IPv6 Host Configuration in 6rd

draft-guo-softwire-6rd-ipv6-config-02

Xiaohu Xu (xuxh@huawei.com)
Dayong Guo (guoseu@huawei.com)
Ole Troan (ot@cisco.com)
Scenario

- Besides IPv6 addresses, IPv6-only hosts in 6rd residential sites may also need to obtain other configuration information (e.g., DNS servers, NTP servers etc.).
  - If only DNS configuration is required on IPv6-only hosts, DNS Proxy [RFC5625] mechanism implemented on the 6rd CE would be enough.
  - Otherwise, stateless DHCPv6 [RFC3736] should be supported in 6rd.
Problems

- How to send a DHCPv6 packet over a link that doesn’t support link-local addressing?
- How to send a DHCPv6 packet over a link that doesn’t support multicast?
How to Run DHCPv6 in 6rd

- As stated in the DHCPv6 specification [RFC3315], "...The client MUST use a link-local address assigned to the interface for which it is requesting configuration information as the source address in the header of the IP datagram."
- Since the link-local address cannot travel through the 6rd domain, 6rd CE SHOULD act as a DHCPv6 relay agent for its own local DHCPv6 clients.
Choices of Destination Address

- Relay DHCP request messages to the **All_DHCP_Servers_Or_Relays multicast address**.
  - Tunnel such packets towards the BR → **However, multicast is not supported now in 6rd.**
- Relay DHCP request messages to the **unicast** address of a DHCP server or relay agent.
  - 6rd CE relays DHCP request messages to the **IPv6 anycast address** of a 6rd BR (acting as a DHCP server or relay agent). → **Available Now!**
  - **In fact, this solution can work for any type of tunnel/link-layer that doesn't support link-local addressing.**
Next Steps

- Solicit more comments from the WG.
- Ask for WG adoption.