

Cypress E&P Corporation

High performance exploration



Challenge:

Cypress wanted the best exploration tools available, and selected the Seismic Micro-Technology, Inc. (SMT) Kingdom Suite for its user-friendly UI and wide range of techniques to analyze data. At the same time, they were constantly challenged to scale their high performance environment, ensure redundancy and high fault tolerance. Cypress needed a storage solution that could easily manage a vast amount of seismic and well data while also providing the throughput necessary to feed their resource intensive geophysical applications.

"I liked the Isilon approach, it was new fresh technology."

Eric R. Bass, Director of
Information Technology,
Cypress E&P Corporation



Having the best application in the world doesn't do you any good if you aren't running it on the right storage foundation.

Geoscientists have many options for exploration tools and applications. At the same time, delivering data access to these tools and protecting vast amounts of data is an ongoing IT challenge for oil and gas companies. At Cypress they selected SMT's Kingdom Suite, a Windows-based exploration and production application for its ease of use and wide range of techniques to analyze data. Eric R. Bass, Director of Information Technology, says, "My goal is to assemble the highest performing technologies I can find into a powerful yet flexible platform to run our company on. At the same time, as a small independent with limited IT staff, I need technology that doesn't require specialized technicians to maintain it. With SMT Kingdom running on Isilon, I can focus on building the infrastructure and providing support to enhance what Kingdom does for our company, keeping our exploration team productive."

SMT saw an opportunity to provide Windows-based tools to take a very specialized science and make it more accessible. As exploration companies grow and need to hire new geoscientists, they are finding many graduates have expertise in Windows-based tools, rather than UNIX, which had been the industry norm. The release of new Windows technologies such as 64bit operating systems coupled with the continual advancement of PC hardware capability has closed the performance gap between UNIX and Windows environments. In addition, as companies discover new methods of exploring, they need access to scalable software solutions that can adapt to innovative new workflows. As SMT works with their clients, they see firsthand the importance of having the right storage solution for optimal performance of SMT applications. They've also seen a benefit when their clients use Isilon storage. "When organizations use Isilon with SMT, it's really smooth and they get the performance they need," says Bob Tucker, Director of Sustaining Engineering at SMT.

Early on, Cypress was a DAS environment; the SMT application and projects were running on individual workstations with no consolidation of data. The DAS file server model did not provide the performance necessary to host projects on the network—particularly over 10/100 ethernet. Bass was managing disparate silos of storage and found even with RAID, hard drives would fail and volumes would be lost. 3D seismic and well data had to be loaded separately on each workstation complicating data management. "Backing up in an effective way was a nightmare," he said. Geoscientists were worried about the security and accessibility of data and were concerned about having data reside on separate workstations. Keeping all the projects current was a never-ending battle.

Moving to an optimal storage platform

Bass started on the first phase of consolidation, taking pieces of data off the workstations and putting it on the network. At the same time, he bought an IP SAN storage system but quickly found inherent limitations when data and applications aren't accessed through a file server. While Cypress now had centralized storage and data protection, they also had a bottleneck at the file server in front of the storage. It was a particular problem for Cypress—they still couldn't fully centralize projects and therefore couldn't use SMT solutions to their fullest potential. "Moving data to the network was a big improvement but without scalable high throughput file sharing on the front-end, we had to connect workstations directly to their own volumes on the SAN making project consolidation and data sharing very difficult," Bass said. With a need to centralize their projects and maximize the benefits of their SMT solution, they realized that a new approach to centralized storage was required that would make data available to all clients at the same time. After considering other storage options, Cypress determined Isilon Scale-out NAS was the ideal solution.

Today, Cypress has unified their data on a single global namespace, eliminating the inherent risk of data being stored at each individual work station. "We've moved all of our geoscience software projects to our centralized network storage, so now everyone can work with the data and we don't have the bottleneck of file servers in-between. Our SMT environment in particular has benefited greatly from the Isilon storage cluster." Bass offers this advice for IT Managers

facing similar challenges and choices, "Before you settle for older storage technologies whether they be DAS, SAN, or even simple NAS—take a close look at the Isilon Scale-Out clustered NAS approach and consider the tremendous performance and flexibility it will give you in storing and managing data in your enterprise."

Isilon Solution

Cypress purchased their first Isilon nodes two years ago. As of October 2009, they have expanded to five 6000x nodes for 26TB of usable capacity. Most importantly they have been running at 83% utilization with no security or performance issues. Bass says, "Isilon offers great redundancy the SnapshotIQ technology give us point-in-time snapshots to step back to on the fly if needed. Now, we are protected against file corruptions and have a path of recovery." Isilon's web-based UI also enables Cypress to manage their storage cluster remotely.

Compared to earlier storage solutions he utilized, Bass has seen his time spent on storage management take a dramatic turn—for the better. "The way the Isilon storage runs, unless I just want to monitor performance stats, I can ignore it for weeks at a time. I rarely have to do any tweaking to the system and the only storage administration I need to do is data management and create new folders," he says. Bass says on a day-to-day basis he likes to keep his management console open to keep an eye on performance, utilization and percentage of capacity but he wouldn't be concerned if he didn't.

"The performance of Isilon has been stellar. Our users can now fully realize the benefits of the SMT Kingdom Suite, concurrently accessing data round-the-clock without any bottlenecks." Eric R. Bass, Director of Information Technology, Cypress E&P Corporation

About Cypress: Cypress E&P Corporation is generating and drilling prospects primarily in the deep, highly pressured Wilcox trend of the Texas Gulf Coast. Cypress utilizes 3D-based exploration tools, and has also implemented projects to evaluate remote sensing technologies including passive seismic, magnetotellurics, radar, airborne gamma, soil gas, and other techniques.

About SMT: Seismic Micro-Technology, Inc. (SMT) developed the first geoscience interpretation tools for the Windows® environment. SMT exploration and production software is used by geoscientists in 95 countries.

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