IPv6 CE Routers LAN Prefix Delegation

IETF 116 (v6ops)
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 Problem Statement

- Many ISP will assign a prefix larger than /64 to the CE Router, as recommended in [RFC6177]. If an IPv6 CE Router doesn't support IA_PD on the LAN, it will not be able to assign any prefixes beyond itself, limiting the usefulness of assigning prefixes larger than /64. Supporting IA_PD on the LAN interfaces will allow for those unused prefixes to be distributed into a network. This document does not cover dealing with multi-provisioned networks with more than one provider.
Flat vs Hierarchical Model

Hierarchical

PD clients (7084 Router) ask for larger prefixes, the CE Router must have rules for dividing delegating prefix essentially making a tree of prefix in the house.

Flat

PD clients (7084 Router) can ask for multiple /64 IA_PDs from the Customer Edge router.

Draft chooses Flat for simplicity and ease of deployment.
2 Network - Simple
2 Network - Complex

[Diagram of a network with an ISP, IPv6 CE Router, 7084 Router, and Global IPv6 connections.]

- ISP
  - IA_PD /56
  - WAN
- IPv6 CE Router
  - IA_PD /64
  - WAN
- 7084 Router
  - Req IA_PD
  - IA_PD /64
  - WAN
- Global IPv6!
3 Network
Requirements Changes

- DHCPv6 Server capable of IA_PD.
  - MUST use prefix length of 64 when assigning prefixes.
  - MUST be capable of process DHCPv6 Relay message.
- DHCPv6 Relay Agent, if they only receive prefix-length of /64.
  - DHCPv6 IA_NA doesn’t get answered in DHCPv6 Relay
  - Must perform DHCPv6 Relay Route installs
Next Steps

● If interested, follow the draft on v6ops mailing list.