

EMC delivers operational excellence for enterprise-wide backup and recovery



Challenges

- Remote site backups not completing in a timely, dependable manner
- Inefficient and costly tape-based data protection processes
- WAN traffic from remote site backups impacting user performance
- Lack of confident restorability of remote site data

Solution

- EMC Data Domain deduplication storage systems protecting 44 remote sites and two data center locations.
- EMC Data Domain Replicator software
- EMC Data Domain Boost software for Symantec NetBackup

Xcel Energy is a leading combination electricity and natural gas energy company, offering a comprehensive portfolio of energy-related products and services to 3.4 million electricity customers and 1.9 million natural gas customers. With regulated operations in eight Western and Midwestern states, and revenue of more than \$9 billion annually, the company owns more than 35,000 miles of natural gas pipelines. Xcel Energy has more than 12,000 employees and the company strives continuously to improve operations to be a low-cost, reliable and environmentally sound energy provider.

Delivering operational excellence is an important business priority for the IT team at Xcel Energy. With a considerable network of sites to manage — many in remote, mountainous locations — ensuring that backup and recovery processes were completed in a timely and dependable manner was a constant challenge that impacted business continuity capabilities. Deploying EMC® Data Domain® deduplication storage systems across its numerous sites and consolidating data protection to its data center locations has transformed Xcel Energy's remote site data protection processes providing significant reliability, efficiency and cost-saving gains.

CUSTOMER CHALLENGES

The IT organization at Xcel Energy, which comprises approximately 320 internal and out-sourced personnel, has a clear set of business objectives to attain. Led by Daniel Brown, Business Technology Executive, the group is committed to: reducing footprint by eliminating duplicate functions across the business; lowering power consumption to conserve energy resources and reduce corporate costs; demonstrating clear ROI from capital projects; delivering operational excellence to internal customers, and ensuring strategic readiness from an IT infrastructure standpoint.

From an operational perspective a key area of concern was the organization's ability to ensure comprehensive data protection across its considerable number of remote sites. With nearly sixty such sites to protect — many located in distant mountainous areas — relying on a tape-based backup infrastructure was fraught with challenges. The remote sites are subject to limited WAN bandwidth and are difficult for the IT team to physically access, therefore backing up the file and print servers to tape and transmitting data across the WAN to the main data center was an unreliable and cumbersome process. The goal was to complete backups during off hours, however despite starting at 8 p.m. and letting backups run through the night, frequently they were not completed by the morning. This caused disruption to internal customers and led to numerous complaints from users reporting poor performance with applications being difficult to access and running very slowly.

To fully understand the extent of the problem, the IT team monitored its remote site backup operations very closely over a period of time. It became clear that for a number of sites they did not need a few more hours to complete backup processes, but rather they needed three

Key Benefits

- Increased reliability and efficiency of data protection processes across remote sites
- Improved operations with 75 percent reduction in backup window
- Completed remote site operational recoveries in 90 minutes
- Deduplication ratios in excess of 20:1 across protected applications
- Increased internal customer satisfaction by reducing server time outage
- Significantly reduced outsourced data management costs

or four more days. While backup processes could be stopped and restarted to address user and network issues, this would introduce the risk of incomplete protection, which threatened the organization's business continuity requirements.

"We were managing to struggle through with our backups, but the concern was that if we ever had a site failure how would we recover and rebuild those servers, and how long would it take?" said Brown. "It was a reminder that the reason you back up data is so that you can actually restore it at some point in time. Yet that was a reality we never wanted to encounter."

When a high elevation remote site in Colorado experienced difficulties, it highlighted the urgent need to rethink the organization's remote site data protection strategy. The IT organization began citing the most at-risk remote locations as 'chronic' sites. At the Colorado location, backing up and transferring data offsite was taking three days to complete. When problems arose with the server, a member of the IT team had to travel to the remote site to restore the files onsite. The four hour drive to and from the site, in addition to the actual time required to complete the restore, served as an example that supporting the remote sites in this way was neither cost-effective nor productive.

"We just couldn't get the data across the network," explained Brown. "We needed a more dependable solution that would enable us to backup these sites quickly and reliably, and restore them with the same amount of ease."

"Previously we had to track on a daily basis how many remote site backups were completing and failing. Now backups are rarely on the agenda. Knowing that we have a dependable EMC Data Domain solution in place is very reassuring."

