

BRACING FOR STORMY WEATHER

Dell ProConsult Services helps Canada's College of the North Atlantic design and deploy a virtualized disaster recovery environment that protects data and will save CAD\$300,000 over four years



Severe storms are not uncommon in Canada's easternmost province of Newfoundland and Labrador. For College of the North Atlantic, preparing for the worst is essential for keeping the school up and running even in the event of a blizzard, flood, wind-related power outage, or other disaster. A shutdown of the school's primary data center would bring a halt to everything from classroom applications and distance learning programs to the e-mail and administrative applications that connect the school's 2,100 employees and 20,000 students.

SOLUTIONS

- BACKUP/RECOVERY/ARCHIVING
- CONSOLIDATION
- VIRTUALIZATION



CUSTOMER PROFILE

COUNTRY: Canada

INDUSTRY: Education

FOUNDED: 1963

NUMBER OF EMPLOYEES: 2,100

WEB ADDRESS: www.cna.nl.ca

CHALLENGE

Protect data and keep the school running in the event of a disaster while also accommodating the expansion of IT services by designing and deploying a flexible and scalable in-house disaster recovery solution.

SOLUTION

The Dell ProConsult Services team helped the college's IT group design and deploy a complete disaster recovery solution that includes Dell™ PowerEdge™ blade servers, VMware® virtualization software, and Dell EqualLogic™ storage area networks (SANs).

BENEFITS

Get IT Faster

- Designed and deployed the solution in five months with help from Dell—several months earlier than if the in-house IT staff had worked alone
- Completed the project on time and CAD\$25,000 under budget, saving funds for future projects

Run IT Better

- Reduced potential downtime from one week to one day, ensuring that the school can remain open following a disaster

Grow IT Smarter

- Anticipated savings of CAD\$300,000 over four years that can be reinvested into new IT services
- Conserved power by duplicating server capabilities of the primary data center using 90 percent less rack space





HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ M600 blade servers with the Intel® Xeon® processor 5400 series
- Dell PowerEdge M1000e enclosure
- Dell EqualLogic™ PS5000E storage area network (SAN)
- Dell EqualLogic PS400 SAN
- Dell PowerVault™ TL4000 tape library

SOFTWARE

- Dell OpenManage™ application suite
- Microsoft® Windows Server® 2003
- VMware® Infrastructure 3

SERVICES

- Dell ProConsult
- Dell ProSupport

“THE DELL PROCONSULT TEAM PROVIDED THE EXPERTISE TO HELP US FINISH THIS PROJECT ON TIME AND UNDER BUDGET—WE SAVED APPROXIMATELY CAD\$25,000.”

Gary Comeau, manager, Information Technology Infrastructure, Headquarters, College of the North Atlantic

The college's IT group had previously engaged an outside technology firm to help restore services in the event of a data center outage, but that company could not provide the rapid response that the school required. "In the event of a disaster, the service provider would show up with a trailer full of gear to build a temporary data center and help restore services," says Gary Comeau, manager of the information technology infrastructure for the college. "The service provider could be on-site within 48 hours, but then it would take a week to have everything up and running. In the meantime, routine administrative functions wouldn't be available and many regular student program services would be halted. The service provider would then give us just 60 days to rebuild our own data center before beginning to charge fairly significant daily fees until the college's center was restored. We wanted to bring disaster recovery in-house with a solution that could speed up recovery time and enable us to eliminate the financial risks related to that approach."

Any infrastructure changes had to be scalable so the IT group could support the ongoing expansion of the college's IT services. "In the last few years, we have deployed new electronic library services, distance learning services, and a comprehensive enterprise resource planning (ERP) solution," says Comeau. "We needed to scale our server and storage environments for both our primary site and our disaster recovery site to accommodate those changes and prepare for future growth. But at the same time, we wanted to keep the hardware footprint to a minimum so we could minimize power and cooling requirements and keep the data center green."

DELL HELPS REDESIGN IT

The school's IT group asked the Dell ProConsult Services team to help design and deploy a new disaster recovery (DR) solution that would include a virtualized server environment and expanded storage capacity. "It was an easy decision to engage Dell ProConsult for this project," says Comeau. "The college IT infrastructure had been naturally migrating toward Dell hardware over

the past three years. We were very pleased with the product reliability and the expertise of our Dell account team during that time frame."

