Promiscuous Mode and RPR

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Background

- Subnetwork Media Types
  - Unicast – point to point links
  - Broadcast - LANs
  - Multicast – RPR and similar
- Multicast Subnetworks are distinct from Broadcast Subnetworks, not all stations on the Subnetwork have the opportunity to see all frames on the subnetwork
- RPR is multicast as it provides spatial reuse

Background, continued

- 802.17 supports 3 types of frames
  - Unicast local traffic
  - Multicast local traffic
  - Bridged traffic (non local source or destination addresses)

Promiscuous Mode

- A station is configured to receive all frames on the media, rather than just it's own address or multicast addresses
- Used by bridges and test equipment
- Doesn't fit easily in 802.17, as not all the frames are presented to all stations

Promiscuous Mode, continued

- Required for basic bridging, otherwise the bridge will not see frames sent to other stations
- Requires modification of the reception rules to pass to the client all data frames

Promiscuous Mode, continued

- To match standard/expected LAN behavior (e.g. 802.3 or 802.5) requires stopping destination stripping
- This affects subnetwork behavior (i.e. frames go further)

Why Bother

- PAR requires support of basic bridge
- 802.1D/Q bridges are defined to run over all 802 subnetworks, and expect common behavior/properties
- We need to conform to what the bridge expects (i.e. pass the “sniff” test)

Why Bother, continued

- Basic bridging will not be the main deployment for RPR (carrier grade metro rings)
- Transparent bridging does not scale well to large/metro networks
- RPR basic requirements (protection, spatial reuse) conflict with basic bridging requirements

The Proposal

- Define “promiscuous mode” in the RPR standard
- Allow a client to request a station go into promiscuous mode
- The station verifies that the ring may go promiscuous by checking the topology map to validate that each station advertises promiscuous support
- Request the ring to become promiscuous by advertising in the topology message

The Proposal, continued

- The promiscuous station changes its reception rules to pass all data frames to the client
- All stations modify the stripping rules to only source strip, (i.e. Source Address or TTL)

The Result

- A network with no promiscuous stations runs efficiently
- A network can adjust to a promiscuous station automatically
- No requirement for frame by frame behavior changes

The Result, continued

- Promiscuous stations will see all frames on the ring
- The bridging FDBs will be consistent around the ring
  - Bridge management reporting will be consistent
- Local and remote traffic is treated equally in the presence of promiscuous stations

The Result, continued

- Should deliver simpler, bimodal system (i.e. ring is promiscuous or not)
- If there are no promiscuous stations present, then the MAC will not let traffic with non-local SA/DA onto the ring

The Result, continued

- No need for RPR standard to mandate extra addresses (more than 2) in frames
- No requirement for Station ID's to allow stripping of frames with non-local addresses

What this doesn't solve

- BAH responsible for reliable stripping
  - Duplication/reorder issues for local unicast/multicast traffic
  - Reliable source stripping when ring is in broadcast mode
- Enhanced bridging