ERICSSON

Explicit Control of Aggregation Links via IS-IS

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Background

- IEEE 802.1AX-REV provides conversation sensitive LAG
  - It can be controlled which physical link carries a particular conversation
- IEEE 802.1Qca aims to provide control of explicit trees via IS-IS
  - To control which links of a network domain are part of a particular explicit tree
  - However, up to 802.1Qca D1.0, it cannot control which physical link of a LAG is used in an explicit tree
- Comment #59 on 802.1Qca D0.4 is still unresolved
  - *Comment*: Add .1AX - LAG with Conversation-sensitive frame collection and distribution
  - *Suggested Remedy*: add an option and sub-TLV to use section 6.6 of 801.1AX Rev D3-0
  - *Response*: ACCEPT IN PRINCIPLE. TBD, contribution is welcome.

A possible solution – High level

1. LAG details are reported to IS-IS within each System
2. LAG details are flooded in IS-IS LSPs → PCE(s) become aware of them
3. Topology sub-TLV (sent by PCE or its PCA) specifies which Aggregation Link is to be used for a VLAN
4. LAG conversation is set (in the corresponding Systems) as specified by the Topology sub-TLV

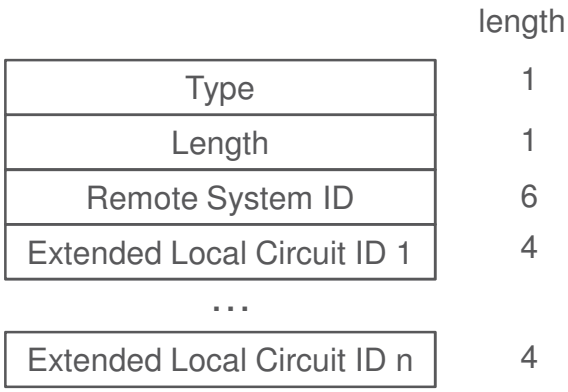
1. LAG details are reported to IS-IS within each System

- LAG reports to IS-IS:
  - Number of Aggregation Links
  - Port ID for each Aggregation Link (Circuit ID for IS-IS)
  - Link characteristics

- For instance, the Protocol Parser/Multiplex function (6.2.7) can be used to report LAG details to IS-IS

2. LAG details are flooded in IS-IS LSPs

- New sub-TLV for propagating LAG information in LSPs
- LAG sub-TLV conveys:
  - Remote System ID
    - The IS-IS System ID of the adjacent neighbor
  - Extended Local Circuit ID
    - Local Port ID



LAG sub-TLV

3. Topology sub-TLV specifies Aggregation Link for a VLAN

- The Extended Local Circuit ID parameter of the Hop sub-TLV can be used for this

A. Same Aggregation Link for all Base VIDs of a Topology sub-TLV
   - The Extended Local Circuit ID of the corresponding Hop sub-TLV specifies the Aggregation Link

B. Different Aggregation Links for different Base VIDs of a Topology sub-TLV
   - The VID and its T/R flags and the Extended Local Circuit ID parameters of the Hop sub-TLVs have to be used to specify which Aggregation Link is used for a given VID
   - Note: multiple Hop sub-TLVs if different links to be used for different VIDs within a particular LAG

4. LAG conversation is set

- Conversation ID = VID in this case
- LAG conversations are configured such that the VID → link mapping specified by the Topology sub-TLV is provided
  - Configuration table that maps VIDs to Link Numbers accordingly

Summary

- We have an unresolved comment:
  - ~ Add conversation sensitive capability to 8021.Qca
- The next Qca draft could specify a solution as drafted above