Once the school's IT group shared its project objectives, the Dell ProConsult team conducted virtualization and DR readiness assessments to better understand the school's technology requirements. Together, the IT group and the Dell team formulated business cases for the projects and then created project plans to help the school accomplish its goals.

The business case for virtualizing the DR site was so compelling that the college decided to virtualize the primary data center as well. "By creating a consolidated DR site through virtualization, we could buy and maintain far fewer physical servers. The potential savings in acquisition and power costs were impressive," says Comeau. "We decided to virtualize the primary site to achieve additional savings while also gaining the flexibility and scalability of virtualization for our production systems."

“THE iSCSI CONNECTIVITY MAKES THE DELL EQUALLOGIC PS5000E SAN MUCH EASIER FOR US TO MANAGE AND MAINTAIN THAN A FIBRE CHANNEL SYSTEM. WE CAN LEVERAGE OUR EXISTING ETHERNET SKILLS.”

Gary Comeau, manager, Information Technology Infrastructure, Headquarters, College of the North Atlantic

As the Dell team designed a new virtualized environment for the recovery site and a DR plan, the college's IT group worked with its network service provider to configure a dedicated network connection to move the 450 GB of daily data replications between the SANs at the primary data center and the DR site, located 700 kilometers away. The Dell team next installed and configured the virtualized server environment for the remote site, and validated the design through extensive testing. Finally, the Dell team helped deploy the new environment at the DR site, assisting with the initial virtual machine creation and SAN replication configurations, and providing customized documentation for ongoing management of the environment.

“The Dell team was a critical component in creating our new DR infrastructure,” says Comeau. “From the beginning, they brought together relevant experts on servers, virtualization, disaster recovery, SANs, and communications to work on the project. We rapidly became confident that we were building the right solution to meet the college's objectives. We had very frank and unbiased conversations with the Dell team that left the college viewing Dell as a partner committed to providing a functional DR solution that the college could maintain and support on our budget.”

DELL BLADE SERVERS PROVIDE PERFORMANCE AND EASY SCALABILITY

With help from Dell ProConsult Services, the IT group created a new DR site and made changes within the school's primary data center. At the recovery site, the project team created a virtualized environment by running VMware virtualization software on four Dell PowerEdge M600 blade servers within a Dell PowerEdge M1000e enclosure. The servers use the Microsoft® Windows Server® 2003 operating system. The PowerEdge blades are connected to a Dell EqualLogic PS5000E SAN, which supplements a Dell EqualLogic PS400 SAN that the school had previously used at the primary facility. At the primary data center, the school integrated a second PS5000E SAN with an existing PS400 SAN. For regular backups, the IT group uses a Dell PowerVault™ TL4000 tape library.

Equipped with the Intel® Xeon® processor 5400 series, the Dell PowerEdge M600 blades at the DR site can provide outstanding performance for the school's virtualized environment. “In the event of a disaster, we would need to run all of our mission-critical applications from the recovery site. The Intel Xeon processors deliver the performance we need to keep our applications—and the college—running,” says Comeau. “They also give us the headroom for growth. We plan to upgrade our enterprise resource planning application in the near future, and we know that these processors will provide the horsepower required.”

The Dell PowerEdge blades also enable the IT group to simplify server administration. “With a centralized controller and straightforward tools such as the Dell OpenManage software suite, we can monitor and manage multiple servers from a single console. For us, the Dell blades are easier to administer than numerous stand-alone servers,” says Comeau. “Adding blades is also faster than deploying new stand-alone hardware. With the Dell PowerEdge M1000e, we can quickly slide additional blades into the enclosure when we need to expand our infrastructure.”

DELL EQUALLOGIC SAN SIMPLIFIES IT AND PROTECTS DATA AUTOMATICALLY

The Dell EqualLogic PS5000E SAN simplifies storage management by capitalizing on Ethernet networking. “The Internet SCSI (iSCSI) connectivity makes the Dell EqualLogic PS5000E SAN much easier for us to manage and maintain than a Fibre Channel system. We can leverage our existing Ethernet skills and avoid extensive training,” says Comeau.

