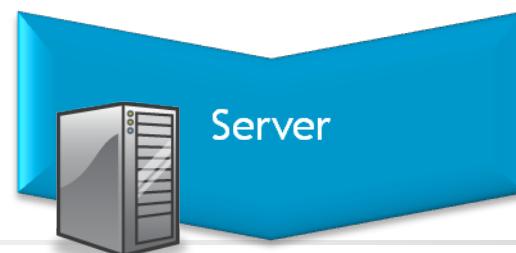
Relay-Message Option

		SOLICIT
Option1	Option2	OptionX

Server

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
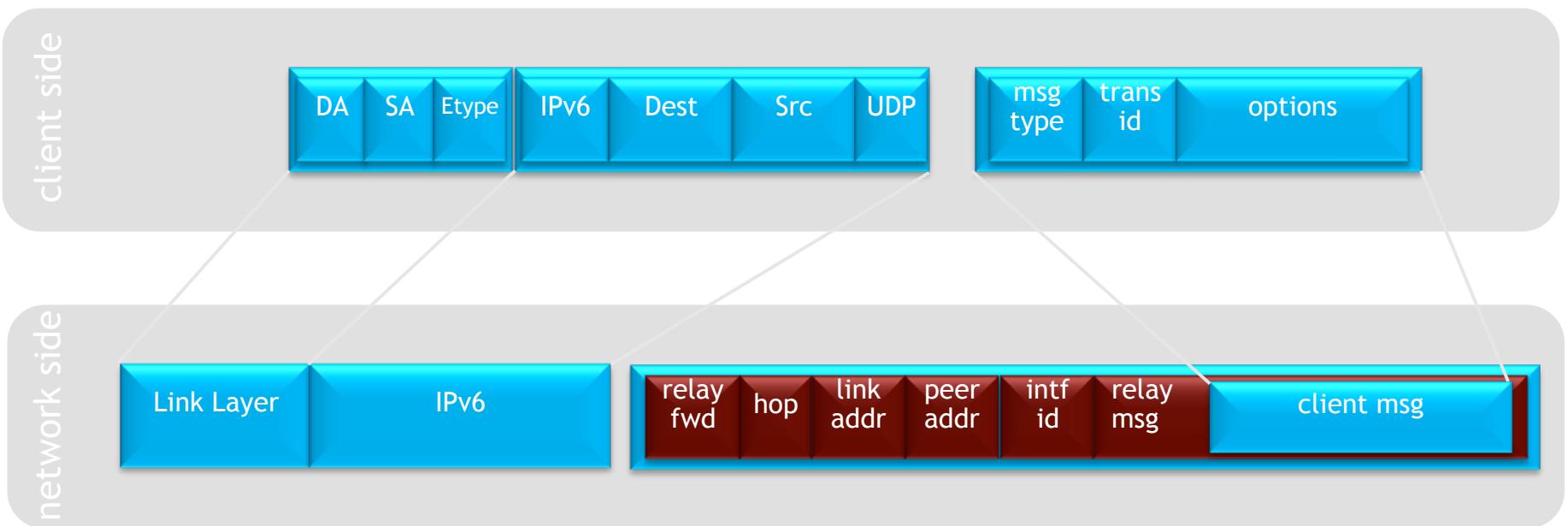
msg type	RELAY_FORW(12)

link addr	unspecified (::)

intf id	opaque value

hop	0 (or hop-count+1)

