

IPv6 CPE Router

draft-wbeebee-ipv6-cpe-router-02

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v6ops Working Group

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Agenda

- Why we wrote this draft
- Description of device
- Pending work
- Conclusion

Why we wrote the draft...

- Last IETF it was pointed out that v6ops has a draft for CPE Router security (a work group item) but no specification exists for the CPE Router
- Cable standards have defined an eRouter – IPv6 router embedded with a cable modem but no one has defined a standalone IPv6 CPE Router and this space is traditionally considered out of scope for cable

Why we wrote the draft...

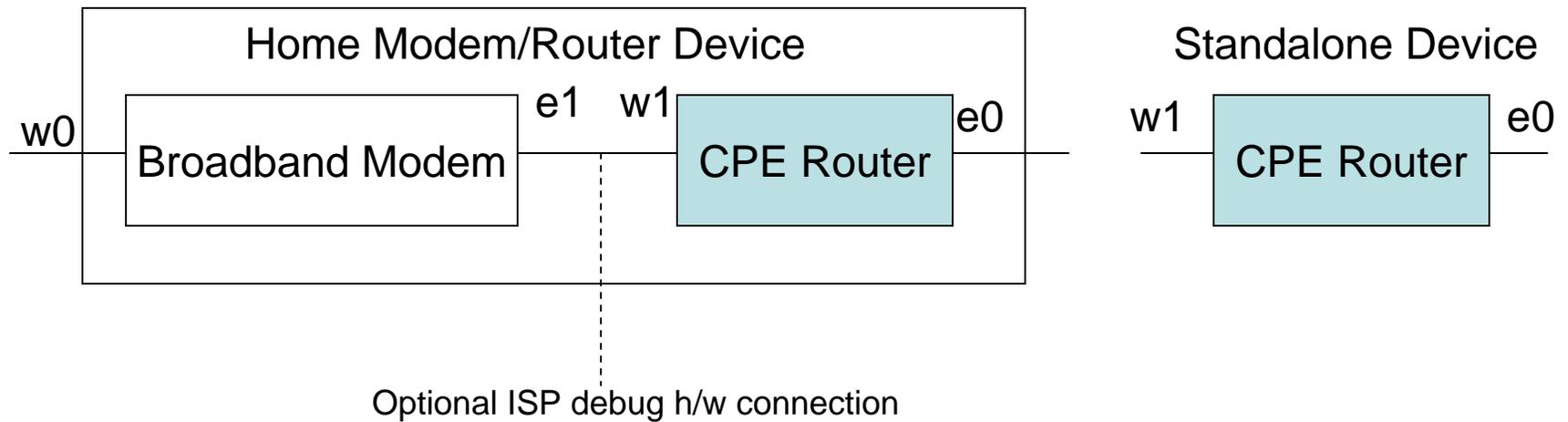
- Our IPv6 CPE Router specification generalizes the capabilities of the CableLabs eRouter specification, adding other optional capabilities which are useful in other deployments – our CPE Router specification is intended to be widely applicable, while focusing mainly on IPv6 requirements
- We have gathered requirements from the DSL community for our CPE Router

