IP over DSL, Cable, and Private VLANs

draft-nordmark-intarea-ippl-03
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Issues raised since last IETF

- Reference to Proxy ND [RFC4389]?
  - RFC4389 not needed with L=0
  - Added some text pointing out that RFC4389 does not work with the topologies in IPPL, in particular multiple routers on promiscuous ports

- MAC learning timers and ARP/ND timers?
  - Not clear how to fit in the document. Suggestions?

- DHCP and redirect needs clarification
  - Need configuration. To be applied in -04
Backup
Topology Example

- Host 1
- Host 2
- Isolated Host 3
- Isolated Host 4
- Router 1
- Router 2
- Community 1

Network Addresses:
- 192.168.1.0/24
- 2001:DB8:1:2:/64
TTL 255 loop if used RFC 4389

Network diagram:
- Router 1
- Router 2
- Community 1
- Host 1
- Host 2
- Isolated Host 3
- Isolated Host 4

Routing prefixes:
- 192.168.1.0/24
- 2001:DB8:1:2:/64

Routing updates:
- NS ttl=255
- NA ttl=255
TTL 255 loop if used RFC 4389

192.168.1.0/24
2001:DB8:1:2:/64

NS ttl=255
NA ttl=255
TTL 255 loop if used RFC 4389

- Host 1
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- Router 1
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- Community 1
- 192.168.1.0/24
- 2001:DB8:1:2:/64
- NS ttl=255
- NA ttl=255
- NS forever
TTL 255 loop if used RFC 4389

Community 1

Host 1
Host 2
Isolated Host 3
Isolated Host 4

Router 1
Router 2

192.168.1.0/24
2001:DB8:1:2:/64

NS ttl=255
NA ttl=255

NS forever
Intentionally Partially Partitioned?

- Looks to IPv4/6 as a link; has subnet prefix
- Doesn’t forward packets at L2 uniformly
  - Typically hosts can talk to routers but not H-2-H
- Several examples
  - Split horizon for DSL (TR-101)
  - Cable labs (DOCSIS-MULPI)
  - Private VLANs (RFC 5517)
- Private VLANs is superset
  - Promiscuous, community and isolated ports
  - Allows multiple promisc i.e. multiple routers
Protocol issues

- **ARP**
  - Proxy-ARP and ACD (RFC 5227) requires care
  - ARP request from one router answered by other rtr?

- **IPv6/ND**
  - Proxy-DAD (RFC6957) works even with dual routers
  - RA with L=0 works for global addresses
  - Forward link-locals with dual routers??

- **Multicast from isolated or community ports??**
  - Forward down to receivers without duplicates?