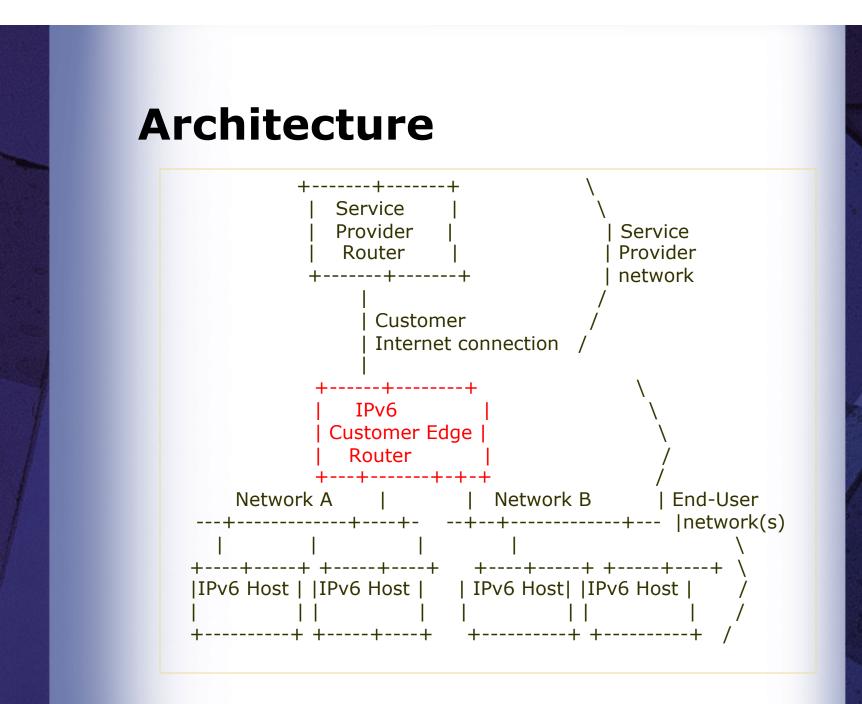# IPv6 CPE Router

draft-ietf-v6ops-ipv6-cpe-router-06

Chris Donley

CableLabs

IPv6 CPE Router

- Defines basic IPv6 requirements for a CPE Router
  - General Requirements
  - WAN Configuration
  - LAN Configuration
  - Security
- Profile of existing RFCs – does not define new protocols
- Draft just completed IESG Last Call
- Gen-Art review raised a concern with how the draft uses DHCPv6
- Requesting DHC review

Architecture

```
              +-------+-------+                    \
              |    Service    |                     \
              |   Provider    |               | Service
              |    Router     |               | Provider
              +-------+-------+               | network
                      |                      /
                      | Customer            /
                      | Internet connection   /
                      |
              +------+--------+                    \
              |     IPv6      |                     \
              | Customer Edge |                      \
              |    Router     |                      /
              +---+-------+-+-+                     /
      Network A   |       |  Network B        | End-User
    --+-----------+----+-   --+--+-----------+---  |network(s)
      |           |          |           |            \
    +----+-----+ +-----+----+   +----+-----+ +-----+----+  \
    |IPv6 Host | |IPv6 Host |   | IPv6 Host| |IPv6 Host |    /
    |          | |          |   |          | |          |   /
    +---------+ +-----+----+    +---------+ +---------+  /
```

DHCPv6 Client Functions

- CPE Router is a DHCPv6 client
  - IA_NA and IA_PD

- Requirements
  - MUST support DHCPv6 client behavior.
  - MUST support DHCPv6 prefix delegation requesting router behavior as specified in [RFC3633] (IA_PD option)
  - DHCPv6 address assignment (IA_NA) and DHCPv6 prefix delegation (IA_PD) SHOULD be done as a single DHCPv6 session.
  - If the IPv6 CE router requests both an IA_NA and an IA_PD in DHCPv6, it MUST accept an IA_PD in DHCPv6 Advertise/Reply messages, even if the message does not contain any addresses.
  - If the router initiates DHCPv6 before receiving a Router Advertisement it MUST also request an IA_NA option in DHCPv6.

DHCPv6 Server Functions

- Supports stateful/stateless DHCPv6 on its LAN interfaces
- Serves addresses from its delegated prefix

- Requirements
  - The IPv6 CE router MUST assign a separate /64 from its delegated prefix(es) for each of its LAN interfaces.
  - The IPv6 CE router MUST support a DHCPv6 server capable of IPv6 address assignment according to [RFC3315] OR a stateless DHCPv6 server according to [RFC3736] on its LAN interfaces.
  - The IPv6 CE router MUST support providing DNS information in the DHCPv6 DNS_SERVERS option [RFC3646]
  - The IPv6 CE router SHOULD make available a subset of DHCPv6 options received from the DHCPv6 client on its WAN interface to its LAN side DHCPv6 server.

Request for Feedback

- What is the technical opinion about the DHCPv6 related requirements of the document?

- Do any of questions raised by the document belong in the scope of the DHC WG
  - Do they require extra work in the DHC WG?