

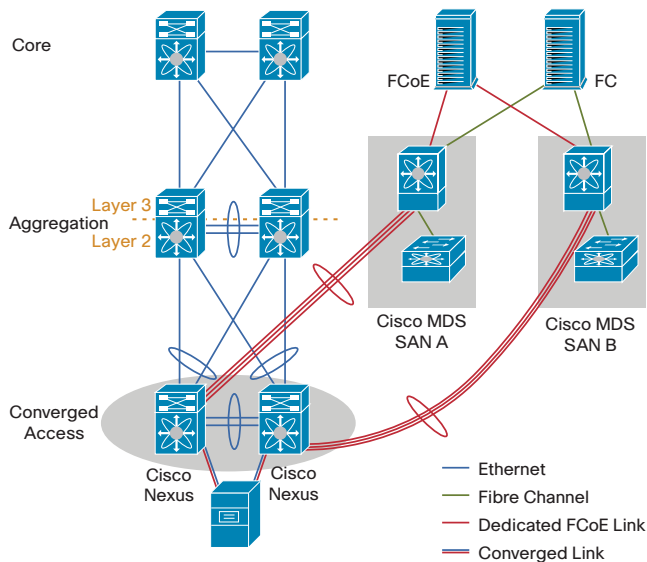
Overview

With the introduction of multihop Fibre Channel over Ethernet (FCoE), network convergence is no longer restricted to the first-hop access layer. Multihop FCoE helps extend the flexibility and scalability of convergence further into the data center while preserving investments in Fibre Channel SANs. A variety of deployment options are available.

Converged Access

Convergence of the access layer (Figure 1) delivers immediate savings in capital expenditures (CapEx) with reduction in equipment and cabling. The Cisco Nexus® Family offers a wide range of FCoE-capable access-layer switches, including smaller form-factor fixed switches such as the Cisco Nexus 2000 and 5000 Series Switches, as well as modular options with the Cisco Nexus 7000 Series Switches, which can scale up to 512 10-Gbps FCoE ports.

Figure 1. Converged Access



Through the use of a virtual E-port (VE-port) to create a dedicated FCoE link, FCoE traffic can multihop from the Cisco Nexus converged access-layer switches directly to the Cisco® MDS 9000 Family Fibre Channel SAN, preserving existing and continued investments in the Fibre Channel infrastructure. This entire end-to-end network shares the same operating system (Cisco NX-OS Software) and the same management system (Cisco Data Center Network Manager [DCNM]), providing consistency for configuring, managing, and monitoring the storage network.

FCoE Beyond the Access Layer

Many customers see value in deploying Ethernet-based FCoE switches such as the Cisco Nexus 7000 Series Switches beyond the access layer for several reasons:

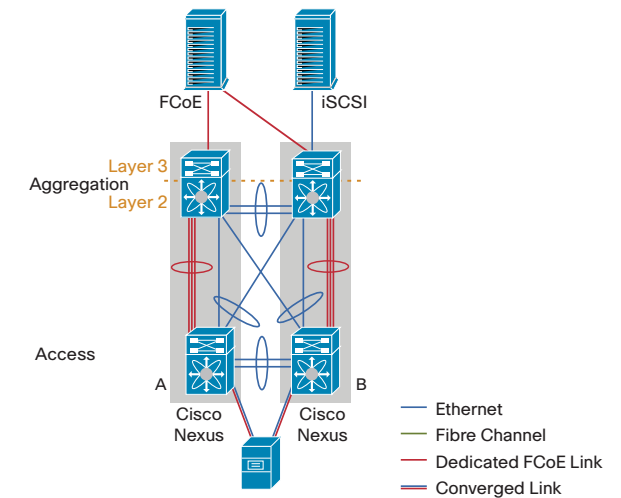
- Higher overall throughput compared to native Fibre Channel switches
- Flexibility to support file (network-attached storage [NAS]) and block (Small Computer System Interface over IP [iSCSI] and FCoE) storage traffic
- Ease of maintaining traffic isolation with dedicated links and storage virtual device contexts (VDCs)
- Plans that include 40 and 100 Gigabit Ethernet speeds

High-performance Ethernet-based FCoE switches can be used in a dedicated SAN core, replacing the Fibre Channel switches in the converged access design (Figure 1) or used in a converged network design.

Converged Network

Multihop FCoE technology can be used to extend convergence beyond the access layer, to a fully converged network (Figure 2). This design creates a single highly available, highly scalable network that has the flexibility and agility to support any traffic type.

Figure 2. Converged Network



In this deployment, the physical infrastructure is shared, but SAN A and B separation is maintained with the use of dedicated FCoE links between the access and aggregation layers of the network. These dedicated links run Fabric Shortest Path First (FSPF), with no dependency on Ethernet forwarding protocols such as Spanning Tree Protocol, virtual PortChannel (vPC), or Transparent Interconnection of Lots of Links (TRILL). As an option, FCoE in the Cisco Nexus 7000 Series can be run in a separate storage VDC, providing isolation from nonstorage processes running on the switch. This approach maintains the operation model and isolation requirements of Fibre Channel even within this converged network design.

Flexibility and Choice

Cisco offers a broad portfolio of interoperable FCoE and Fibre Channel switching products, proof of our commitment to investment protection and customer choice.

For More Information

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