STRAND ASSOCIATES, INC.®
ENGINEERS

CD DataHouse
STORAGE SYSTEMS & DATA PROTECTION

"FalconStor CDP was the only solution that could do everything we wanted, without forcing us to deal with multiple vendors. It was an easy choice."

- Justin Bell, Network Engineer, Strand Associates

Strand Associates

Engineering firm uses FalconStor CDP and FalconStor NSS to ensure data availability and protection without exceeding its budget

Background

Strand Associates, Inc. (Strand) is a multidisciplinary engineering firm headquartered in Madison, Wisconsin, with 11 offices throughout the US in Wisconsin, Illinois, Kentucky, Alabama, Indiana, Ohio, and Arizona. The company is focused on municipal projects, from roadways to buildings, to electrical and wastewater plants.

Strand has 12TB of live data across its offices, as well as another 6TB in active archives. These numbers have grown steadily. Individual projects require as much as 15GB of storage, as applications for traffic modeling, simulation, and GIS often generate very large data files. Ensuring adequate protection and access to all of the file level, Microsoft Exchange Server, and Microsoft SQL Server data is a critical part of the IT team's job.

Challenge

The company's distributed office structure made it difficult to ensure data access and adequate protection. Data protection was limited to individual tape backups. Daily differential and full weekly tape backups were handled by an engineer or secretary in each office.

According to Network Engineer Justin Bell, that system did not work well. There were many failed jobs, and the IT team spent a significant amount of time troubleshooting due to failed hardware, lost tapes, forgetting to swap out tapes, etc. In addition, data recovery was difficult. Without onsite IT staff, office personnel faced the challenge of having to locate and mount the correct tapes. They ran hourly shadow copies for more granular backups, but in the offices with large data stores and significant traffic, the shadow copies corrupted the page pools, resulting in server downtime and ruined copies.

This scenario had a significant impact on productivity. Growing shadow copies had to be deleted and servers had to be rebooted at night. As a result, if a file was accidentally deleted during the day, only the last daily differential could be restored, minus the work that had occurred in the meantime. In some cases, IT was unable to catch the problem soon enough, and the server would fail in the middle of the workday. Occasionally, when these "blue screen" incidents occurred, there was no data to restore because of tape drive errors or accidental overwrites. This was not a reliable backup and recovery situation, and a new system was imperative.

FalconStor Solution

Bell was tasked with delivering an improved infrastructure that would let employees in multiple offices work together more easily. This included providing access to any data from any office (with WAN acceleration to accelerate file access), ensuring that interfaces

Industry

Business Services (Engineering)

Company Profile

Founded in 1946, Strand Associates provides specialized services in civil and environmental engineering and science. The company has 380 employees in 11 U.S. offices, with headquarters in Madison, Wisconsin.

IT Environment

> Microsoft Windows Server 2003 and 2008
> Microsoft Exchange and Microsoft SQL Server
> CAD and engineering applications

Challenges

> Ensuring data protection and recovery for multiple offices
> Delivering continuous availability of mission-critical data
> Recovering from tape failures and lost data
> Overcoming impediments to user and IT productivity

FalconStor Solution

> FalconStor® Continuous Data Protector (CDP)
> FalconStor Network Storage Server (NSS)

Benefits

> Complete data protection across enterprise
> No need for IT staff at remote sites
> Fast recovery with 100% transactional consistency
> High data availability
> Improved user and IT productivity

and directory structures retained the same look-and-feel regardless of location, and enabling extensive video conferencing capabilities.

Bell looked at a number of solutions before selecting the FalconStor® Continuous Data Protector (CDP) solution. Initially, he had narrowed the solution down to three choices: EMC RepliStor, Network Appliance (NetApp) StorVault, and FalconStor CDP. The EMC solution required special setup, including having to install and manage additional servers and new tape libraries at each site, which added costs to the solution. In addition, historical copies were dependent on shadow copies, and scalability was limited. The NetApp solution was also costly, and did not offer the bare metal recovery that Strand needed. Furthermore, it required proprietary hardware with size limits, and did not enable data migration. Strand would have needed additional software from another vendor, further complicating operations and support. Likewise, Strand would have needed to purchase additional software for the EMC or NetApp solutions in order recover Microsoft Exchange data.

