Placement of Congestion Management in IEEE Std. 802.1Q

Norman Finn

Rev. 3

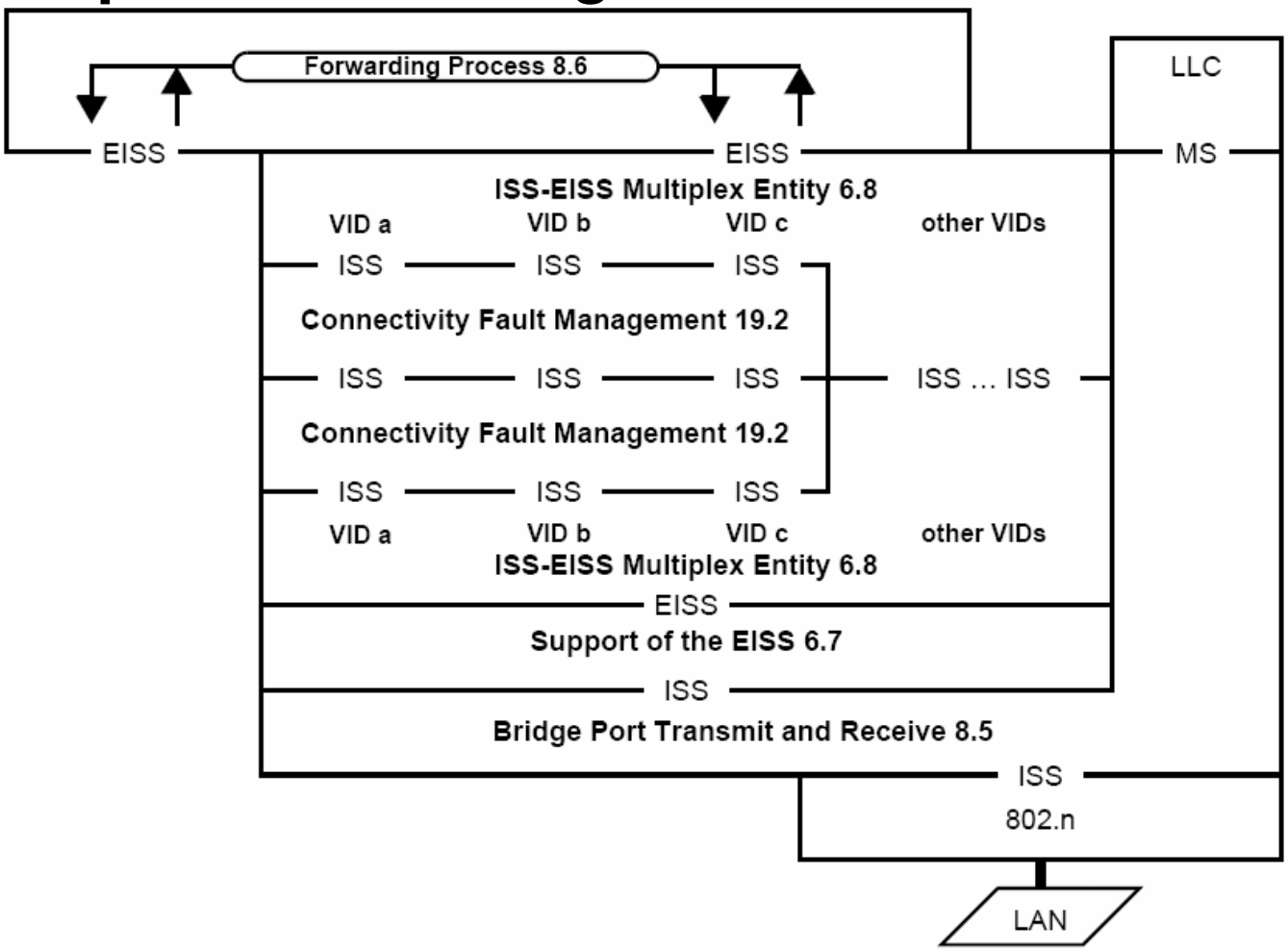
Cisco Systems

Part 1

Backward Congestion Notice (BCN)

