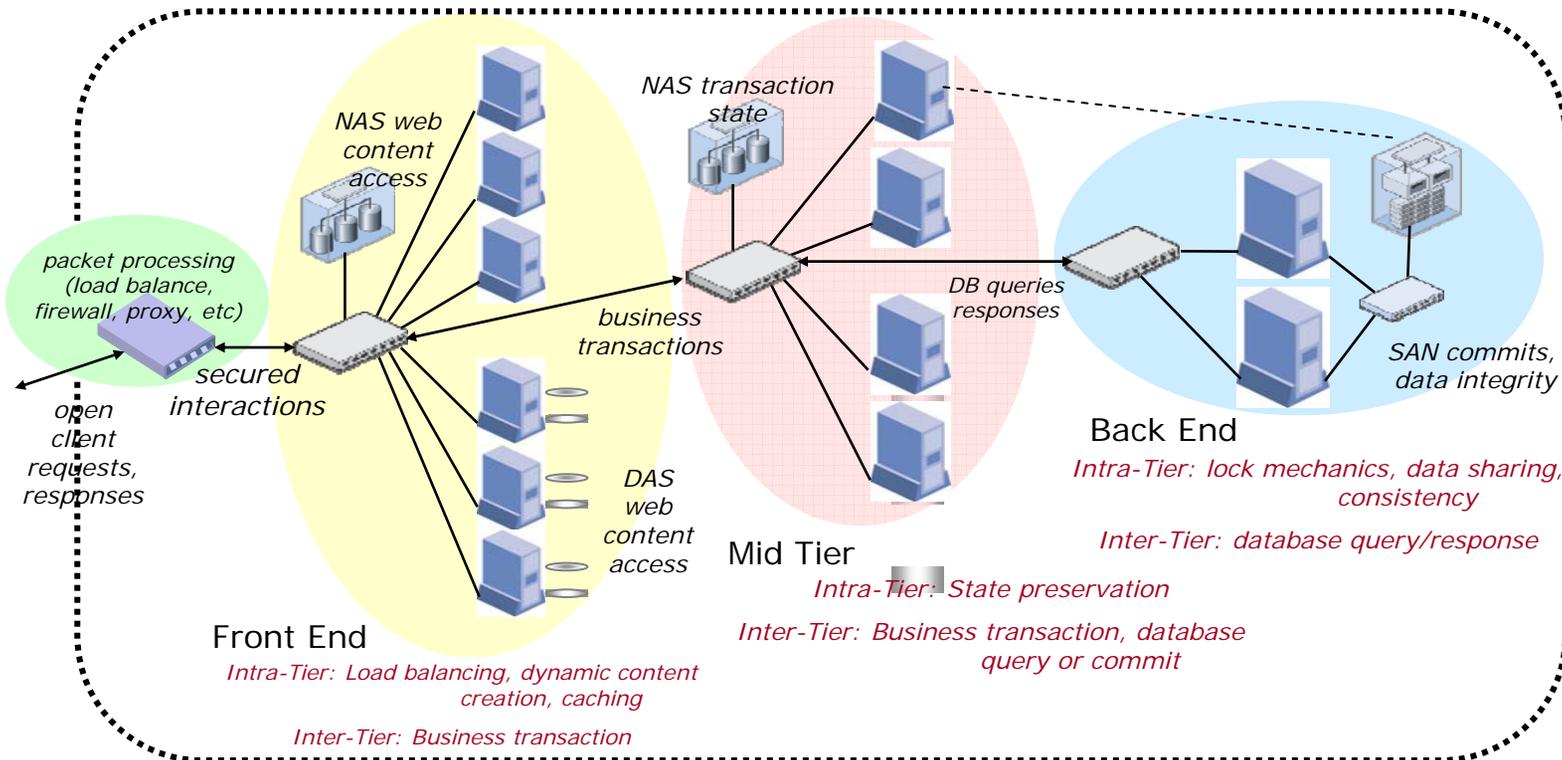


IEEE Data Center Bridging Update

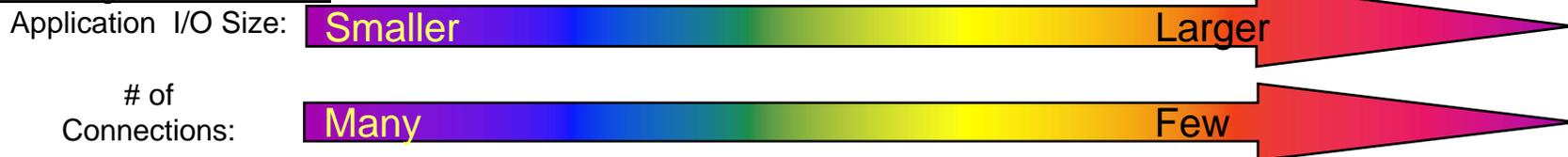


Manoj Wadekar, QLogic
Ilango Ganga, Intel

Data Center Topology

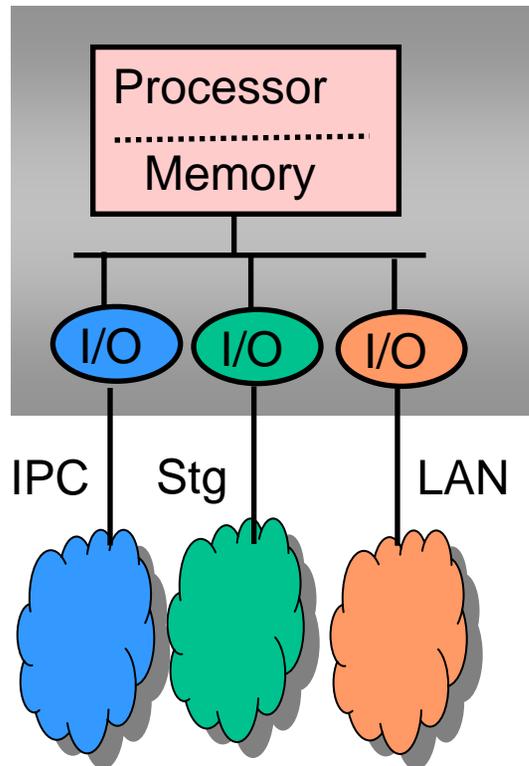


Networking Characteristics:



Ref: [DCB Tutorial IEEE Plenary November 2007](#)

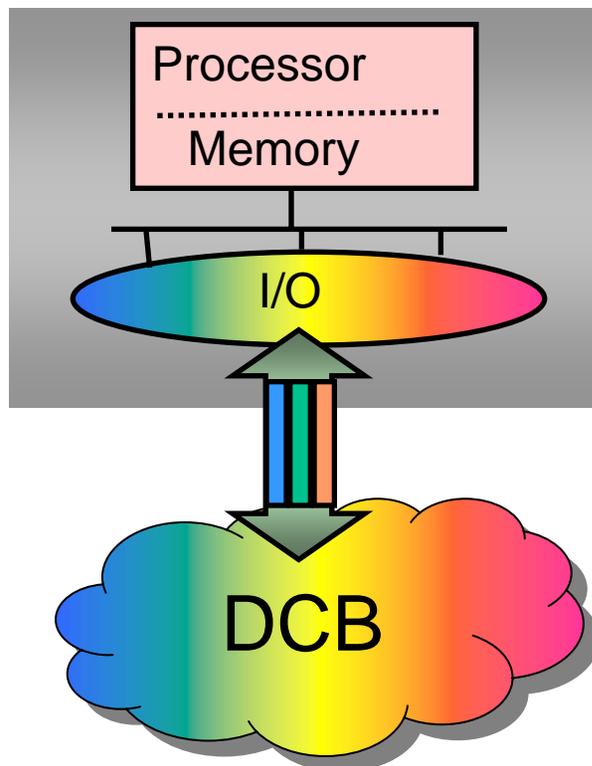
Fabric convergence needs:



- Traffic Differentiation:
 - LAN, SAN, IPC traffic needs differentiation in converged fabric
- “No Packet Drop”:
 - FC does not have transport layer – retransmissions are at SCSI!
 - iSCSI may benefit from “lossless” fabric too
- Seamless deployment:
 - Backward compatibility
 - Plug and play
