Insurance Provider Builds SAN for the Future

Health Care Service Corporation chooses Cisco MDS 9710 Multilayer Directors for unprecedented scalability.

EXECUTIVE SUMMARY

Customer Name:
Health Care Service Corporation

Location: Chicago, IL
United States

Employees: 20,000

Business Challenge:
- Add capacity to SAN core while maintaining zero downtime
- Help ensure high scalability to meet future requirements
- Simplify management

Network Solution:
- Cisco MDS 9710 Multilayer Directors
- Cisco MDS 9513 Multilayer Directors
- Cisco Data Center Network Management

Business Results:
- Gained 16-Gbps line-rate, nonblocking, predictable performance
- Avoid infrastructure disruption while gaining performance and scalability
- Further simplified management

Business Challenge

Health Care Service Corporation (HCSC) is the largest customer-owned health insurance company in the United States. It offers a wide variety of health and life insurance products, including operating Blue Cross and Blue Shield Plans in Illinois, Montana, New Mexico, Oklahoma, and Texas. Supporting these operations are two Tier IV data centers, several headquarters, and multiple branch locations. Twelve storage area networks (SANs) are distributed across the company's locations and used for production, testing, development, and disaster recovery functions.

The SANs support a range of enterprise-class database applications, web services, industry-specific applications, and a large VMware deployment on Linux and Windows. A significant installation of Hitachi, IBM p-AIX, and IBM System Storage DS8700 and DS8870 systems are connected over Fibre Channel through redundant SAN fabrics. The SAN fabrics between two data centers are connected using Fibre Channel over IP (FCIP) links for distributed and mainframe replication services. Together, HCSC's SANs manage 5.5 petabytes of storage data.

Originally, HCSC had built a collapsed-core SAN environment using Cisco® MDS 9509 Series Multilayer Directors. In 2010, HCSC began migrating its SAN architecture to a core-edge model to gain more capacity, simplify cabling, and reduce associated data center costs.

"Downtime is not an option for us," says Ken Van Kley, enterprise engineer for HCSC. "In moving to the new architecture, we could not re-engineer our existing SANs without incurring downtime. Instead, we began building our SAN '2.0' environment based on MDS 9513 Multilayer Directors for the core and at the edge."

However, during the three-year migration period, HCSC's application and storage requirements significantly escalated. For example, in the past, several applications could share a port on the Cisco MDS switch. Today, just two enterprise applications require four ports on the Cisco MDS 9513 system's 24-port, 8-Gb blades. Although

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Ken Van Kley
Enterprise Engineer

the migration to HCSC's 2.0 SAN is 90 percent complete, the infrastructure core needs additional port capacity. After evaluating other director-style solutions, Van Kley and his team chose Cisco MDS 9710 Multilayer Director switches to replace the Cisco MDS 9513 systems in its SAN core.

Network Solution

The Cisco® MDS 9710 Multilayer Director layers a comprehensive set of intelligent features onto a high-performance, protocol-independent switch fabric to address HCSC's requirements of high availability, scalability, and ease of management. Sharing the same operating system and management interface with other Cisco data center switches, the Cisco MDS 9710 enables cohesive deployment of unified fabrics with high-performance Fibre Channel and IBM Fibre Connectivity (FICON). The new systems feature 48-port,16-Gbps Fibre Channel switching for up to 24 Tbps of Fibre Channel switching bandwidth. The Cisco MDS 9710 architecture also provides 16-Gbps line-rate, nonblocking, predictable performance across all traffic conditions for every port in the chassis.

The Cisco MDS 9710 also supports HCSC's "zero downtime" requirement by enabling redundancy on all major components, including the fabric card. Combined with nondisruptive software upgrades and stateful process restart and failover, the Cisco MDS 9710 is perfectly suited for HCSC's core SAN switching needs. High availability is implemented at the fabric level using robust and high-performance Inter-Switch Links (ISLs). The PortChannel capability can aggregate up to 16 physical links into one logical bundle, which can consist of any speed-matched ports in the chassis. Having ISLs across blades and to multiple application-specific integrated circuit (ASICs) helps ensure that the bundle can remain active in the event of a port, ASIC, or module failure for robust redundancy.

HCSC also relies on VSANs for backup and distributed replication. The Cisco MDS 9710 intelligent VSAN technology greatly simplifies creating and assigning VSANs.

Business Results

"The Cisco MDS systems have been troublefree," says Van Kley. "We install them, configure them, and run them until we take them out. We have also had smooth firmware upgrades."

According to Van Kley, the Cisco MDS 9710 systems are built with the same long-term perspective as the Cisco MDS 9513 systems. HCSC will be able to easily upgrade performance, power, and other capabilities. The initial deployment includes Cisco MDS 9710 systems with 48-port, 16-gbps blades and plenty of room to expand.

Cross-version compatibility also simplifies integration of the new systems. Even with older Cisco MDS 9509 and Cisco MDS 9513 systems in its SAN fabrics, the new Cisco MDS 9710 systems will run well together with them.

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HCSC also finds the systems easy to manage. The Cisco MDS 9710 provides the consistent, logical Cisco MDS 9000 Family command line interface (CLI). It is designed to be highly efficient for administrators in enterprise environments. The Cisco MDS 9000 Device Manager provides a graphic representation of a Cisco MDS 9000 Family switch chassis, including the installed switching modules, the supervisor modules, the status of each port within each module, the power supplies, and the fan assemblies.

PRODUCT LIST

- Cisco MDS 9710 Multilayer Directors
- Cisco MDS 9513 Multilayer Directors
- Cisco Prime™ Data Center Network Manager

"The Device Manager is really cool," says Van Kley. "We can view everything in the chassis with a nice visual representation and can easily turn ports on and off and assign VSANs."

HCSC also uses Cisco Prime Data Center Network Manager (DCNM) for managing distributed storage and mainframe replication. Because the Cisco MDS 9710 supports transport of the IBM FICON protocol and open systems Fibre Channel Protocol traffic on the same switch, the Cisco DCNM solution simplifies management.

Next Steps

HCSC is completing installation of the Cisco MDS 9710 systems in its primary data center SAN core and expect to replace the edge switches with the same systems in 2014.

"The rapid changes in healthcare, combined with technology advances, such as flash memory, means that everything in our data center is getting bigger and faster," says Van Kley. "Now our SAN infrastructure is well-provisioned ahead of our storage needs, and when storage catches up, we are ready.

For More Information

To find out more about Cisco Multilayer Director Switches, visit http://www.cisco.com/en/US/products/ps5990/index.html.

To learn more about Health Care Service Corporation, visit www.hcsc.com.