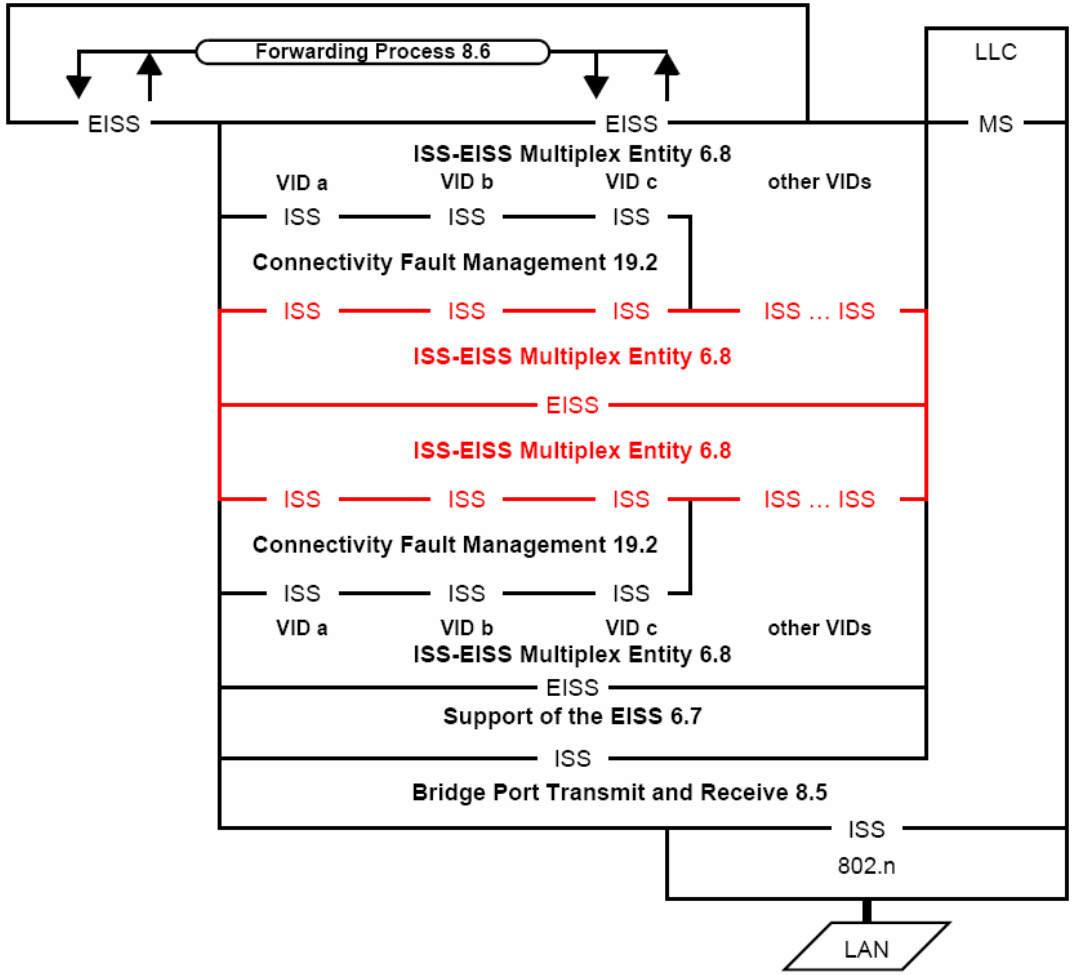
P802.1ag Connectivity Fault Management Simplifying Figure 19-6

