Rooted multipoint VIDs

Version 3

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References

- This presentation is at: http://www.ieee802.org/1/files/public/docs2010/liaison-rooted-multipath-vids-0310-v03.pdf

Rooted multipoint service definition

- A “Rooted Multipoint” service has:

  One or more “root ports” that have connectivity to each other and have connectivity to all “leaf ports”.

  Zero or more “individual leaf ports” that each have connectivity with all root ports, but not with any other leaf port.

  Zero or more “leaf groups,” each consisting of two or more “group leaf ports” that have connectivity among themselves, and with all root ports, but not with any leaf port outside the leaf group.

- Note that this definition is more general (leaf groups) than a “rooted multipoint” bit supports.

Required VLAN IDs (VIDs)

- A rooted multipoint service requires:

  One “root VID” *R*.

  One “individual VID” *I*, if there are any individual leaf ports, else VID *I* is not needed.

  One “group VID” V_G for each leaf group *G* (if any) in the service.

- For example, any number of individual leaves can be supported with two VIDs *R* and *I*. Three leaf groups plus any number of individual leaves can be supported with 5 VIDs *R*, *I*, V_1, V_2, and V_3.

- 4094 VIDs can support 2047 rooted multipoint services, or 3094 ordinary services plus 500 rooted multipoint services; no bit need be reserved for the distinction.

Configuration: customer sees no tags (tags added by Bridge on receipt)

	root port	group G leaf port	Individual leaf port
Port VID Set	R, I, all V_g	R, V_G	R
Untagged VID set	R, I, all V_g	R, V_G	R
Port VID	R	V_G	I
MVRP asks for	R, I, all V_g	R, V_G	R

- Port VID Set: Bridge can transmit these VIDs.
- Untagged VID Set: Bridge transmits these VIDs untagged.
- Port VID: Bridge assigns this VID to any untagged frame received.
- MVRP asks for: The Bridge attracts these VIDs towards this port via MVRP. This produces exactly the right VLAN pruning.
- The Bridge discards received frames on any port that have a tag.
- The Bridge disables VLAN filtering on received frames.
- All VIDs in a rooted multipoint service must use Shared Learning.

Configuration: customer sees tags on multiple rooted multipoint services

- If multiple rooted multipoint services are allowed on any port, then:
  - Ingress VLAN filtering is turned on, and tagged frames allowed.
- If a root port serves multiple rooted multipoint services:
  - The Bridge translates all VIDs in an {*R*, *I*, V_G, ...} set to VID *R* of that set on received frames and admits only VIDs *R*.
- If a group leaf port serves multiple rooted multipoint services:
  - The Bridge translates all VIDs *R* to the corresponding V_G on transmitted frames and admits only VIDs V_G.
- If an individual leaf port serves multiple rooted multipoint services:
  - The Bridge translates all VIDs *R* to the corresponding *I* on transmitted frames and admits only VIDs *I*.

Configuration: customer sees tags on multiple rooted multipoint services

- The most common case is that one leaf supports only one rooted multipoint service, and that root ports provided with multiple root multipoint services can be trusted not to transmit on the *I* and V_G VIDs. This is fully supported by IEEE Std. 802.1Q (and its amendments).
- In order to support multiple rooted multipoint services on a single suspect leaf port or root port, the Bridge must support two VID filters, one for controlling egress VIDs and one for controlling ingress VIDs.
  - IEEE 802.1Q does not provide for a separate ingress VID filter; it provides only an egress VID filter.
  - It is currently anticipated that this capability will be provided in future revisions of 802.1Q.