Why we wrote the draft

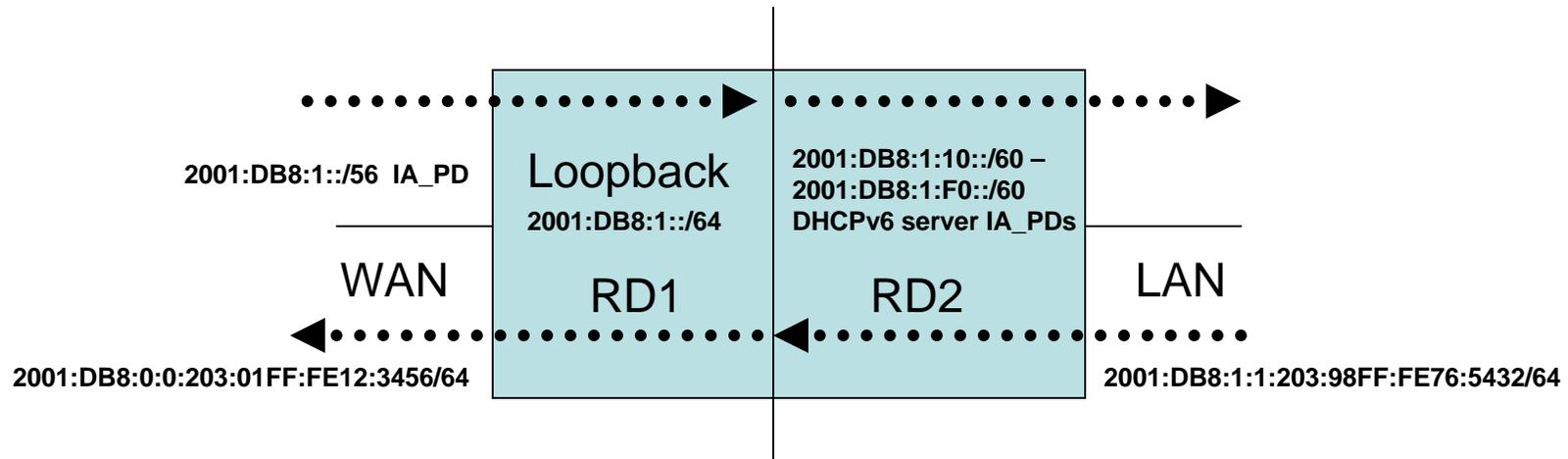
- Since CableLabs has already produced an eRouter specification, we wanted to make sure additional requirements added to satisfy the DSL community don't reduce the applicability of our CPE Router specification to cable deployments
- Our draft will also help track CPE Router requirements for emerging protocols like SNAT or dual-stack lite
- This draft also reopens the issue of IA_PD route injection on the upstream SP router