Simplified CFM diagram



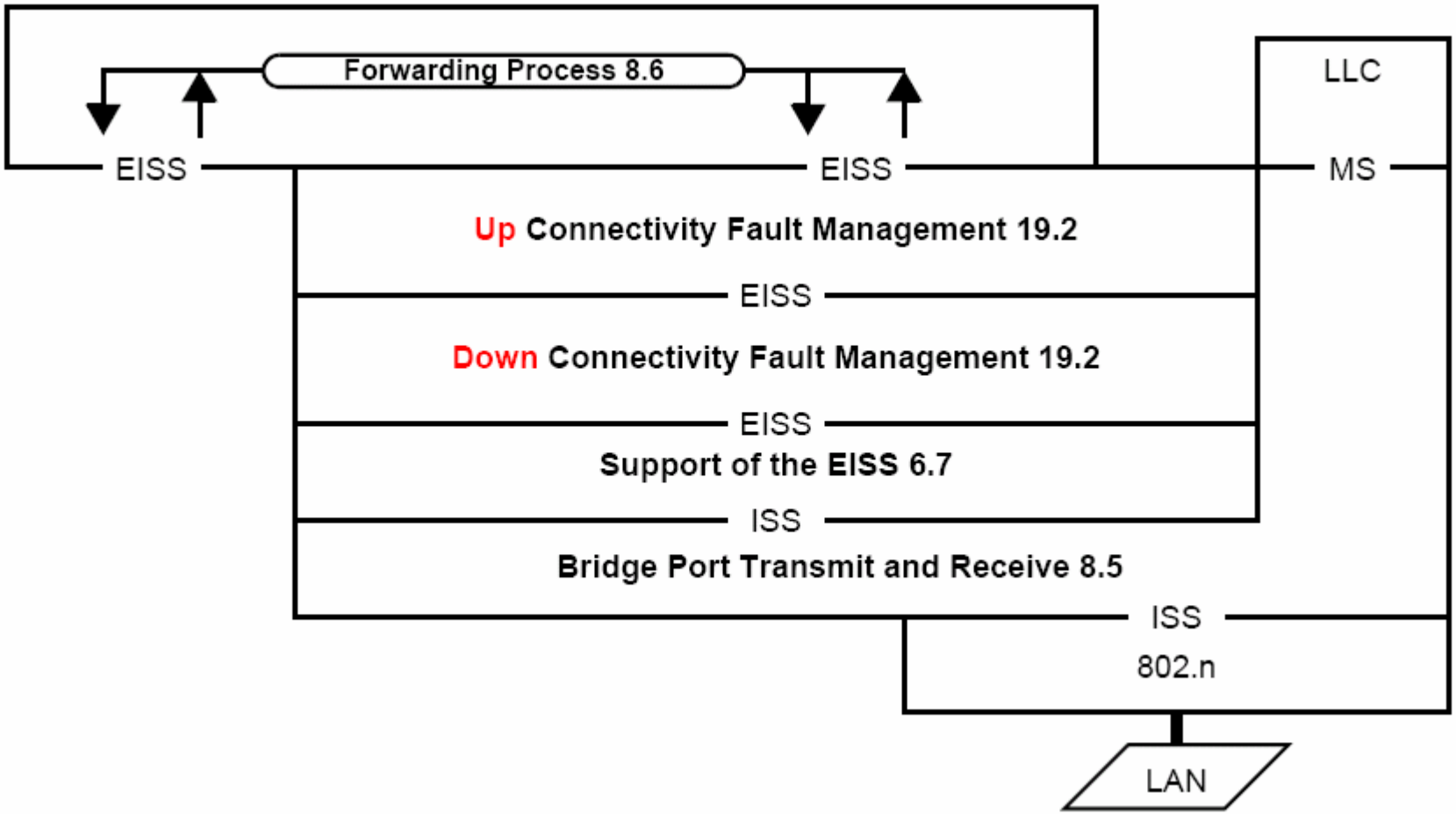
P802.1ag Connectivity Fault Management Simplifying Figure 19-6

