Consideration of Architecture
Diagrams for Source Flow Control

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Agenda

• Background
• Existing Diagrams from 802.1Q
• Proposed Diagrams for 802.1Qdw
Existing 802.1 Congestion Management Tools

802.1Qbb - Priority-based Flow Control

802.1Qau - Congestion Notification
Future 802.1 Congestion Management Tools

P802.1Qcz - Congestion Isolation

Implementation details
- Congesting flows are isolated locally first
- As queues continue to congest, CIM is generated and sent to upstream bridge/router
- CIM can be L2 or L3 message to support L3 networks (common deployment model).

P802.1Qdw - Source Flow Control

Details
- Can be combined with Congestion Isolation
- If congestion persists, Edge-to-Source signaling using L3 message
- Somewhat like a L3 version of 802.1Qau (L3-QCN), but no Reaction Point (RP) rate controller defined – instead, this is Flow Control
- Optional source Top-of-Rack switch involvement
High Level Concepts about Qdw

• SFCMs are sent back towards the source
  • Similar to CNMs from P802.1Qau – Congestion Notification
  • Layer 3 messages instead of Layer 2 messages

• SFCMs invoke PFC-link ‘Flow Control’
  • Basic implementation uses PFC, does not require a P802.1Qau – Congestion Notification Reaction Point (RP)
  • Alternative implementations may include a flow-based RP

• SFC does not require per-flow state
  • Unlike Congestion Isolation that remembers ‘congesting flows’

• So... SFC architectural integration could look like...
  • PFC when receiving an SFCM
  • Congestion Notification when transmitting an SFCM
Figure 35.3—PFC-aware system queue functions
Figure 31-1—CPs and congestion-aware queues in a Bridge
Figure 31-2—Congestion-aware queue functions in an end station
Proposed SFC End-Station Architecture Diagram

End-Station Tx Flow Management

SFCM Multiplexer 52.x.x

Queuing Frames 8.6.6

Output Queues

Transmission Selection 8.6.8

Flow/TC Locator 52.x.x

SFCM Demultiplexer 52.x.x

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Input Queues

End-Station Rx Flow Management

Reception Selection

SFC Congestion Detection 52.x.x

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