

MAKING THE UNIVERSITY UNSTOPPABLE

The financial services department of a major university cuts disaster recovery time from days to seconds with Dell EqualLogic iSCSI storage arrays and VMware Site Recovery Manager



Of the prestigious colleges and offices at this major U.S. university, perhaps none is more important than a department that few outsiders would recognize. “The people that I support pay the bills, cut the payroll checks, keep inventory, manage student accounts, and provide all of the other core business services that the university needs,” says the LAN manager for this university.

SOLUTIONS

- BACKUP/RECOVERY/ARCHIVING
- CONSOLIDATION
- DATABASE
- MESSAGING
- VIRTUALIZATION

CUSTOMER PROFILE

COUNTRY: United States

INDUSTRY: Education

NUMBER OF EMPLOYEES: 300

CHALLENGE

Keep crucial university financial data and applications—including payroll, inventory, and accounting—protected and available in the face of user error, system failure, and complete disaster.

SOLUTION

The university IT team built a layered data protection and disaster recovery architecture using Dell EqualLogic™ storage arrays and VMware® Site Recovery Manager.

BENEFITS

Get IT Faster

- Easy setup of the Dell EqualLogic storage array's Auto-Replication feature minimizes administration time

Run IT Better

- Dell EqualLogic storage arrays help reduce disaster recovery time from days to seconds
- VMware Site Recovery Manager and Dell EqualLogic storage arrays help make disaster recovery more reliable
- Automated snapshots eliminate roughly US\$5,000 each year in software expenses

Grow IT Smarter

- Dell EqualLogic PS Series peer provisioning enables effortless storage array growth

The Dell logo, consisting of the word "DELL" in a stylized font with a diagonal slash through the "E", is centered within a circular graphic.



HOW IT WORKS

HARDWARE

- Dell EqualLogic™ PS150, PS300, and PS5000E storage arrays

SOFTWARE

- VMware® ESX Server
- VMware ESX Server High Availability
- VMware Site Recovery Manager

“NO MATTER WHAT HAPPENS—IF THE SERVER DIES, IF THE DISK CRASHES, IF THE BUILDING BURNS DOWN, OR A USER ACCIDENTALLY DELETES HIS SPREADSHEET—WE CAN HANDLE IT. DELL HAS HELPED US ACHIEVE TRUE DISASTER RECOVERY.”

University LAN manager

When the LAN manager started, his department had only one server. Today, the university financial services IT team maintains an array of servers running databases and applications—such as inventory and expense management—that are crucial to the business processes of the university. With the financial backbone of the university relying heavily on IT services, there is tremendous pressure to keep the systems up and running no matter what happens. “A service outage is very expensive,” says the LAN manager. “Our users depend on the IT services we provide to get their jobs done.”

But if downtime was unacceptable, it was also practically unavoidable. Over the years, the financial services IT team had built up an infrastructure of more than 45 servers, each with direct attach storage. All data was regularly backed up using tape drives, but even with careful organization and meticulously planned recovery processes, restoring an application after a major failure took hours. “With the size of our databases, it would take us eight or nine hours just to get the data off the tape,” says the LAN manager.

The financial services IT department needed to dramatically reduce the time that it took to return to normal service after an application failure, as well as a larger disaster recovery challenge: removing the LAN manager from the process. “We had backups and a second data center, but restoring everything was still a manual process,” says the LAN manager. “If we had a major disaster and I couldn’t get to the equipment for some reason, all our backups would be sitting around but no one else could turn them on.”

DELL EQUALLOGIC DELIVERS ENTERPRISE-CLASS STORAGE ARRAY TECHNOLOGY

The LAN manager knew that he could create a more efficient backup system by using storage array replication and snapshot technologies instead of direct attach storage and tape drives. He evaluated solutions from several storage array vendors, including Dell EqualLogic, IBM, EMC, and LeftHand Networks, among others. After a thorough request for proposal process, the LAN manager chose a Dell EqualLogic iSCSI

storage array as the most reliable, best-integrated option available. “Dell EqualLogic was the only storage array that offered enterprise-class storage performance and reliability at the price point we were considering,” says the LAN manager. “None of the systems that we looked at were as well-integrated and as well thought-out as the EqualLogic storage array. I also loved that when I bought the Dell EqualLogic storage array, all the software and all the features were included. I didn’t have to buy the upgrades or additional modules that other vendors charged extra for.”

The university financial services IT team implemented one Dell EqualLogic PS300 iSCSI storage array with 3 TB of storage in the main production data center and one PS50 storage array with 1 TB of storage in the secondary data center, replacing all of the department servers’ direct attach storage. The team used the auto-snapshot and replication storage array features to keep the university’s critical financial data both protected and almost instantly restorable in the event of an application failure.

“I HAVE TREMENDOUS CONFIDENCE IN OUR DISASTER RECOVERY PROCESSES BECAUSE I’VE WATCHED THEM RUN ON THE DELL EQUALLOGIC STORAGE ARRAYS OVER AND OVER AGAIN. I AM ABSOLUTELY CONFIDENT THAT MY RECOVERY PLAN IS GOING TO WORK.”