- Ethernet needs these enhancements to be true converged fabric for Data Center

I/O Consolidation reduces TCO

Data Center Bridging



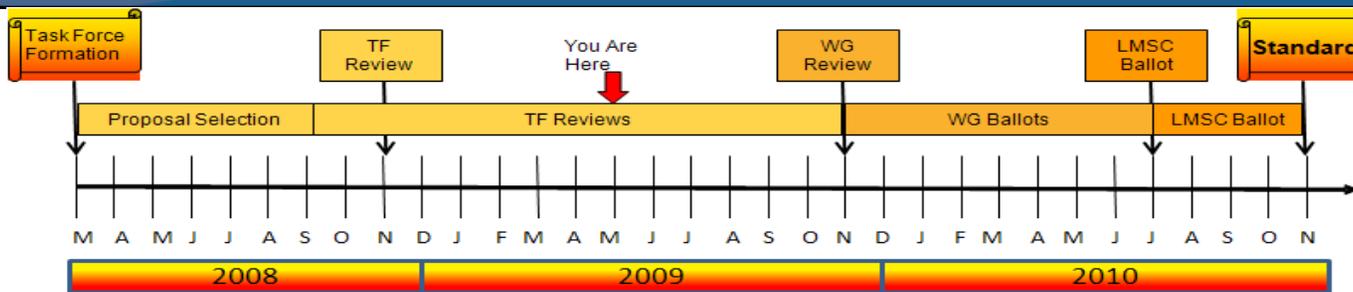
- What is DCB?
 - Data Center Bridging provides Ethernet enhancements for Data Center needs (Storage, IPC, Blade Servers etc.)
 - Enhancements apply to bridges as well as end stations
- Why DCB?
 - DC market demands converged fabric
 - Ethernet needs enhancements to be a converged fabric of choice
- Scope of DCB:
 - Should provide convergence capabilities for Data Center – short range networks
 - Protection against packet loss due to congestion
- What DCB is not:
 - Not a reliable transport
 - Does not protect packet loss due to CRC errors, link errors etc.