DANIEL BROWN
BUSINESS TECHNOLOGY EXECUTIVE, XCEL ENERGY

EMC DATA DOMAIN DEDUPLICATION STORAGE SYSTEMS

The IT team began researching alternative solutions, initially exploring the possibility of increasing bandwidth to remote sites to improve performance for end users. However it quickly became clear that a bandwidth upgrade wasn't enough and redesigning its remote office data protection strategy would offer a more effective long-term solution to address the underlying challenges.

An important selection criterion in architecting a new infrastructure was finding a solution that would operate seamlessly within the existing environment. It was important to the team that they were able to retain the same centralized model of backing up remote sites to the primary data centers, as well as enabling the remote data centers to back up to each other. In addition, Xcel Energy had already made significant investments in Symantec NetBackup backup software, making integration a crucial factor in the decision making process.

EMC Data Domain systems emerged as a front runner due to the proven deduplication and replication capabilities as well as the Data Domain Boost software option that provides optimized policy control and management within NetBackup. Following a rigorous proof of concept evaluation, Xcel Energy moved ahead with phase one of its EMC Data Domain implementation, purchasing seven Data Domain DD120 appliances for the 'chronic' remote sites, which replicated back to a DD500 Series system at the primary data center. Following the success of the initial rollout, Xcel Energy expanded the deployment with two high-performance Data Domain DD880 systems, one at each of the organization's two main data centers, as well as 18 DD140 systems and five DD600 Series systems across remote sites. The third phase of the implementation expands the Data Domain system deployment and disaster recovery (DR) capabilities across the majority of Xcel Energy's locations.

BUSINESS BENEFITS

Deploying Data Domain systems has enabled Xcel Energy to achieve dependable and efficient data protection processes across 44 remote sites and its two primary data center locations, reducing backup windows by about 75% to only three to four hours. Even the most distant locations now benefit from a sophisticated and reliable backup and recovery solution that automatically replicates data offsite and ensures data integrity and availability for restore purposes. Problematic backups are becoming an issue of the past as the implementation continues to expand across more and more sites.

“Previously we had to track on a daily basis how many remote site backups were completing and failing. Now backups are rarely on the agenda. Knowing that we have a dependable Data Domain solution in place is very reassuring,” said Brown. “Since deploying Data Domain we have had to conduct several server-level restores and our ability to quickly recover and bring systems back online has been excellent.”

Network-efficient replication of deduplicated data has successfully addressed the issues that used to impact network performance and bandwidth while also enabling rapid restore times. This positively supports Xcel Energy’s commitment to operational excellence. A key metric for the IT team is measuring ‘customer minutes out’, with the goal of minimizing disruption to end users in the event of downtime. Citing examples of how the Data Domain systems have improved IT operations, Brown highlights the former ‘chronic’ Colorado site as a wonderful success story. Backups now complete in less than four hours each night which is a huge improvement from the three days it used to take. And when another one of the company’s remote site recently went offline, it took just 90 minutes to restore operations as opposed to an entire day.

Data Domain Boost software with NetBackup has also provided important benefits. “Seamless integration between NetBackup and Data Domain is of strategic importance to us as we constantly look for ways to further centralize our backup and DR processes and drive operational simplicity,” explained Brown. “The tight roadmap between the two solutions is pivotal to our goal of achieving a solid foundation for high performance, reliable data protection. And we anticipate additional performance and efficiency benefits through the deployment of Data Domain Boost for Symantec.”

Xcel Energy outsources many of its IT services to a large global services provider and is charged for data management on a per gigabyte basis, regardless of where the data is stored. With deduplication ratios as high as 20:1 across all protected applications, the Data Domain systems are delivering significant cost savings for the organization. Not only has it reduced the amount of data being backed up at each remote site, but also at the main data centers where only unique data segments are backed up each day. Furthermore, this has greatly improved network performance since the entire data set no longer has to replicate over the WAN, resulting in higher internal customer satisfaction.

Overall, the decision to implement Data Domain deduplication storage systems supports Xcel Energy’s strategic IT objectives in the areas of operational excellence and delivering a clear ROI by reducing data management costs. As Xcel Energy continues to expand its Data Domain deployment, the organization expects to see additional efficiency benefits through the reduced power and cooling costs, and a further consolidation of data center backup and recovery operations.

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