

Case study

A federal credit union

HP StoreFabric, HP ProLiant Servers power high-performance analytics



Industry

Financial Services

Objective

Meet the demanding I/O requirements of applications used during different times of the day

Approach

Deploy HP StoreFabric 16Gb Host Bus Adapters, HP Converged Network Adapters, and HP ProLiant DL380 Gen8 Servers

IT matters

- Speed report generation from eight to two hours nightly
- Reclaim seven hours of IT staff time weekly
- Allow multiple applications to access SAN simultaneously

Business matters

- Ensure executives receive timely reports
- Redeploy IT staff time for high value
- Increase business efficiency with simultaneous workloads
- Establish headroom for future growth



“By deploying HP StoreFabric and HP ProLiant servers for high performance connectivity to LANs and SANs, we reduced report generation time from eight hours to two hours per night.”

– network engineer, federal credit union

A federal credit union in New York, with assets in excess of \$3.8 billion, serves the staff members, specialized departments, retirees, and families of a well-known international agency. The credit union recently addressed several IT workload challenges. Executives need analytic reports to be available first thing in the morning, but as the institution’s SAN reached performance limits, delays interrupted timely delivery. Plus, the credit union’s IT team had to spend up to seven hours per week managing cluster performance issues. The solution was an infrastructure deploying HP StoreFabric 16Gb Host Bus Adapters (HBAs), HP Converged Network Adapters, and HP ProLiant DL380 Gen8 Servers.



Since the first U.S. credit union opened in 1909, the institutions have provided financial services for many people left unserved or underserved by traditional banks. In the United States, credit unions are not-for-profit organizations that exist to serve their members rather than to maximize corporate profits. Like banks, credit unions accept deposits and make loans. But as member-owned institutions, credit unions focus on providing a safe place to save and borrow at reasonable rates. Unlike banks, credit unions return surplus income to their members in the form of dividends. Annual polls show that credit unions lead the financial community year after year in providing top quality personal service to millions of Americans.

Multiple applications drive I/O to SAN

The New York-based federal credit union, incorporated in 1947, employs a staff of 400 and serves more than 100,000 members in over 200 countries spanning six continents. With such extensive operations, it was an early adopter of VMware server virtualization technology in the early 2000s for test and development. Today, 65% of its production servers are virtualized. At the heart of the credit union's state-of-the-art data center are virtualized Microsoft® SQL Server clusters, which support I/O-intensive reporting and analytic applications. Different applications drive I/O to the credit union SAN during different parts of the day. During business hours, most SAN I/O comes from the credit union's specialized core banking application suite, which processes ATM transactions as well as transactions inside the credit union. At

night, the system works to satisfy executives' need for reports on their desks first thing every morning. I/O to the SAN peaks as data from Oracle databases are moved to data warehouses on Microsoft SQL clusters, and as reporting applications pull data from the data warehouse. At the same time, another cluster is doing compute-intensive and I/O-intensive financial modeling. Finally, backups of snap clones are performed by the credit union nightly because the heavy load the application puts on the storage arrays and SAN would disrupt business operations if performed during business hours.

"The need for I/O performance in the future will be driven by financial modeling and predictive analysis which uses unstructured data that are not stored in traditional database formats," says Frank Berry, founder and senior analyst for IT Brand Pulse, which assisted the credit union as a trusted source of data and analysis about IT infrastructure, including servers, storage and networking. The credit union deployed high performance 10GbE LAN and 16Gb SAN connectivity for its virtualized servers to meet I/O requirements.

Growing workloads demand high-performance solution

The credit union upgraded its SQL server cluster infrastructure after I/O started to slow because of growing virtual machine (VM) density and application workloads. As the SAN reached its performance limits, report generation time had extended to eight hours, slowing to the point that reports were not always ready first thing in the morning as

Customer at a glance

Application

Core banking, reporting, data analytics, backup

Hardware

- HP StoreFabric 16Gb Host Bus Adapters
- HP Converged Network Adapters
- HP ProLiant DL380 Gen8 Servers
- HP EVA P6000 Storage

needed. Re-running reports during the night was eliminated as a possibility, and the IT team was spending up to seven hours per week managing cluster performance issues. In addition, no other application servers could access the SAN while reports were being generated.

“We met our goals of restoring cluster performance and providing headroom for growth in the future.”

— network engineer, federal credit union

In response, the credit union upgraded its clusters using HP StoreFabric 16Gb Host Bus Adapters (HBAs), HP Converged Network Adapters, and HP ProLiant DL380 Gen8 Servers. The servers are now equipped with redundant connectivity to high bandwidth 10GbE LANs and 16GbFC SANs. By deploying HP ProLiant Gen8 servers and high performance connectivity to LANs and SANs, the federal credit union reduced report generation time from eight hours to two hours per night. Once again, reports are ready in the morning, and there is even time to re-run reports if needed. Efficiency soared as the IT team reclaimed seven hours per week of performance management that was no longer needed. Business productivity increased as additional SAN bandwidth allowed other applications to access the SAN while reports were being generated. “My IT team met its goals of restoring cluster performance and providing headroom for growth in the future,” says the federal credit union network engineer.

Credit union achieves multiple goals

The credit union’s IT team learned several lessons while upgrading its SQL server cluster. Staying with familiar HP network adapter hardware and software from Emulex allowed the IT team to deploy and optimize 10GbE and 16GbFC server connectivity without training. The upgrade to a higher performance server infrastructure significantly reduced the amount of time required to maintain performance and up-time service levels. The cost of maintaining dedicated LANs and SANs was lower than deploying Fibre Channel over Ethernet (FCoE) because of the cost of reconfiguring the cabling infrastructure.

Today, the credit union has enough LAN bandwidth to support dozens of virtual machines. Using VMware ESX, the credit union configures virtual NICs (Ethernet) for its VMs. With dual 10GbE ports on the HP Converged Network Adapters, there is 20GB of bandwidth available to provision—enough LAN bandwidth to support dozens of VMs well into the future. The credit union also has SAN headroom for growing reporting and analytics applications. Its SAN uses Flash memory to cache hundreds of thousands of IOPS to disk storage arrays. To handle this traffic from SAN-based Flash storage, the HP ProLiant DL380 Gen8 Servers are equipped with HP StoreFabric SN1100E 16Gb Fibre Channel HBAs. “The 16Gb HBAs are designed specifically to handle Flash storage and applications generating over a million IOPS—providing the SAN headroom needed for increasing I/O from reporting and analytics applications,” says the credit union network engineer.

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