Feature Brief

Storage Center Data Center Bridging

iSCSI over DCB for improved reliability and performance

Data Center Bridging (DCB) is a set of networking standards that were originally created to ensure lossless delivery of Fibre Channel (FC) traffic from Ethernet hosts to FC or Fibre Channel over Ethernet (FCoE) native storage targets. Over recent years, this technology has been extended to deliver similar benefits for iSCSI storage solutions and continues to gain acceptance with storage networking device manufacturers and customers.

DCB extends reliability within the network infrastructure by eliminating packet loss, and improving data networking and management. DCB features include:

- Priority-based flow control (IEEE 802.1Qbb)
- Enhanced transmission selection (IEEE 802.1Qaz)
- iSCSI application priority tagging (leveraging IEEE 802.1p CoS features)
- Discovery, configuration and mismatch resolution by introducing extensions to LLDP

Through the use of traffic class prioritization and bandwidth allocation policy-maps within a DCB-enabled network, predictable storage area network (SAN) performance is possible.

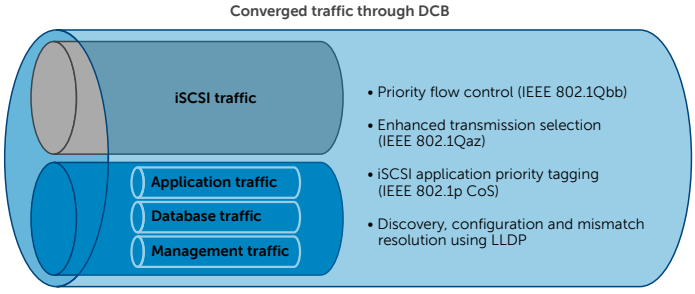
By upgrading from 1GbE to 10GbE, you can consolidate network and storage traffic to a single segment, reducing costs while improving manageability. 10GbE networks that leverage DCB ensure that iSCSI performance within the network is not impacted when combined with other traffic. While legacy best practices had you improve performance by separating traffic onto different physical network segments, DCB converges traffic onto a single 10GbE segment. DCB prioritizes traffic classes and bandwidth allocation for consistent, predictable SAN performance. For example, you can configure the iSCSI storage traffic to have a higher bandwidth percentage than web traffic — allocating 60% of bandwidth to iSCSI storage traffic and 40% to web traffic — ensuring reliability and performance within the converged space.

DCB requirements mandate end-to-end DCB capable devices to take advantage of DCB's lossless nature and bandwidth allocation capabilities within the SAN. For a complete listing of all Ethernet switches and CNAs validated for DCB compliance with Dell Storage SC Series storage controllers, see the Dell Storage Compatibility Matrix.

For best practices using iSCSI over DCB in SCOS 7 on a Dell Storage SC Series SAN, refer to iSCSI DCB with Dell SC Series Arrays using Storage Center OS 7.0 and iSCSI DCB with Dell SC Series Arrays using Storage Center OS 7.0 Video.

Highlights

- Lossless traffic
- Convergence
- Priortity-based flow control
- Enhanced transmission selection
- Congestion notification



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