



SEH Consolidates and Speeds Backup and Recovery for HQ and Branch Offices

Robust Solution Reduces Backup Window, Shrinks Time to Recover



THE CUSTOMER: SHORT ELLIOTT HENDRICKSON (SEH)

If you've ventured along county roads, city streets, airports or highways lately—especially those in the Midwest and Rocky Mountain regions of the U.S.—chances are good that you may have already come into contact with something designed, built or surveyed by one or more of Short Elliot Hendrickson's 750 architects, engineers, planners or scientists. The St. Paul, Minnesota-based consulting firm boasts 30 offices in 10 states and continues to amass its share of awards for the services it performs for a client roster including everything from local, regional, state and federal agencies to companies in the industrial and private sector.

With most of its critical data consisting of complex CAD drawings spread out across various company locations, SEH faced a growing challenge to ensure adequate data protection of its primary and remote office files.

THE CHALLENGE: DIRECT-ATTACHED STORAGE (DAS) AND TAPE BACKUP NO LONGER ENOUGH

Like many companies, SEH had grown quickly in terms of the need for both extra staff and extra data storage. SEH had evolved its IT infrastructure over time to accommodate roughly 60 servers spread across the country on a variety of operating systems—from Windows 2000 to Apple Macintosh and Linux.

With most servers running some form of direct-attached storage (DAS) and many starting to reach capacity, SEH's IT team had grown accustomed to making short-term fixes to gain extra storage space when users complained they couldn't save a file on a specific server. "We used to search for space or files that could be deleted, but we knew that wasn't a long-term solution," said Craig Anderson, network administrator. Yet, the space issue had become so common that the IT team had begun to log as many as 100 user support calls every six months.

INDUSTRY

Professional engineering services

LOCATION

St. Paul, Minnesota

SOLUTION

Centralized, disk-based backup and replication for primary data center and multiple remote offices. Tape-based archive system with more robust backup software.

DATALINK PROFESSIONAL SERVICES

- Analysis
- Design
- Implementation
- Support

BENEFITS

- More successful backup of critical remote office data
- Data recovery times in minutes, not hours
- Shorter backup windows with no disruption in data availability
- Over \$50,000 savings in annual tape costs
- Seamless upgrades in storage capacity without downtime

“Datalink’s knowledge of the solution and the whole technology was what convinced us to move forward. The company’s knowledge was simply head and shoulders above other options we looked at. It gave us confidence that this can be done and it will work.”

— Craig Anderson
Network Specialist
SEH

Beyond its server growth pains, SEH had also started to face a mounting tape backup problem both at its central headquarters and remote offices. Using Symantec Backup Exec, SEH had been backing up its data to server-attached tape drives at the remote offices, and to a direct-attached tape library at the St. Paul data center. As the size of backup data sets grew, however, the time required to perform nightly incremental, or weekly backups, also grew exponentially. Nightly backups were routinely overlapping into the next morning’s production hours which meant backup jobs couldn’t be completed or end users couldn’t always access their files.

Tape coordination and management of routine backup tape rotations, especially at the company’s remote offices, was another management headache. Non-IT staff charged with the task of data backup at a remote office tended to result in often spotty, incomplete or non-existent backups of branch data. When it came to restoring any data sets from tape, the IT team also faced the prospect of several-hour or several-day delays as the right tapes were first located, remounted then restored.

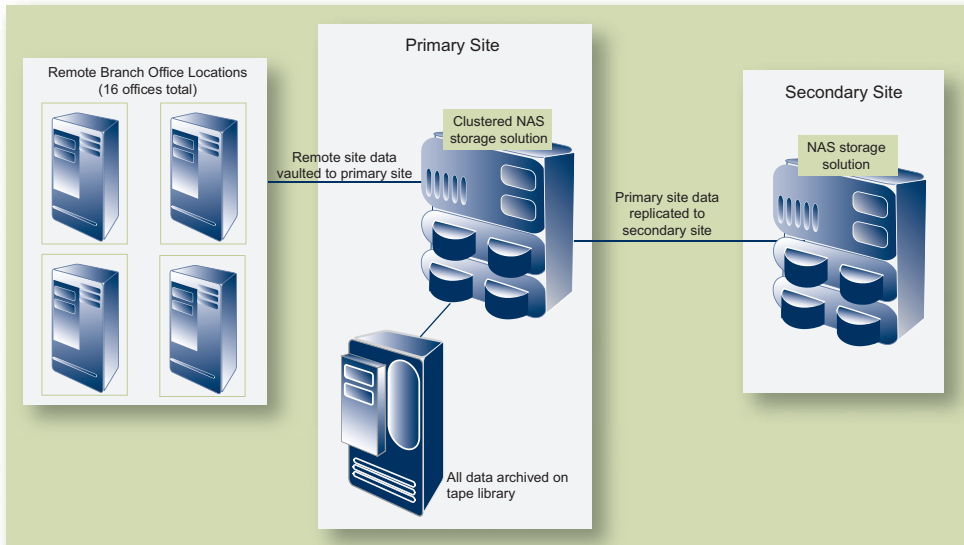
A change was obviously in order. The one thing Anderson and SEH Network Specialist Craig Schultz knew they wanted to avoid was more quick fixes. “It just didn’t make sense to spend a lot more money on something that would only result in a temporary solution,” said Schultz.