Additional ISS-EISS Mux Entity to isolate CFM



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

Two CFM shims are now simplified



IEEE Std. 802.1Q-2006

Subclause 8.6 The Forwarding Process

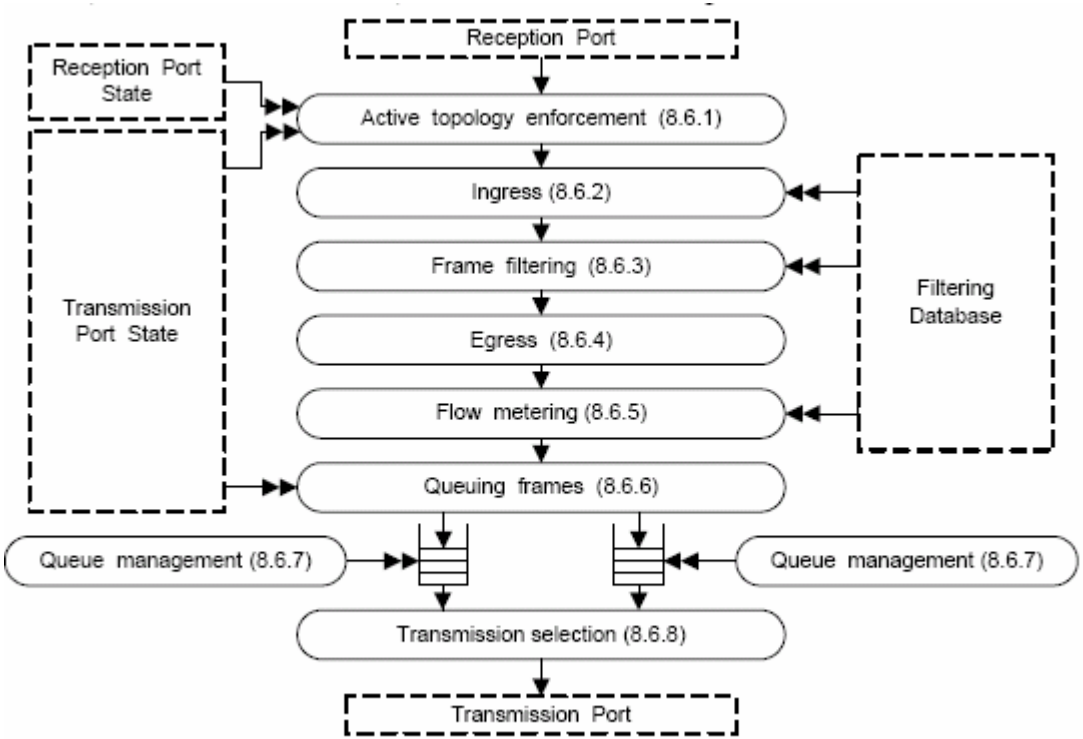
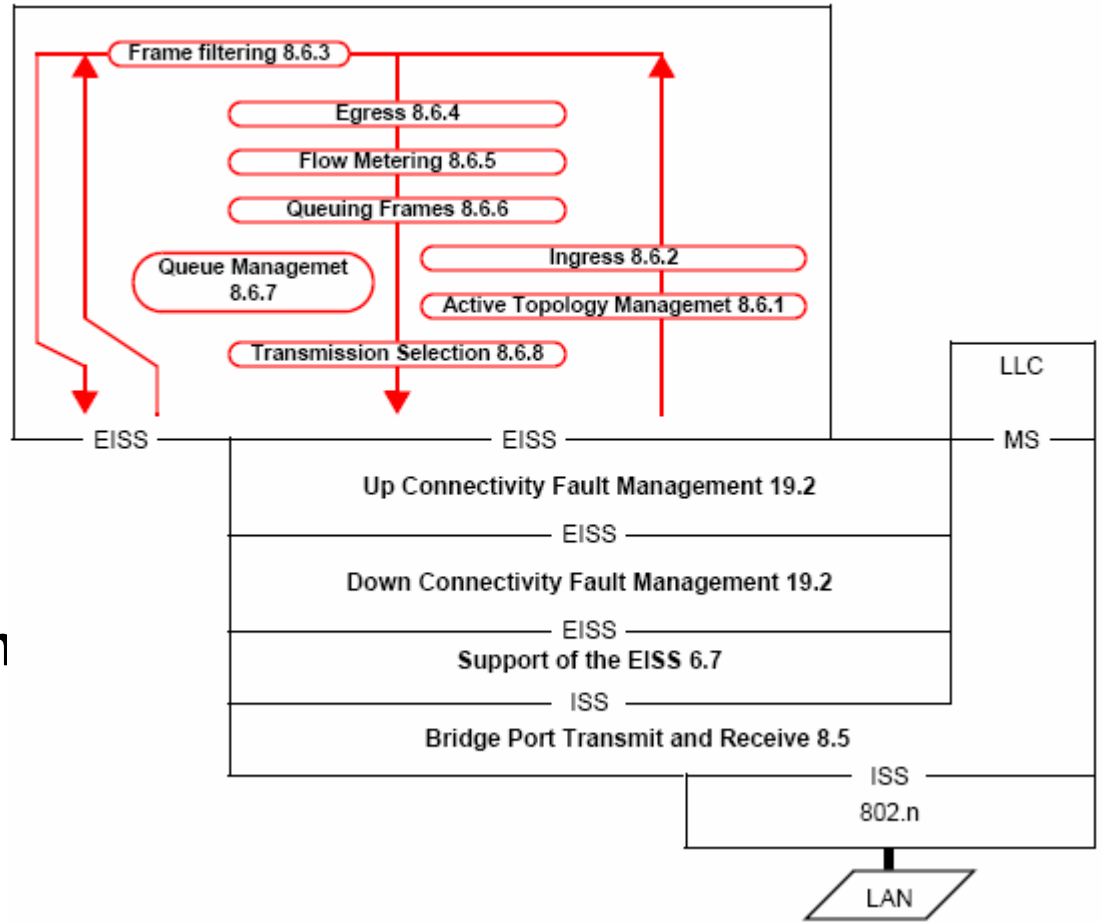


Figure 8-9—Forwarding Process functions

Shuffling IEEE 802.1Q-2006 Subclause 8.6 The Forwarding Process

Exploding the Forwarding Process



Some of these functions are per-Port, and som are per-Bridge.

