

ESG Lab Report Validation Summary

EMC Cisco Unified Storage Networking

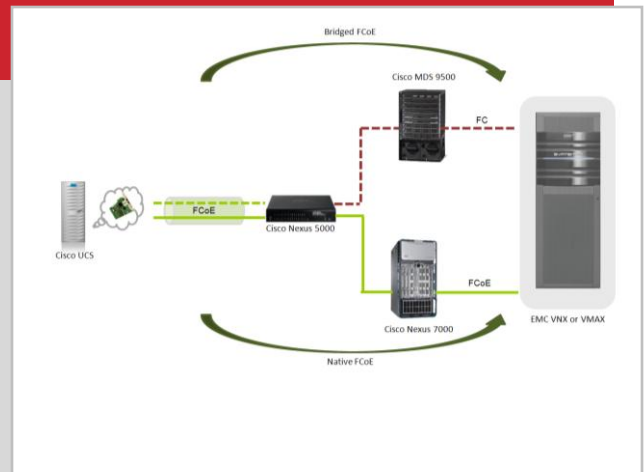
Enabling Virtual Data Center Infrastructures with Trusted FCoE Solutions

ESG Lab recently performed hands-on testing of EMC Storage and Cisco Unified Fabric solutions focusing on ease of configuration, management, performance, and scalability of Fibre Channel over Ethernet (FCoE) networks. An end-to-end Cisco and EMC solution was tested with Cisco UCS servers and switches configured for bridged and native FCoE connectivity to an EMC VNX disk array. The performance of a virtual desktop infrastructure (VDI) workload running over bridged and native FCoE storage connections was examined. This report also includes an overview of bridged FCoE testing with an EMC VMAX disk array that was documented in a previously published ESG Lab Validation report.

Read the Full Report at www.emc.com
and www.cisco.com/go/unifiedfabric

The Solution

A converged network that consolidates storage and LAN traffic can help increase efficiency, reduce costs, and speed the journey to the cloud. Long-term partners EMC and Cisco offer converged network solutions, product bundles, EMC E-Lab Tested and Cisco Validated designs, and consulting and support services to help customers plan, deploy, and manage their converging infrastructures. On the networking side, the Cisco Unified Fabric unifies storage and data networking for seamless, converged, scalable, and intelligent networks that reduce total cost of ownership. Cisco Nexus and MDS series switches and directors provide native and bridged FCoE support. Additional offerings include Cisco Unified Network Services and the Cisco Unified Computing System (UCS). On the storage side, EMC VNX arrays are affordable, easy-to-use, mid-tier solutions that provide high efficiency storage for multi-protocol SANs. The EMC Symmetrix VMAX platform supports large enterprise environments with unmatched scalability, high availability, and scale-out performance levels for the most demanding virtual data center needs. EMC VNX and VMAX storage systems are qualified and supported in Cisco enabled bridged FCoE configurations. The VNX supports native FCoE with 10 Gb Ethernet IO modules; VMAX native FCoE is planned, but not yet generally available as of this writing.



Why This Matters

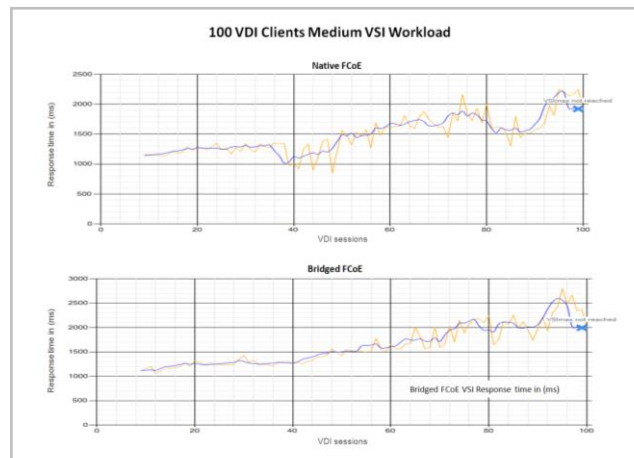
Data center consolidation efforts are designed to increase efficiency not only by reducing the number of devices in use, but also by simplifying management. Data center virtualization and convergence is beginning to blur the lines that separate the roles of server, network, and storage administrators, making management automation that much more important. Technologies may offer savings on equipment, power, and cooling, but if they also increase management costs, those savings can be negated. In addition, organizations have invested in IT skills and training for their FC deployments—there is inherent risk and cost in having to retool and retrain.

ESG Lab has verified that FCoE does not interfere with existing tools, processes, or applications, protecting existing investments. In addition, the management tools provided are simple and effective, and enable automation of basic and advanced functionality.

ESG Lab Validation Highlights

ESG Lab performed hands-on evaluation and testing of an EMC and Cisco Unified Storage Network at EMC's Hopkinton, Massachusetts facility. The following is a summary of the results:

- Native and bridged FCoE was tested with EMC VNX storage and a Cisco UCS server connected to a unified storage network from Cisco.
- EMC Unisphere and Cisco Data Center Network Manager graphical user interfaces were used to confirm that managing an FCoE network is intuitive and retains the look and feel of a traditional Fibre Channel network. The command line and graphical tools used to manage zoning and access control work the same as with traditional FC.
- End-to-end bridged and native FCoE connectivity was exercised with a performance tool that emulated 100 typical VDI sessions.
- Performance scaled well for both the bridged and native FCoE configurations, with both solutions yielding end-user desktop response times under the generally accepted limit of three seconds.



Issues to Consider

Upgrades from traditional FC to FCoE require careful planning, as upgrades of SAN and network switches as well as host adapters may be required. The good news is that FCoE, deployed in its most likely scenario—when adding new servers—is quite easy to accomplish. Native FCoE support for EMC VMAX storage systems is planned, but not yet generally available as of this writing. While a single network infrastructure for both FC and Ethernet connectivity should make administration and troubleshooting easier and require fewer cards and cables, it comes with the potential for conflicts within IT culture as FC and Ethernet networking teams join together. In other words, technology is only one of the issues to consider when migrating from FC to FCoE; its impact on people and processes must also be considered.

ESG Lab's View

EMC Storage and Cisco Unified Fabric create a flexible and easy-to-manage platform that enables IT professionals to consolidate their network infrastructure. It combines the agility and performance of traditional data center environments with the flexibility to support expanding server virtualization and cloud computing deployments. While much of the joint EMC/Cisco spotlight recently has been on the VCE coalition and large Vblock implementations, the relationship between these two highly respected organizations is long and deep. Together, they can provide a converged network and storage environment offering high performance and scalability for the medium-sized organization to the large enterprise. These industry giants are considered trusted partners by organizations across the world; with their industry-leading products and support, they minimize risk for organizations as they transition their networks.

ESG has confirmed that the EMC and Cisco end-to-end FCoE solution operates properly, scales effectively, and offers high performance. The joint solution is easy to deploy and supports multiple protocols for optimal choice—FC, iSCSI, FCoE, and NAS. This agile and efficient architecture provides any-to-any connectivity backed by industry leaders. Customers should be reassured that with this solution, they can leverage current FC investments as they begin the transition to a more cost-effective, Ethernet-based data center.

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