The SAN further simplifies IT by automatically copying and sending data from the primary site to the remote site. “The auto-replication capabilities of the Dell EqualLogic PS5000E SAN made it a perfect fit for our DR plan,” says Comeau. “With the Dell EqualLogic iSCSI SAN, we were able to establish a geographically remote site that can protect data from disasters with very little ongoing effort on our part.”

The SAN also offers fast scalability if and when the IT group needs to move beyond the 24 TB of raw capacity it currently has at each site. “Our current storage capacity should last us for two to three years, even with the application upgrades we have planned,” says Comeau. “But when we need it, expansion will be straightforward. If we add administrative systems, classroom applications, or other new services that require more storage, we can add capacity just by adding more arrays.”

DELL HELPS COMPLETE THE DEPLOYMENT CAD\$25,000 UNDER BUDGET

From planning through deployment, the virtualization and disaster recovery project was completed in approximately five months. “If we had attempted this project on our own, it might have taken two extra months just to train our in-house staff before beginning the design,” says Comeau. “The Dell ProConsult team provided the expertise to help us finish this project on time and under budget—we saved approximately CAD\$25,000.”

VIRTUALIZATION CUTS SERVER FOOTPRINT BY NEARLY 90 PERCENT WHILE ENHANCING FLEXIBILITY

The virtualized environment enabled the IT group to consolidate servers dramatically. “At our primary data center, we were running more than 100 servers in eight racks,” says Comeau. “By creating a virtualized environment at our disaster recovery site with Dell PowerEdge M600 blades, we can run the same number of applications within just one blade enclosure. We can save money on power and cooling, and we have plenty of room for future expansion.”

Virtualizing servers at the primary site has also resulted in significant hardware consolidation. “We consolidated 100 servers to about 20 so far,” says Comeau. “We're currently using blades from a different vendor, but we plan to remedy that situation soon. By moving to Dell blades we anticipate running even more virtual machines in a smaller space.”

In addition to saving space in both data centers, the IT group has increased its flexibility considerably. "It used to take a month to buy, configure, and deploy a new physical server," says Comeau. "Now we can deploy a new test server or a new server into production in about an hour. As a result, we can be much more responsive to new requests from academic and administrative departments."

NEW DISASTER RECOVERY INFRASTRUCTURE REDUCES RESTORE TIME FROM ONE WEEK TO ONE DAY

With the new infrastructure in place, the IT group is better prepared to handle any disasters that might arise. "The new disaster recovery site enables us to restore services without having to bring in and configure new hardware. Today, if we lose our primary data center, we can switch over to our DR site and have services back up and running within 24 hours," says Comeau. "That's a huge improvement from the week it used to take in the past. Now we can keep students, faculty, and staff working in just about any eventuality."

NEW INFRASTRUCTURE HELPS SCHOOL SAVE MORE THAN CAD\$300,000

By creating a consolidated, virtualized infrastructure and implementing an in-house disaster recovery plan, the school is realizing significant savings. "With the new DR plan in place, we can avoid the ongoing cost of the outside DR company and all of their additional fees," says Comeau. "In addition, virtualization helps us dramatically reduce costs for hardware acquisition, maintenance, support, power, and cooling. We estimate that we are saving more than CAD\$300,000 over four years. We plan to reinvest that money into future projects that will benefit students and staff, including a wireless project currently in the works."

COLLEGE OF THE NORTH ATLANTIC IS READY TO WEATHER STORMS

Bringing DR administration in-house has helped the college's IT group take control over a critical process. "We no longer have to rely on a third party to save the day in the event of a disaster. We can initiate disaster recovery on our own, escalate the response, or change the process on our own terms," says Comeau.

In the near future, the IT group plans to incorporate some advanced features within VMware software that will fully automate recovery. "By automating disaster recovery through Site Recovery Manager, we can reduce recovery time even more," says Comeau. "We will be able to test recovery processes without affecting production servers and then automate failovers to make sure disaster recovery goes quickly and as planned."

As the IT group implements these new features or others, it knows it can reach out to Dell ProSupport for help keeping the data centers running smoothly. "If we have questions, we can call a single point of contact, have an answer within 15 minutes, and have a resolution within 24 hours," says Comeau. "With our new infrastructure and the ongoing partnership with Dell, we're now prepared to keep the school open in just about any kind of weather."

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