IPv6 CE Routers LAN Prefix Delegation

IETF 116 (v6ops)
draft-winters-v6ops-cpe-lan-pd-02
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.
Topology

ISP

IA_PD /56

WAN

IPv6 CE Router

LAN

Req IA_PD

No IA_PD

7084 Router

LAN

No Global IPv6!

LAN
Flat vs Heirarchical 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
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.
Choose your own Adventure

- 7084 was written in 2015 is it time to update?
  - If yes go to next slide
  - If no skip to the last slide
7084bis?

- Update RFC references (8200/8201/8415/8504)
- Prefix Delegation LAN
- Remove Transition text (6RD/DS-Lite) and reference RFC 9096
- MUST Ingress Filtering (Anti-Spoofing)
Next Steps

- Adopt?
- Other interest?