Only FalconStor CDP technology was able to deliver all of the capabilities that Strand was looking for, at a price that worked within its budget. "It was an easy choice," says Bell. "FalconStor CDP was the only solution that could do everything we wanted, without forcing us to deal with multiple vendors." The company purchased FalconStor CDP in July of 2008 and a FalconStor Network Storage Server (NSS) device several months later.

Deployment Details

Bell and his team developed detailed requirements for the new solution. They wanted at least two copies of all data stored locally at each site for fast recovery. They did not want to wait for tapes to ship from the Wisconsin office in order to restore replicated data. They wanted to resume operations quickly with a second local copy.

The solution needed to be able to back up data every two hours. The company requires historical backups to be kept in each office for at least a month for complete protection.

Because they had a single T1 line to each remote office, Bell and his team needed efficient offsite replication, and the ability to copy a day's worth of changed data to the Wisconsin office within 10 hours. The solution had to be able to put all data onto tape once it was replicated to the Wisconsin data center. The FalconStor solution accommodates all of these needs.

Instead of being forced to use proprietary hardware, Strand was able to implement FalconStor CDP on IBM servers of their choice. Data from remote offices is replicated to a FalconStor CDP device in Wisconsin. Meanwhile, data from the Wisconsin office is replicated from a Dell appliance containing the FalconStor Network Storage

Server (NSS) solution for storage virtualization, to a FalconStor CDP device in Illinois. "This setup allows us to keep an offsite copy of everything, so that all of our data is protected," Bell explains.

FalconStor CDP is set up to do hourly backups, which Bell calls the "icing on the cake" in light of the product's other capabilities. FalconStor MicroScan™ technology improves replication efficiency and reduces remote bandwidth requirements. Strand can now keep 18 months of snapshots on the FalconStor CDP servers in each office. Meanwhile, FalconStor HyperTrac™ Backup Accelerator technology increases tape backup speed, eliminates backup windows, and offloads processing from application servers. For instance, Strand has a server that connects to FalconStor CDP and FalconStor NSS, as well as a Dell 122T tape autoloader and Dell 132T tape library. Weekly backups are performed on Fridays. All data from remote offices is written to one set of tapes and stored in Wisconsin. All of the file, email, and Microsoft Exchange data is written to tape and taken off-site. "Since implementing this system, we have never had to use the backup tapes," adds Bell.

Business Benefits

FalconStor CDP has provided Strand with robust data protection and fast recovery. Bell is ecstatic with the results of the FalconStor solution: "We can recover data from disk in five minutes," he states. The impact on IT has been significant in terms of both time and money. The IT staff spends much less time dealing with tape and doing backup administration. Monitoring and managing the solution does not require Strand to install extra Microsoft Windows servers in each office, eliminating additional overhead. Files are restored more quickly with more granularity, which users appreciate. "We've had approximately 600 restore jobs in the last year using FalconStor CDP," Bell says. "That would have been extremely difficult with our old system."

Since the IT team implemented the FalconStor solution, it is faster for them to restore files than it is for users to recreate work. In the past, the opposite was true. "Now, if a CAD user accidentally deletes a layer in a file, he calls us instead of redrawing it," Bell explains. "We just put the layer back and they're all set."

The strength of the FalconStor solution was also made apparent during a devastating hurricane in 2008, when Strand's Ohio office lost power for multiple days. Members of the IT team, some of whom had little training or experience with the new system, were able to mount the Ohio replicas from the FalconStor CDP in the Wisconsin office as live volumes and redirect user traffic there, minimizing downtime to 30 minutes. When power was restored days later, the team was able to replicate the data back and switch over to the Ohio servers without users even noticing.

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