Configuring ETS Bandwidth with DCBX

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az-pelissier-DCBX-Bandwidth-0309v2

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
- **Current DCBX proposals support configuration in one direction only**

Overview of Proposal

- **Provide two TLVs in DCBX:**

  Configuration TLV provides the transmitting port's:

  Priority 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 ETS

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 Priority Group 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 Priority Group mapping along with the Application TLVs from the far end port
- 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

Basic Operation

- **A device wishing to make a recommendation:**

  Transmission of the ETS Recommendation TLV is enabled

  If the recommendation is to be based on information from the far end port (e.g. Priority to PG mapping or Application to Priority Mapping), set the Recommendation Valid Bit to zero

  Once a recommendation is generated, provide the recommendation in the TLV and set the Recommendation Valid Bit to one

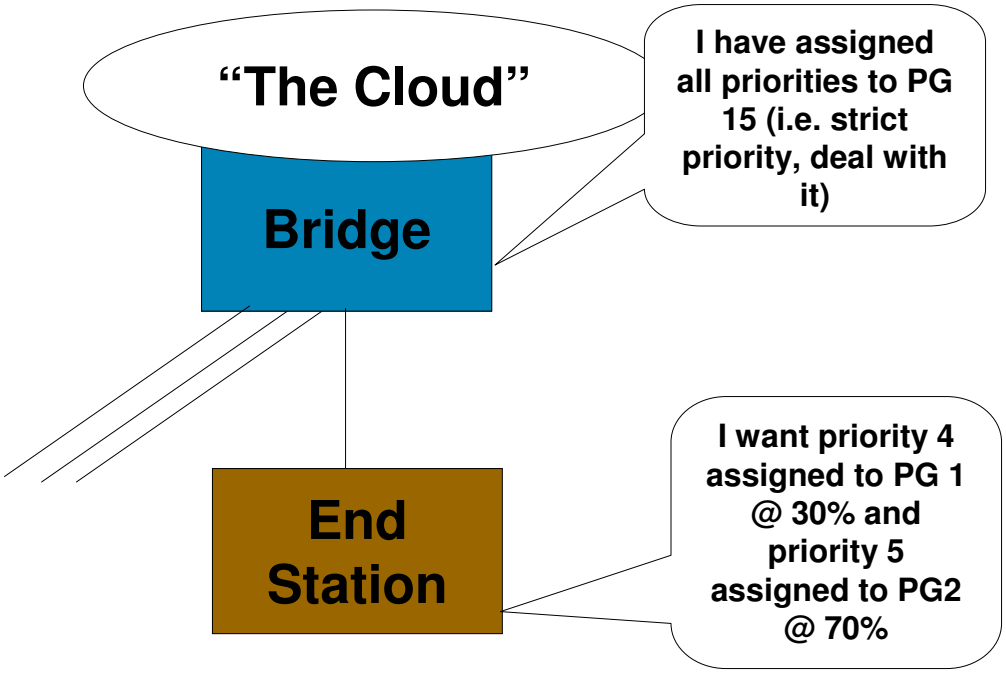
- **A "willing" device:**

  Upon reception of the ETS Recommendation TLV with the Recommendation Valid bit set, configure the ETS bandwidths as specified in the TLV

- **A device can tell if its recommendation was accepted based by observing the ETS Configuration TLV**

  Although taking any action on this will often be a very bad idea…

An observation on configuration checking



Should the endstation do anything about this?

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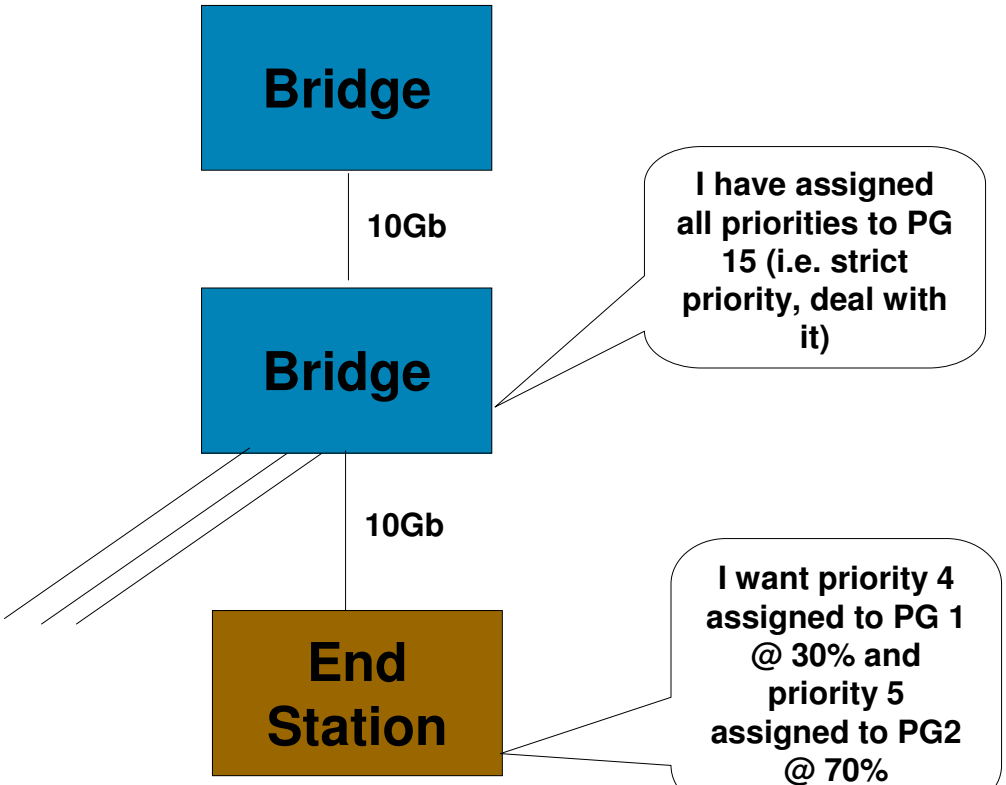

Should the endstation do anything about this?

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

Thank You!