Convergence of 801.1Q, ETS, PFC, CN & AVB

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Background

- The current ETS proposal defines ETS mappings using:
  - The existing 802.1Q table to map Priority to Traffic Class
  - A new table to map Priority to Priority Group
  - A new table that provides the bandwidth allocated to each Priority Group
- Previous version of this presentation have proposed:
  - A new table mapping Priority to Priority Group
  - A new table providing Priority Group Parameters
  - A automatic configuration of the existing 802.1Q Priority to Traffic Class mapping table
- Both proposals are problematic

Issue with existing ETS proposal

- It is possible to program the tables in such a way that the resulting behavior is undefined, eg:

Priority	TC	PG
1	1	1 @ 30%
2	1	2 @ 70%

- Recall that Traffic Class refers to queues. Thus, head of line blocking makes the bandwidth allocation of the above programming unrealizable.
- Implication: A given traffic class can map to one and only one PG. (Multiple traffic classes may map to the same PG).

Issue with previous version of this proposal

- **The mapping was backwards:**

  What was proposed: Priority groups map to a traffic class; a single PG may map to only one PG

  What is desired: Traffic Classes map to Priority Groups. A single TC may map to one and only one PG.

- **The automatic generation of the Priority to Traffic Class table was very complex**

  The need to provide this automatic mapping goes away when you correct the above

Overview of new proposal

- **Maintain the current 802.1Q Priority to Traffic Class mapping table as is.**
- **Change the proposed Priority to Priority Group mapping table to a Traffic Class Use Table**
- **Add a Priority Configuration Table**
- **Add a Priority Group Bandwidth Table**

Traffic Class Use Table

- **One entry per Traffic Class supported:**

  Traffic Class Use (4 bits):

  0-7 Assign the traffic class to the corresponding PG

  13 Assigns the traffic class to AVB group 1

  14 Assigns the traffic class to AVB group 2

  15 Assigns the traffic class to nothing (i.e. remains strict priority).

  8-12 reserved (interpret as 15?).

Priority Configuration Table

- **Contains eight entries, one per Priority (0-7):**

  PFC Enabled (1 bit). Set to one if PFC is enabled, 0 otherwise

  CN Enabled (1 bit). Set to 1 if CN is enabled, 0 otherwise

  CN Alternate Priority (3 bits). Indicates the priority to use for CN defense (update this to Norm's document). Reserved if CN=0.

Priority Group Bandwidth Table

- **Eight entries, one per Priority Group (0-7)**

  BW assignment (8 bits): valid values are 0-100.

  Specifies the minimum bandwidth that a given priority group should receive when the link is over-subscribed by PG traffic after all non-PG traffic has been serviced.

  (This definition can be modified quite simply if we decide that the percents do not always add to 100).

Thank You!