Configuring ETS Bandwidth with DCBX

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az-pelissier-DCBX-Bandwidth-0309
Background

- **ETS Bandwidth configuration is asymmetric**
  - Each port on a link configures its *transmit* bandwidth allocations per Priority Group
  - There is no need for these to be configured with the same values on each end of the link
  - In fact, it will typically be the case that different values on each end of the link will be optimal
  - In many cases, the port on each end of the link best knows how the far end should be configured
    - Implies that in some cases it is best for each end to suggest the configuration to the other

- **Priority to Traffic Class configuration is also a necessary component of this configuration**

- **Current DCBX proposals support configuration in one direction only**
  - And do not provide the Traffic Class mapping configuration
Overview of Proposal

- Provide two TLVs in DCBX:

  ETS Configuration TLV provides the transmitting port’s:
  
  - Priority to Traffic Class Mapping
  - Traffic Class to Priority Group Mapping
  - Currently configured Priority Group Bandwidths

  ETS Recommendation TLV provides a recommendation for the programming of the far end port:

  Recommendation valid (I’ll explain why we need this in a bit), indicates whether the TLV is providing a recommendation (otherwise the TLV is ignored).

  Recommended Priority Group Bandwidth Assignments
Why two TLVs?

- It is not always desirable for this operation to work asymmetrically

  For example, a bridge may be configured such that it updates its configuration based on an end station’s recommendation, but it provides no recommendation to the end station.

  In this case, the bridge would transmit only the configuration TLV (so the end station knows the Priority to TC mapping) and the end station would transmit only the recommendation TLV.
Why the Recommendation Valid bit?

- LLDP requires that a TLV always be transmitted or never be transmitted (based on administrative setting)

- Before providing a recommendation, a device may need to know the Priority to Traffic Class setting of the far end port (along with number of TCs supported and the Application TLVs)

- Therefore, there is a period during which the TLV needs to be transmitted before sufficient knowledge is known to populate the TLV

  The valid bit enables this
A Cloud Bridge

End Station

Should the endstation do anything about this?

I have assigned all priorities to PG 15 (i.e. strict priority, deal with it)

I want priority 4 assigned to PG 1 @ 30% and priority 5 assigned to PG 2 @ 70%

An observation on configuration checking
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Bridge

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Bridge

End Station

I want priority 4 assigned to PG 1 @ 30% and priority 5 assigned to PG2 @ 70%

The lower bridge is stuck in the back of a blade rack.

It has a single 10G uplink.

The network is such that the majority of traffic goes over the uplink.

Therefore, there is no point in configuring the downlinks to any specific bandwidth allocation (it is controlled completely by the northern bridge).

Therefore, this is a perfectly reasonable configuration.

Moral: The end station has insufficient knowledge to make any judgment as to whether the BW allocations being provided to it are appropriate.

Should the end station do anything about this?
Thank You!