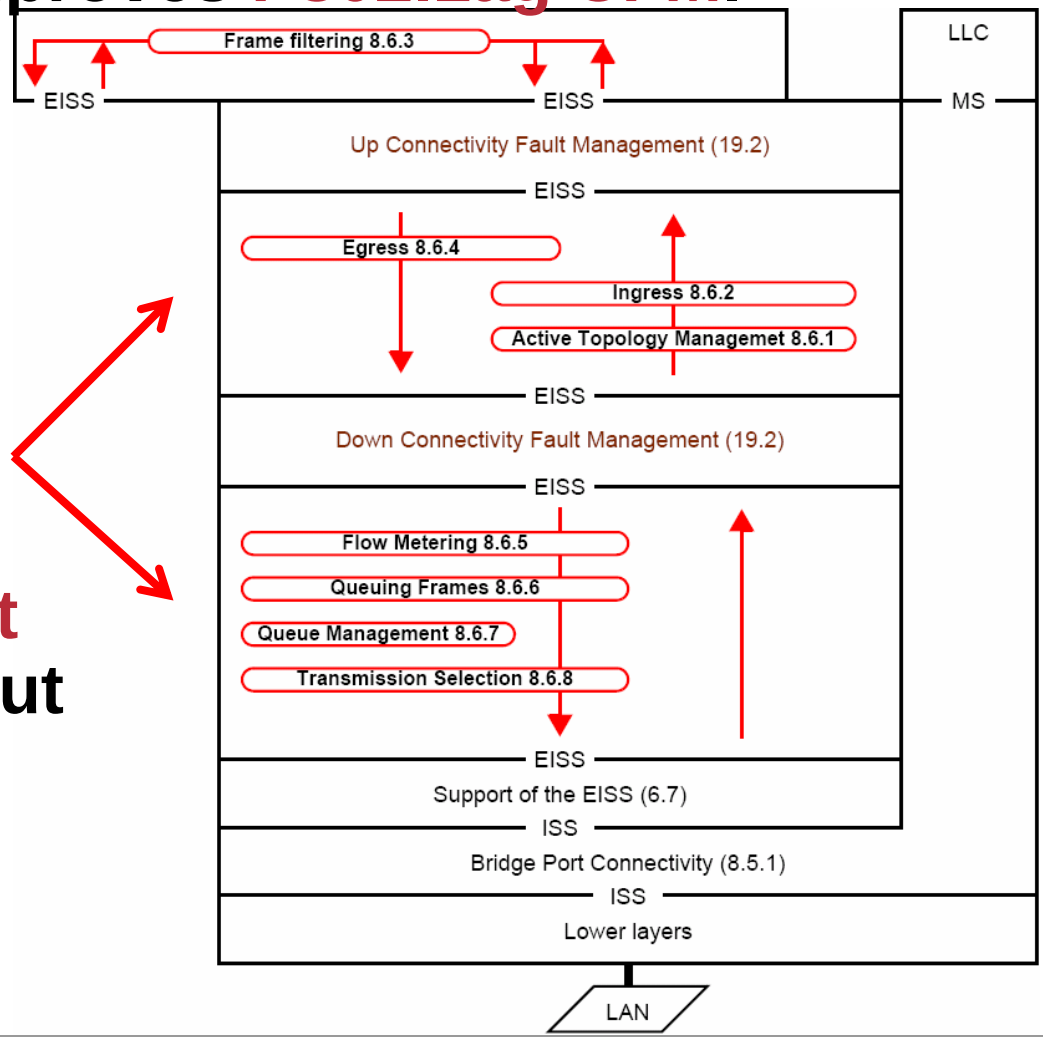
A Ballot Comment (from the author) on P802.1ag Draft 6.0 will include this diagram.

This breakout improves P802.1ag CFM.

This function is per-Bridge.

