Placement of Congestion Management in IEEE Std. 802.1Q

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Rev. 2
Part 1

Backward Congestion Notice (BCN)
P802.1ag Connectivity Fault Management
Simplifying Figure 19-6

Simplified CFM diagram
P802.1ag Connectivity Fault Management
Simplifying Figure 19-6

Additional ISS-EISS Mux Entity to isolate CFM
Two CFM shims are now simplified.

- **Up Connectivity Fault Management 19.2**
- **Down Connectivity Fault Management 19.2**
- **Support of the EISS 6.7**
- **Bridge Port Transmit and Receive 8.5**
- **802.n**
- **LAN**
Subclause 8.6 The Forwarding Process

Figure 8-9—Forwarding Process functions
Some of these functions are per-Port, and some are per-Bridge.
A Ballot Comment (from the author) on P802.1ag Draft 6.0 will include this diagram.

This breakout improves **P802.1ag CFM.**

This function is **per-Bridge.**

These functions are **per-Port.**

This breakout is **not required** for BCN, but it makes both BCN and CFM easier to understand.
The Forwarding Process

Breakout of the Per-Port part.
Every Port in a CM Bridge requires:

- Egress 8.6.4
- Flow Metering 8.6.5
- Queuing frames with CM <w,y>
- Transmission selection 8.6.8

BCN generation in blue.

Position of Ingress BCN Mux relative to 8.6.1 and 8.6.2 is arbitrary.
Relationship between Congestion Management and other current and proposed work.
The End station forwarding process

Every CM-Aware Station requires:

- Admission Control (EISS)
- Queue Management (<s,u>)
- Egress Traffic Shaping (<s,w>)
- Reception selection (<s,v>)
- Queuing frames with CM (<s,t>)
- Egress CM Multiplexer
- CM Demultiplexer
- BCN
Support in a CM Access Port for a non-CM end station

**Access Ports in a CM Bridge** may require:

- **BCN Demultiplexer**
- **Flow Metering 8.6.5**
- **Queueing frames with CM <w,y>**
- **Transmission selection 8.6.8**
- **Ingress 8.6.4**
- **Ingress 8.6.2**
- **Active Topology Management 8.6.1**
- **Queue Management 8.6.7**

**BCN generation in blue.**

- **Ingress Traffic Shaping <w,x> (Reaction Point)**

**Question:**
- Is shaping needed in edge Bridge?
- If it is also present in the end station?

**BCN reception and traffic shaping in red.**
Part 2

Negotiation of access capabilities
Negotiation of access capabilities

• LLDP should be adequate to assess the capabilities of an end station.

• The CM Bridge Access Port’s Ingress Traffic Shaping is enabled until it discovers that the end station has a Traffic Shaping capability.

• The CM Bridge can then disable its own Traffic Shaping capability.
Part 3

Keeping CM-capable Bridges Adjacent
Keeping CM Bridges adjacent

• A modification to Clause 12, the Multiple Spanning Tree Protocol, can ensure that CM Bridges and non-CM Bridges are in separate Regions.

• This ensures that CM Bridges prefer each others’ company.

• A similar mechanism can be inserted into any new control plane, e.g. Shortest Path Bridging.
Part 4

Summary
Summary

• There are reasonable places to put a Backward Congestion Notification Congestion Management in the IEEE Std. 802.1Q-2006 architecture.