Priority Management in PBB-TE

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PBB priority management

• Frame fields that are used for priority management:
  – PCP : Priority Code Point (3 bits)
  – DEI : Drop Eligible Indicator (1 bit)

• These fields exist in the following frames tags:
  – B-Tag - Backbone priority
  – I-Tag – Provider priority
  – S-Tag – Customer priority
Definitions

• Customer-based priority ESP - CP-ESP
  – The frames are handled in the backbone according to the original priority of the customer’s frame.
  – The customer PCP is copied to the backbone PCP.
  – Compiles with the PCP behavior defined in 802.1ah

• Backbone-based priority ESP - BP-ESP
  – The frames are handled in the backbone according to the trunk configuration.
  – The customer’s PCP is preserved.
  – The backbone PCP is assigned by management.

• From the TE point of view, BP-ESP is superior, since it enables Traffic Engineering (TE) and CAC.
Definitions (cont’d)

• CP-ESP:
  – Customer-based priority
  – Similar to the MPLS E-LSP (EXP-Inferred-PSC LSP)

• BP-ESP:
  – Backbone-based priority
  – Similar to the MPLS L-LSP (Label-Inferred-PSC LSP)
PCP and DEI bits in 802.1ah

- Using PBB, the PCP and DEI bits are permeated from the S-TAG through the I-TAG to the B-TAG.
- The original priority and drop eligible bits are preserved on the backbone:
  - From the customer’s network to the backbone:
    - On the VIP, the drop-eligible and priority parameters are copied from the S-PCP and S-DEI to the I-PCP and I-DEI respectively.
    - On the CBP, the drop-eligible and priority parameters are copied from the I-PCP and I-DEI to the B-PCP and B-DEI respectively.
  - From the backbone to the customer’s network:
    - On the CBP, the drop-eligible and priority parameters are copied from the B-PCP and B-DEI to the I-PCP and I-DEI respectively.
    - On the VIP, the drop-eligible and priority parameters are copied from the I-PCP and I-DEI to the S-PCP and S-DEI respectively.
PCP and DEI bits in 802.1Qay

- The purpose of PBB-TE is to provide mechanisms for carriers to engineer and provision deterministic, connection-oriented trunks within the Provider Backbone network.
- One such mechanism is the capability to provision traffic priority in the backbone.
- The DEI bit in the B-Tag can be handled as follows:
  - Determined by policing in the VIP or CBP
  - Copied from the S-Tag when no policing is needed
PCP bits in 802.1Qay

A trunk can be a CP-ESP. Customer priority is preserved in all TAGs: S-TAG, I-TAG and B-TAG
A trunk can be a BP-ESP. Customer priority is preserved only in the S-TAG (if preserved) and in the I-TAG. The priority of the B-TAG is determined by management.
Conclusion

As traffic engineering of trunks is a major characteristic of PBB-TE, it is proposed that we adopt the BP-ESP concept and support both CP-ESP and BP-ESP.
Thank You

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