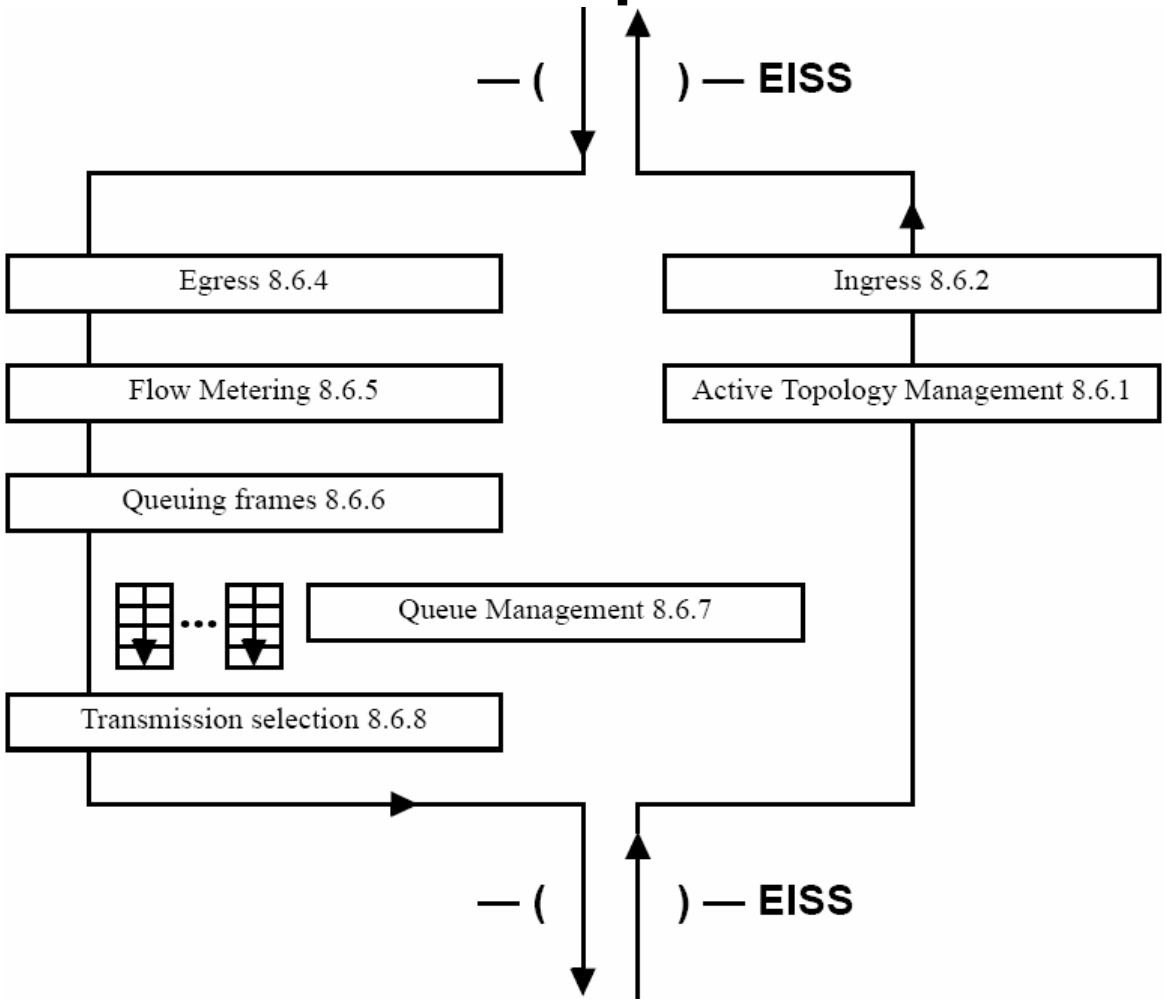
These functions are per-Port.