peer addr	client address

Client-side Relay

Client

relay

LDRA

Server

client message

relay forward | hop 0 | relay-opts | client message

relay forward | hop 1 | relay-opts | relay forward | hop 0 | relay-opts | client message
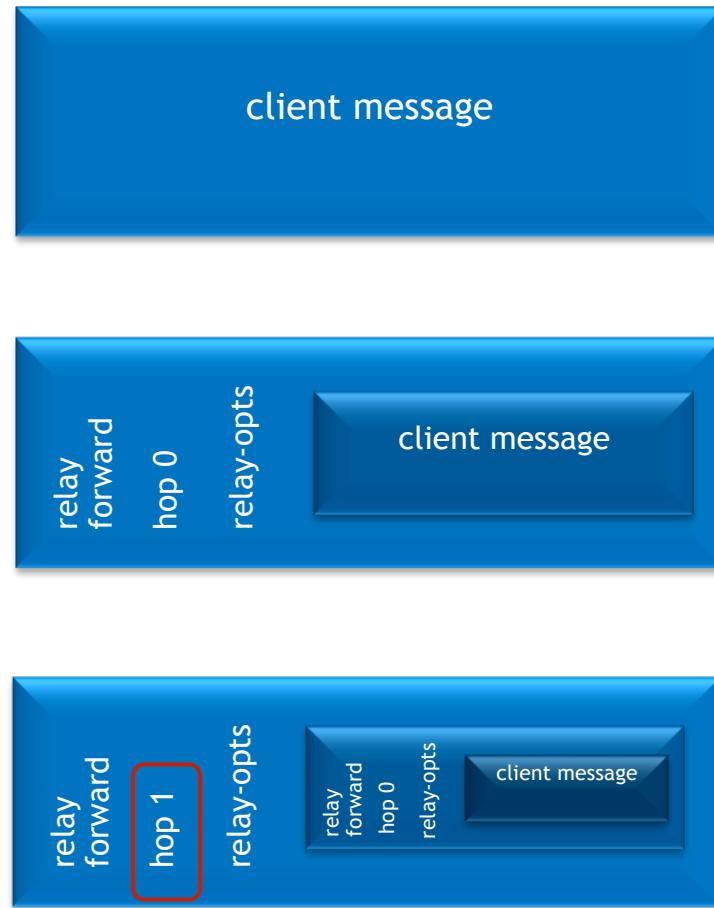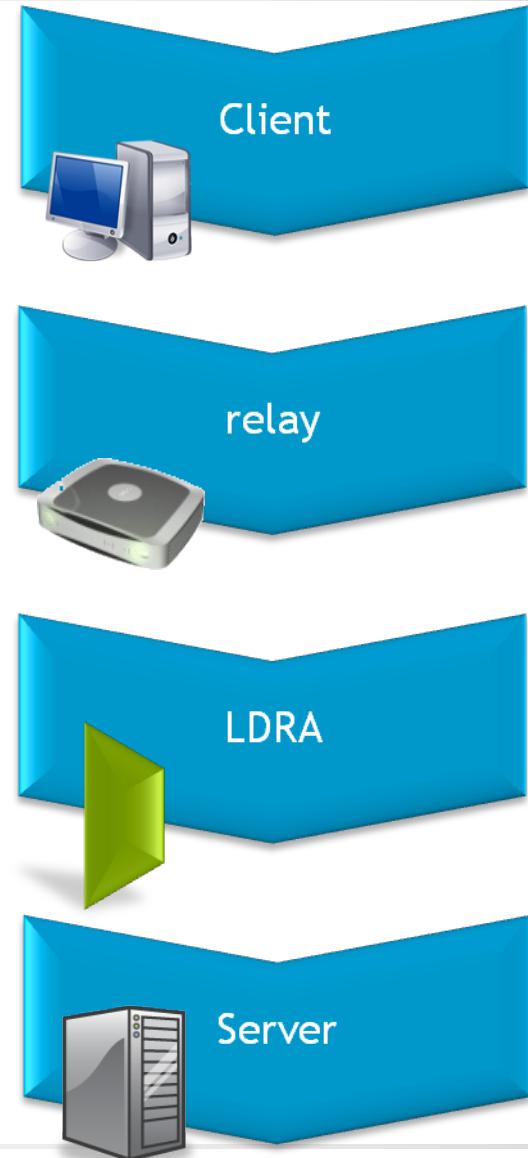
Closing

- 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)