

Introduction

Fibre Channel (FC) is currently the de facto block storage protocol standard for implementing Storage Area Networks (SANs) in enterprise data centers.

SANs deliver the following well-understood value propositions:

- Storage consolidation
- Centralized storage management
- High performance
- High reliability
- Rapid reconfiguration

Introducing FCoE

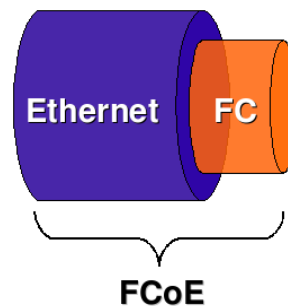
Fibre Channel over Ethernet (FCoE) transports Fibre Channel frames over an Ethernet fabric. By converging Storage, Networking and clustering data onto a single fabric, FCoE enables data centers to increase application performance while reducing cost, power and manageability tasks.

The key benefits of FCoE are:

- High performance storage access over loss-less 10Gigabit Ethernet fabrics
- Transparent access to storage devices using existing SAN management methods
- Ability to retain Enterprise proven Fibre Channel drivers and management tools
- Lower capital, energy and cooling costs with less adapters, cables and switches
- Lower management overhead by maintaining a single fabric
- Increased application availability by simplifying the network and server configuration

FCoE is an evolution of Fibre Channel that uses Fibre Channel's Network, Service and Protocol layers to carry data packets over Ethernet physical and data link layers.

Using Fibre Channel's upper layers simplifies FCoE deployment by allowing the leverage of enterprise proven Fibre Channel software stacks and management tools and trained administrators. Most importantly mission critical applications do not need to change to benefit from the performance and cost benefits of FCoE.



Loss-less Ethernet

Fibre Channel protocols assume that the underlying fabric is loss-less even during network congestion, to ensure that storage traffic is delivered reliably and in a timely manner.

Convergence Enhanced Ethernet (CEE) capable products will enable loss-less Ethernet fabrics by using Priority based Flow Control (PFC), to pause traffic based on the priority levels. This allows virtual lanes to be created within an Ethernet link with each virtual lane assigned a priority level. During periods of heavy congestion lower priority traffic can be paused, while allowing high priority and latency sensitive tasks such as data storage to continue.

Fabric Convergence

Loss-less Ethernet and FCoE makes it possible to converge enterprise storage, networking, management and clustering data onto a single fabric that is simple to manage, high performance and cost effective.

Cost saving

Significant cost saving can be expected by converging storage and networking onto Ethernet fabrics. Not only are energy, management and maintenance costs reduced, but the cost of

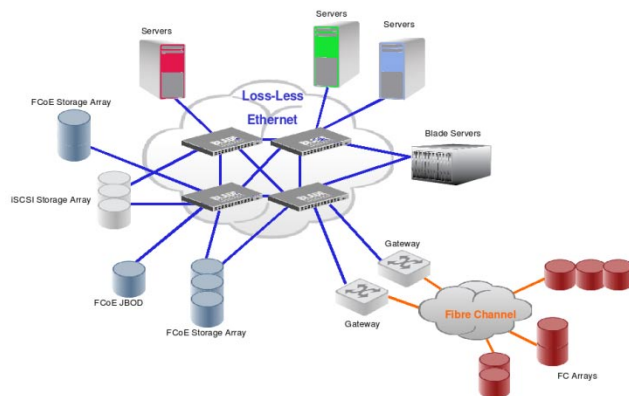
Ethernet adapters, cables and switches is lower than Fibre Channel due to the higher volumes and ultra competitive market forces.

Power Saving

Converging to a single loss-less Ethernet fabric not only reduces equipment and management cost, it also significantly reduces the power consumption across the data center by reducing the number of adapters and switches required.

Rolling out FCoE in the data center

The first FCoE products will be Converged Network Adapters that provide server LAN and SAN connectivity over Ethernet, and FCoE switches that connect FCoE capable initiators (on the server side) to existing Fibre Channel SANs. These products will enable customers to consolidate server interconnectivity to a single Ethernet fabric.

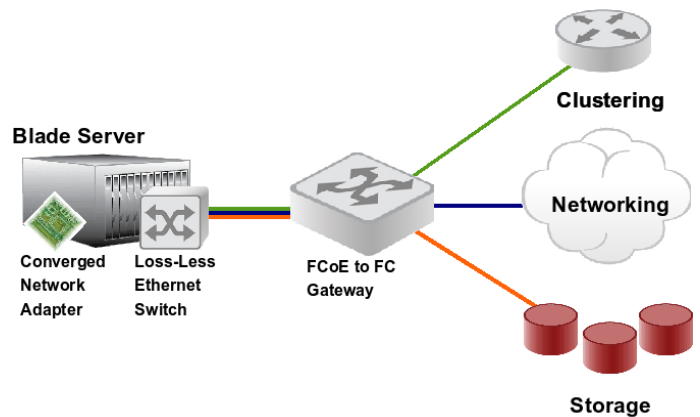


To the other nodes in the Fibre Channel SAN, the FCoE initiators appear to be directly connected and can be managed and maintained with the same tools.

As FCoE becomes more popular, native FCoE storage arrays will appear on the market, enabling a fully converged fabric.

BLADE - Emulex - NetApp Collaboration

This collaboration showcases direct connectivity between an Emulex FCoE CNA and a NetApp FCoE target via BLADE's 10GigE switches in blade or rack-based form factors.



An FCoE to FC gateway provides an evolutionary approach to FCoE with seamless connectivity to existing native Fibre Channel devices.

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About BLADE Network Technologies: BLADE is the leading supplier of Gigabit and 10G Ethernet network infrastructure solutions that reside in blade servers and server and storage racks. BLADE's virtual, cooler and easier RackSwitch family demonstrates the promise of Rackonomics a revolutionary approach for scaling out data center networks to drive down total cost of ownership.

About NetApp: NetApp creates innovative storage and data management solutions that accelerate business breakthroughs and achieve outstanding cost efficiency. Discover our passion for helping companies around the world go further, faster at www.netapp.com.

About Emulex: Emulex is the leader in converged networking solutions for the data center. Our Connectivity Continuum architecture provides intelligent networking services that transition today's infrastructure into tomorrow's unified network ecosystem. Emulex provides a single framework that intelligently connects every server, network and storage device within the data center. Through strategic collaboration and integrated partner solutions, Emulex provides its customers with industry leading business value, operational flexibility and strategic advantage. Emulex is listed on the New York Stock Exchange (NYSE:ELX) and has corporate headquarters in Costa Mesa, California. News releases and other information about Emulex Corporation are available at <http://www.emulex.com>.

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