Discussion on Maintenance Comment 201 & 202
(https://www.802-1.org/items/318 & 317)

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Comment 201: 802.1Qbv Tick granularity

- Tick input List execute FSM as time_unit signal;

- Tick granularity is the absolute time length for one tick;

<table>
<thead>
<tr>
<th>Table 12-28—The Gate Parameter Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>TickGranularity</td>
</tr>
</tbody>
</table>

Tick granularity is used to compute timeInterval/adminCycleTime length and set TAS time gate accordingly.
Comment 201: Tick granularity

- MII Interface for 1GE/10GE/25GE MAC.

<table>
<thead>
<tr>
<th></th>
<th>1GE</th>
<th>10GE</th>
<th>25GE</th>
<th>400GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data path width@MII</td>
<td>8b</td>
<td>32b</td>
<td>64b</td>
<td>64b</td>
</tr>
<tr>
<td>Data path interface clocking</td>
<td>8ns</td>
<td>3.2ns</td>
<td>2.56ns</td>
<td>0.16ns</td>
</tr>
<tr>
<td>MII TX_CLK</td>
<td>125Mhz</td>
<td>156.25Mhz</td>
<td>390.625 MHz</td>
<td>6250Mhz</td>
</tr>
</tbody>
</table>

- Interface clocking is a logic unit time, not implementation specific; (not friendly to FPGA)
- Tick granularity is the time basis of TAS scheduling port.
  - `timeInterval` is computed by number of ticks?! → Discuss

- Commenter suggests to couple tick granularity with MII interface clocking
  - For better alignment between time gating with physical data clocking.
Use Case with Different Tick Granularity

- Use case 1: aggregate flows from multiple port to one
  
  \[10GE \rightarrow \square \rightarrow 25GE\]
  
  ➢ Tick granularity is only valid on egress port;
  ➢ Make TAS schedule for flow 1 & 2 according to TSpec

- Use case 2: schedule one flow over multiple device w/ different port rate
  
  \[1GE \rightarrow \square \rightarrow 10GE \rightarrow \square \rightarrow 25GE\]
  
  ➢ Tick granularity are different on each device;
  ➢ Make TAS schedule on each egress port according to TSpec

No need to care common tick granularity for multiple port rate, and TAS schedule is based on PTP timing. It is not necessary to align with MII clocking.
Comment 201 Discuss

- Tick granularity is the capability of physical port, declaring minimal allocable time unit to the scheduling computation function block.
- Currently minimal allocable time/bandwidth unit is expressed by 0.1ns, which varies with port rate, from 1bit(GE) to 40bit(400GE).
- Shall we change minimal allocable time window from 0.1ns to 1e-x?
  - To make it align with physical MII interface clocking
Comment 202:
Qbv ConfigChangeError counter incremented incorrectly

- GateEnable signal input to all three Qbv FSMs;
ConfigError Counter

**DISCUSS:**
- This erroneous scenario happens only when changing configuration during runtime and AdminBaseTime is mistakenly set.
- Correct procedure for runtime reconfiguration to set Admin variables first and then activate ConfigChange trigger.
  - Ensure admin variables are set correctly to avoid configError warnings.
Thank you

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