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



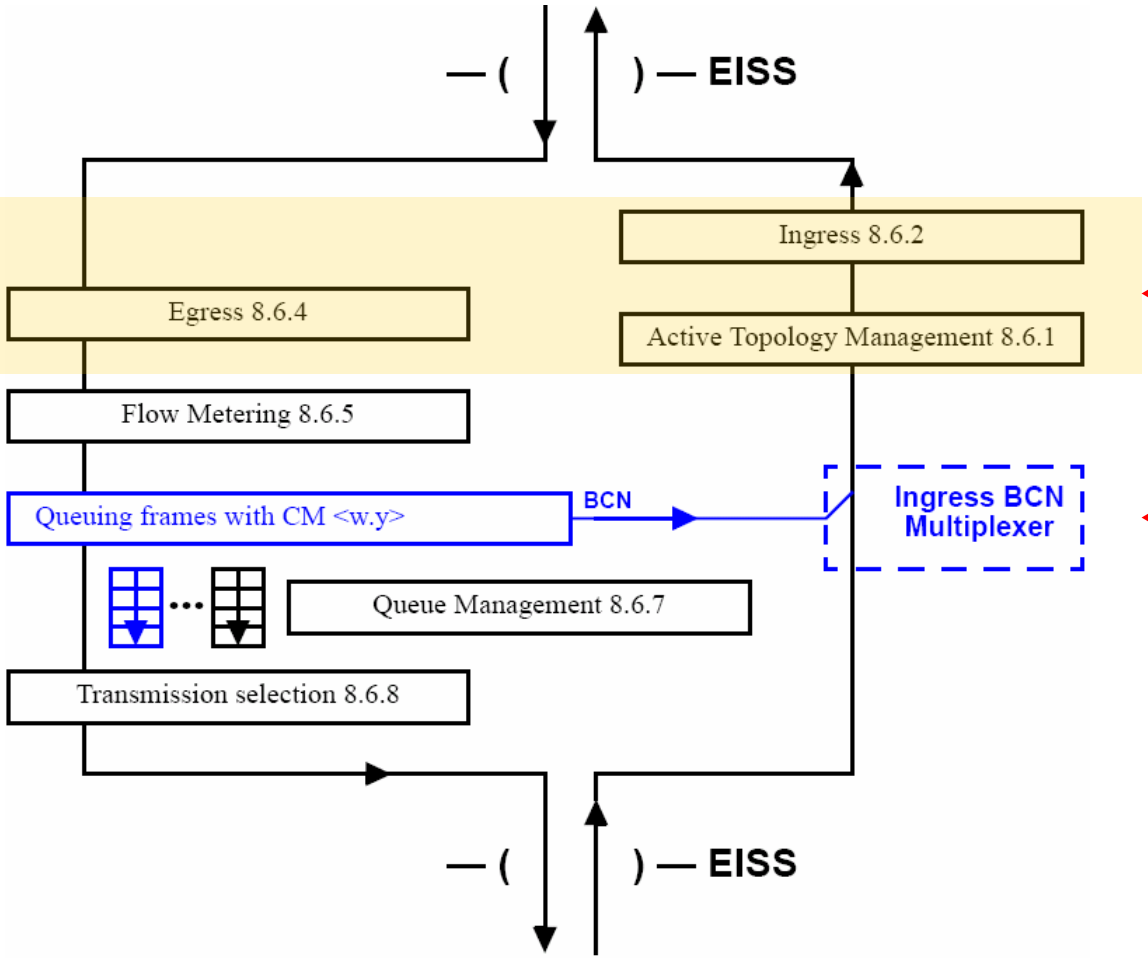
The Forwarding Process

Breakout of the Per-Port part.



The Per-Port Forwarding Process

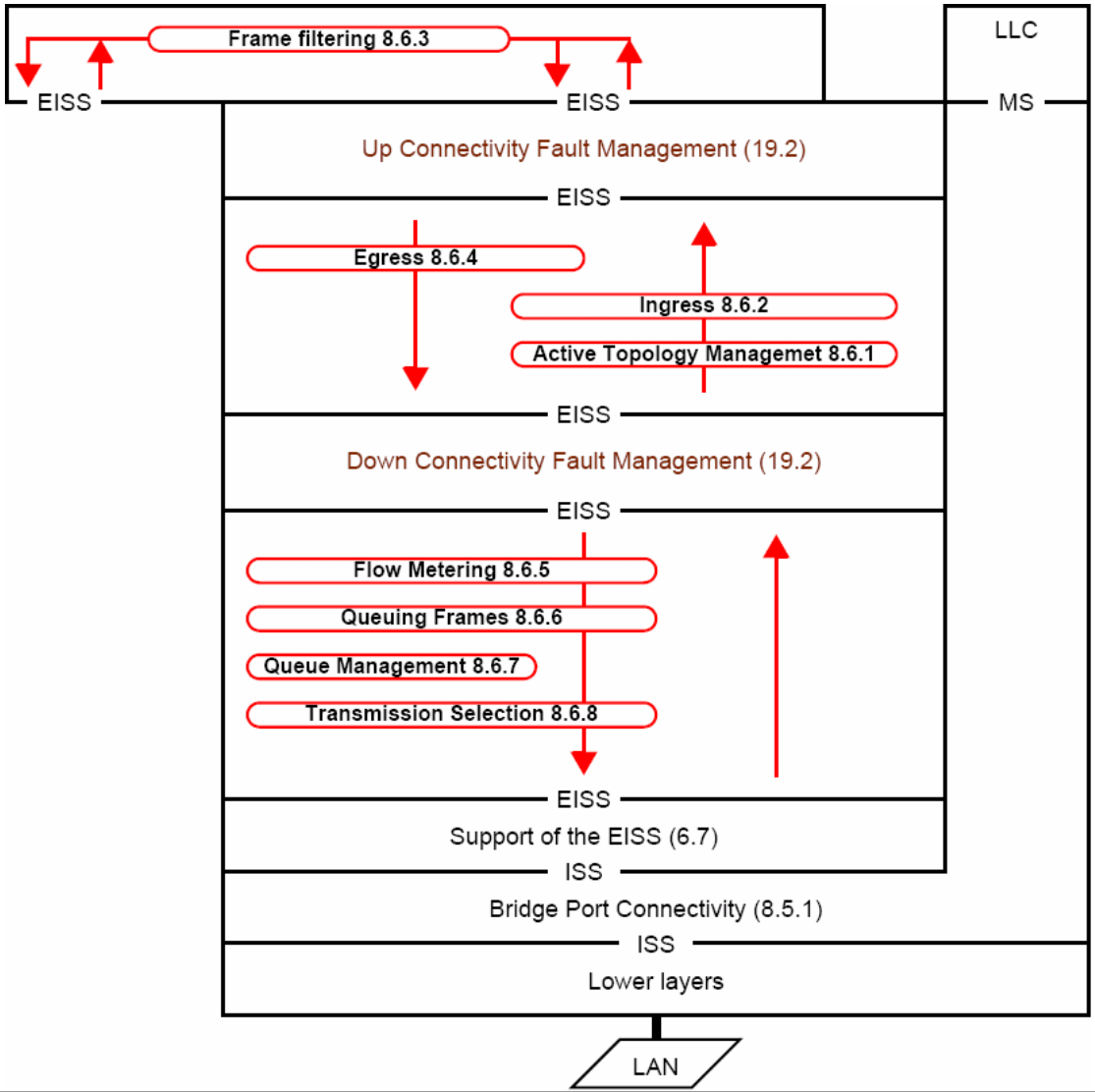
Every Port in a CM Bridge requires:



(These are the spanning tree blocking and VLAN pruning functions.