Data Center Bridging Projects

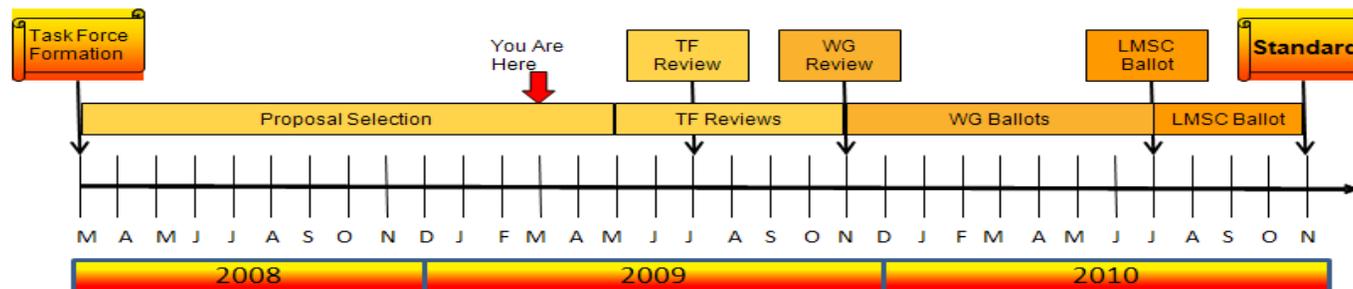
- Priority-based Flow Control (802.1Qbb)
 - Link level flow control (Per priority)
 - <http://www.ieee802.org/1/files/public/docs2008/bb-pelissier-pfc-proposal-0508.pdf>
- Congestion Notification (802.1Qau)
 - Provides end-to-end congestion management
 - Reduces congestion spreading, HOL blocking
 - Draft 1.4 at: <http://www.ieee802.org/1/pages/802.1au.html>
- Enhanced Transmission Selection, Priority Groups (802.1Qaz)
 - Provides traffic differentiation between traffic types
 - <http://www.ieee802.org/1/files/public/docs2008/az-wadekar-ets-proposal-0608-v1.01.pdf>
- DCB capability eXchange protocol (802.1Qaz)
 - Provides plug-and-play for DCB products in network
 - <http://www.ieee802.org/1/files/public/docs2008/az-wadekar-dcbx-capability-exchange-discovery-protocol-1108-v1.01.pdf>



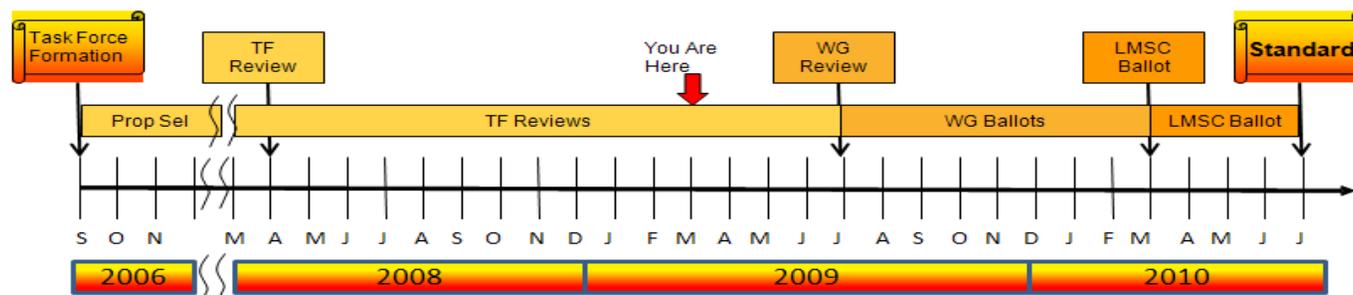
Expected Project Timelines*



802.1Qbb
(PFC)



802.1Qaz
(ETS & DCBX)



802.1Qau
(CN)

Usage Models for DCB

➤ Current:

- DCB provides “no-drop”
- Converged Networking and Storage
 - FCoE, iSCSI etc.

➤ Future:

- Discussion about “low latency applications” over DCB
 - HPC, IPC, NAS (NFS/RDMA) etc.

Thank You!



Q & A