THE SOLUTION: CENTRALIZED, DISK-BASED BACKUP AND REPLICATION

As SEH began to research its options for updating its server and storage infrastructure, Datalink was recommended to Anderson by a peer at another company who had faced similar issues. After the team’s first few meetings with Datalink, Anderson already felt better prepared to hone in on the right solution. “Without doing any sales pitch, Datalink sat down with us for a number of initial meetings that were purely educational,” he said. “We wanted someone to educate us about our options and the technologies available. That’s what Datalink did. They walked us through all of it step-by-step.”

Datalink ended up designing a combined software and hardware solution from Network Appliance to tackle SEH’s mounting capacity and backup issues. With two NetApp 3020 Fabric-Attached Storage (FAS) clustered systems in the St. Paul office and a third FAS system at the firm’s Minneapolis office, the new disk-based infrastructure performs a combination of local and remote scheduled “snapshots” of backup data via NetApp SnapVault software, along with asynchronous replication of data between the filers via NetApp SnapMirror.

SnapVault snapshots are now taken locally, on disk, at each remote office, with changes replicated over the WAN to the centralized NetApp FAS system that serves as the designated backup server for the St. Paul facility. The other St. Paul FAS device hosts production data and files for users at the corporate headquarters. Every few hours, SnapMirror replicates changes of production data from one NetApp system to the backup-oriented system in St. Paul. The data is also replicated to the third remote NetApp system, housed in Minneapolis.



THE BENEFITS: FAST, COMPLETE BACKUPS AND HAPPY CUSTOMERS

“In all, the new disk-based architecture has led to a number of welcome changes at SEH. For one thing, the IT team no longer has to field support calls asking for more storage space,” Anderson said. In fact, Anderson admits the changes have been largely transparent to end users. “We were able to get the solution up and running without having to impact our users. It really worked out well. The majority of users were unaware it happened, other than remote sites no longer having to do tape backups and users not having to call to request more disk space.”

ADDING DISK SPACE WITHOUT DOWNTIME

After moving from DAS to a NetApp network-attached storage (NAS) architecture, SEH was finally able to accommodate its data growth pains more easily without the need to stop user workflow or user access to production files or applications. Using NetApp virtual volumes to assign disk capacity to key areas, the process of adding disk space became incredibly fluid and non-disruptive. “We have already added more disk space to the system,” said Schultz. “It’s a pain-free and relatively easy operation.”

FAST, COMPREHENSIVE BACKUP OF BOTH LOCAL AND REMOTE DATA

After struggling with backup of remote data and overlapping backup jobs at the primary data center, it was a relief for the SEH team to schedule quick snapshots of file data, and store them online in a centralized disk-based repository. While tape is still stored off-site as a final backstop, disk now takes a front seat in SEH’s goals to complete fast, non-disruptive backups of key data at many of the company’s locales. “We are backing up about 16 sites using SnapVault so far,” said Anderson. “We now complete all backups in a timely fashion.” Also important, the IT team no longer has to

“The implementation went very smoothly. The Datalink engineers brought the hardware online, performed initial software setup—all while instructing our IT staff on how to perform basic functions. We were then able to take over the balance of the implementation and perform data migrations with little-to-no adverse impact on our users.”

—Craig Schultz
Network Administrator
SEH

off-load the backup task to a non-IT member or deal with multiple layers of tape changes and tape management. The whole process now works like a fairly well-oiled machine. From a cost savings standpoint, the change has also resulted in an annual tape savings of somewhere between \$50,000 and \$60,000, according to Schultz.

QUICK RESTORES AND BETTER CONTINGENCY PLANS FOR DISASTER

The disk-centric backup architecture enables SEH to restore data, if needed, at virtually a moment's notice. Instead of needing multiple hours or days to restore data from tape when disaster strikes—and possibly missing as much as several days' worth of data in between—the new architecture offers near-instant restores from disk. Off-site tape backup is still used as a final archive, a process also speeded once SEH heeded Datalink's recommendation to upgrade its backup software to Symantec NetBackup and upgrade its existing tape library to a faster, network-attached automated library.

“Using SnapVault, we rarely have to go to tapes anymore for file restores and are therefore much quicker in retrieving lost data,” said Schultz. “We can have most offices up and running in a matter of minutes instead of hours should a true data loss type of disaster take place. That applies to our main data center as well as those offices we back up via SnapVault.” Since mirrored data is never more than a few hours old, the company's recovery point objective (RPO) is much shorter than when they used to rely on off-site backup tapes that could be as old as several days. Data recovery in the event of either a localized or site-wide disaster is now wholly viable, with the company's off-site mirroring component up and running.

THE OVERALL EXPERIENCE

If Anderson or Schultz had to advise another company facing similar issues, they both agree the best approach is to learn about the technology and look at as many options as possible before making a decision. Thankfully, their early dealings with Datalink gave them this type of assurance. “The Datalink guys worked with us every step of the way to make sure we knew what we were getting and that we got what we needed,” said Schultz. “Some of the other options we looked at involved multiple hardware vendors that we felt would not only add to the complexity of the solution but might also increase the potential for issues when attempting to troubleshoot problems.” Anderson went on to note that the subsequent implementation and end results of the project speak for themselves. “We went into the process with Datalink not knowing exactly what we needed, what our options were, nor being entirely familiar with the technology available to us in the storage arena. In the end, it came down to Datalink's superior knowledge of the technology and our confidence that they could deliver the solution we required.”



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