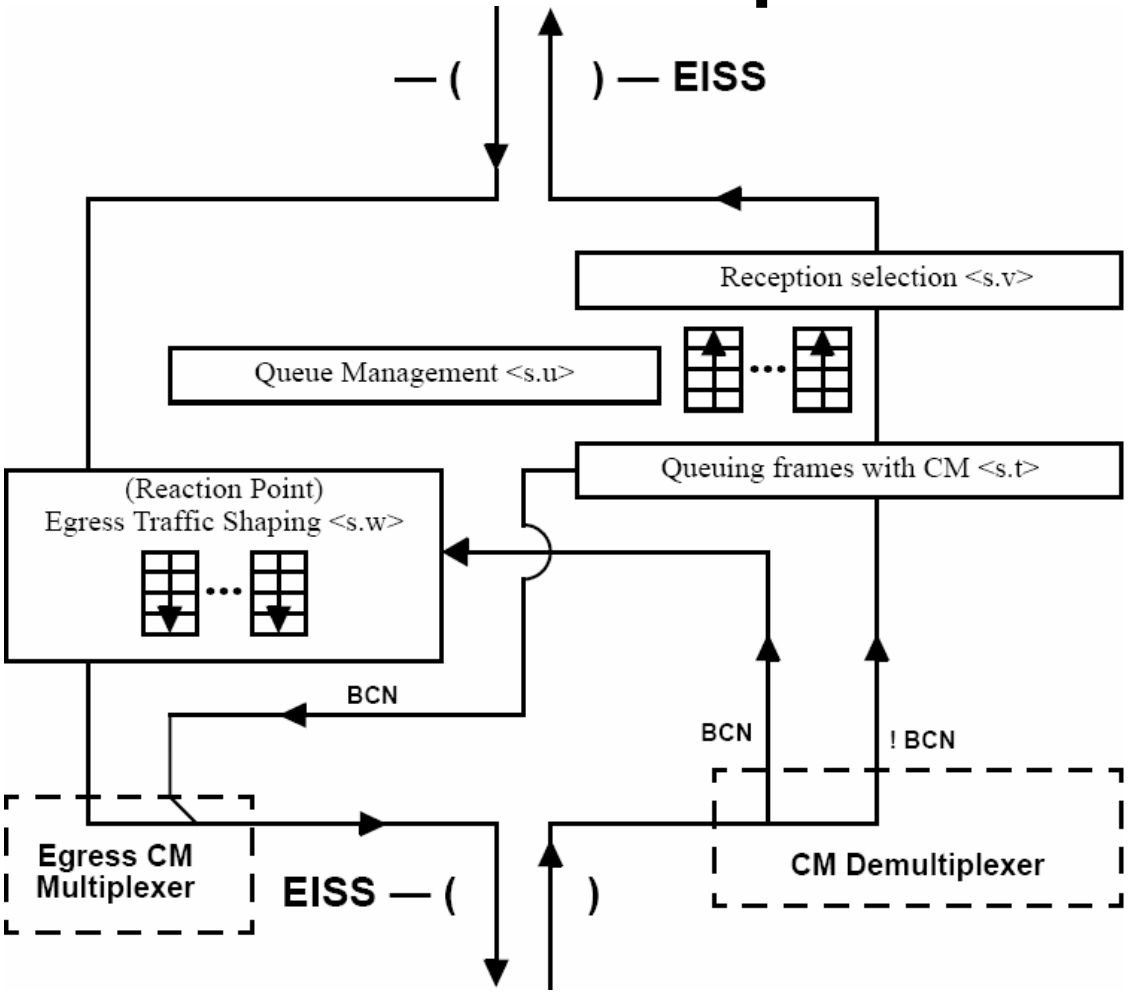
BCN generation in blue.

Relationship between Congestion Management and other current and proposed work.



The End station forwarding process

Every CM-Aware Station requires:



Part 2

Negotiation of access capabilities

Negotiation of access capabilities

- **LLDP should be adequate to assess the capabilities of an end station.**
- **The CM document can define a new LLDP TLV, if this is the right way to discover capabilities.**
- **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

- **Clause 12, the Multiple Spanning Tree Protocol, already has the capability of administratively confining Bridges to separate Regions that prefer each others' company.**
- **A modification to Clause 12, the Multiple Spanning Tree Protocol, can ensure that CM Bridges and non-CM Bridges are in separate Regions.**
- **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.**