Device Description

Two Models of CPE Router

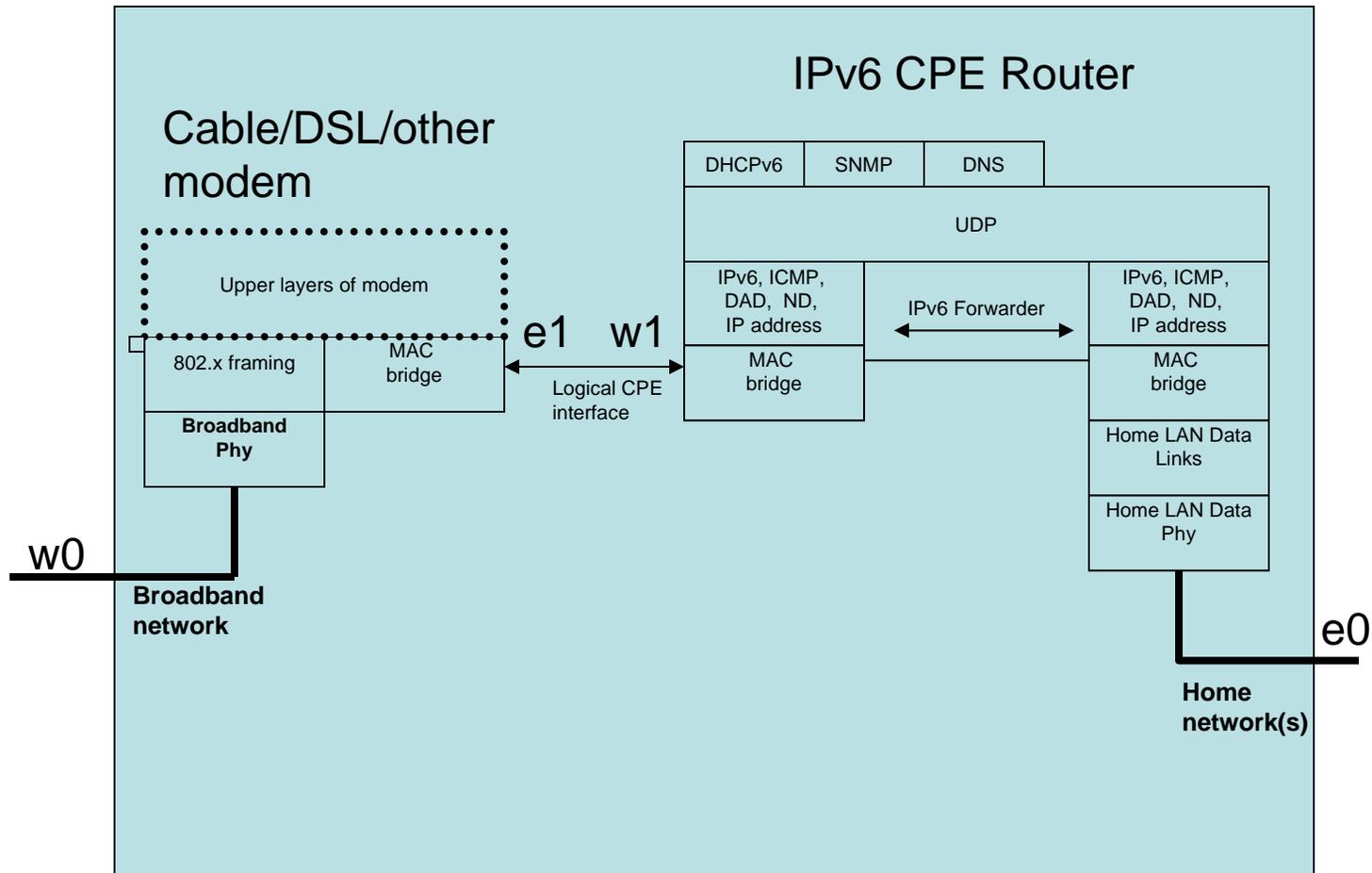


Routing Domains and Address Assignment



- In the Numbered model, the WAN interface acquires GUA using a combination of SLAAC and DHCPv6 for IA_PD (no IA_NA) or uses only DHCPv6 for GUA (IA_NA) and IA_PD. A Loopback interface (which can be used as a stable peering point for routing protocols or to respond to the anycast address) is optional
- In the Unnumbered model, the WAN interface only acquires a LLA, then the WAN interface initiates DHCPv6 for IA_PD. Then the IA_PD is sub-delegated to the LAN interface(s) and an optional Loopback interface (or the addresses for the LAN/Loopback interfaces could come from IA_NA's). Either the Loopback or the LAN interface can be used to source WAN-facing traffic.

Device with an IPv6 CPE Router embedded inside



Additional Features of the CPE Router

- Optional SNMP has been asked for when device managed by SP
- DHCPv6 server
- Path MTU Discovery
- Simple firewall mandated and ACL recommended. Other security features are covered by the Woodyatt draft
- Cascaded router behavior specified
- Softwire tunnels

Pending Work...

- Illustrative pictures will be added to the draft and the draft will be cleaned up
- Change draft after consensus has been reached on addressing of the device
- Add section for local DNS proxy
- Add section to track SNAT and dual-stack lite work
- Collect list of options such as NTP for router to ask for in DHCPv6 to deliver to home clients
- Add treatment of zeroconf

Pending Work

- Add requirement for simple SNMP agent and maybe define a short MIB for the device
- Add simple tunnels requirement
- SIP Proxy...
- Any new item the WG wants us to add

Conclusion

- WG appears to be converging on high level requirements for cellular, DSL, and cable deployments
- Does the v6ops WG believe that this CPE Router Recommendations draft should be a work item for the WG? The WG seems to think it's important based on the volume of email generated and the sentiments that a few have expressed that this work is important