University LAN manager

UNIVERSITY BUILDS VIRTUALIZED IT INFRASTRUCTURE WITH DELL EQUALLOGIC STORAGE ARRAYS

Next, the LAN manager turned his attention to finding a way to protect and restore the financial services applications as quickly as the data could be restored. He met the challenge by virtualizing the department’s 45 servers on 8 physical servers running VMware® ESX and using VMware Site Recovery Manager (SRM) to automate the disaster recovery process.

The LAN manager uses the native Auto-Replication feature of the Dell EqualLogic PS Series storage arrays to store snapshots of the financial services servers at his secondary data center, which is located several miles away from the main data center. The PS Series storage arrays automatically connect and replicate over the department’s IP network with minimal configuration by the IT team. “The EqualLogic iSCSI storage array makes my life simpler and takes the strain off my budget,” says the LAN manager. “Even if I eventually decide to add another array in another building, I won’t have to set up any additional equipment or spend extra money because I can just use my existing IP network.”

Meanwhile, VMware SRM, integrated with the Dell EqualLogic PS Series, automatically initiates and coordinates a failover process, bringing the financial services applications and databases back online within seconds after a failure.

DELL EQUALLOGIC STORAGE ARRAYS HELP REDUCE DISASTER RECOVERY TIME FROM DAYS TO SECONDS

The university financial services IT team has taken the department from stand-alone servers with direct attach storage and tape backup to virtualization and disaster recovery driven by Dell EqualLogic

storage arrays. Along the way, they have reduced the time necessary to recover from an application or database failure from several days down to a single day, and then further to a matter of minutes. “The Dell EqualLogic storage arrays alone cut our recovery time down to one business day, and virtualizing with VMware cut that to ten minutes,” says the LAN manager. “Now we’re running VMware High Availability with our ESX hosts on the Dell storage arrays, so if a server fails it’s automatically restored in about 15 seconds.”

VMWARE SITE RECOVERY MANAGER AND DELL EQUALLOGIC STORAGE ARRAYS HELP MAKE DISASTER RECOVERY MORE RELIABLE

The LAN manager and his team have also improved the reliability and resilience of the department’s recovery processes. Previously, recovering from a major disaster required the LAN manager to travel to the secondary data center, mount the replica volumes, and adjust the server configurations. “With the VMware software and the Dell EqualLogic storage arrays, our site recovery process no longer depends on me, a single person,” says the LAN manager. “I can designate several people who can log in and start the recovery process with a click or two.”

The IT team also uses the test features of VMware SRM to regularly check the disaster recovery process. The tests confirm that the system works as expected and document the results for later auditing. “I have tremendous confidence in our disaster recovery processes because I’ve watched them run on the Dell EqualLogic storage arrays over and over again,” says the LAN manager. “I am absolutely confident that my recovery plan is going to work.”

EASY SETUP OF DELL EQUALLOGIC STORAGE ARRAY AUTO-REPLICATION MINIMIZES ADMINISTRATION TIME

The Auto-Replication features of the PS Series storage arrays are a key block in the foundation of the department’s disaster recovery scheme. Replication is simple to configure and use, reducing the amount of time that the IT team must spend on administration. “Configuring Auto-Replication on the EqualLogic storage arrays is so simple that anyone on my staff can do it without special training,” says the LAN manager.

AUTOMATED SNAPSHOTS ELIMINATE ROUGHLY US\$5,000 EACH YEAR IN SOFTWARE EXPENSES

The automated snapshot capabilities of the PS Series storage arrays enabled the financial services IT team to eliminate the department’s extensive inventory of specialized backup software and agents, saving approximately US\$5,000 every year in maintenance and licensing fees. “To back up our databases, we take a snapshot of the volume and then back up the snapshot,” says the LAN manager. “I don’t need dedicated software or database agents anymore.”

DELL EQUALLOGIC PS SERIES PEER PROVISIONING ENABLES EFFORTLESS STORAGE ARRAY GROWTH

The peer provisioning capabilities of the Dell EqualLogic PS Series storage arrays enabled the IT team to add additional storage and enclosures easily and quickly to meet the expanding storage needs of the financial services department. Since the initial implementation of the PS300 and PS50, the team has upgraded the PS50 to a PS150 and added two PS300 and two PS5000E enclosures for

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University LAN manager

a total of 15 TB in the main data center and 6 TB in the secondary data center. “The integration of the PS Series storage arrays is fantastic, even across generations,” says the LAN manager. “When we add a new array, the storage array automatically moves the data around while all the applications keep running. I could do an upgrade in the middle of the day and nobody would notice.”

DELL EQUALLOGIC STORAGE ARRAYS PUT FINANCIAL SERVICES IN THE LEAD ON DATA PROTECTION

The advanced capabilities of the infrastructure that the financial services IT team has assembled are drawing attention as disaster recovery and business continuity have become hot topics across the university. The LAN manager is watching his peers cover familiar territory. “It feels good to watch other IT groups reach the same conclusions that we did,” says the LAN manager. “They’re choosing virtualization, VMware SRM, and Dell EqualLogic iSCSI storage arrays.”

As rewarding as it is to see his decisions validated on a broad scale, the LAN manager is most proud of ensuring that the university financial services data is well protected. “No matter what happens—if the server dies, if the disk crashes, if the building burns down, or if a user deletes his spreadsheet—we can handle it,” says the LAN manager. “Dell has helped us achieve true disaster recovery.”

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