ARCIS

A breakthrough in oil and gas exploration

CHALLENGES

- Need to quickly and accurately analyze massive amounts of Big Data
- Existing storage systems were not able to meet data requirements
- Timely and valuable analysis was severely compromised

SOLUTIONS

- EMC Isilon Scale-out Platform; EMC Isilon OneFS operating system

KEY BENEFITS

- Unified 40 disconnected data silos into a single file system
- Leveraged vast archive of seismic data to open new lines of business
- Reduced sample analysis iteration cycle from eight weeks to three weeks

ARCIS TAPS EMC ISILON SCALE-OUT NAS TO DRAMATICALLY IMPROVE PERFORMANCE AND DRIVE ITS OIL AND GAS SEISMIC PROCESSING BUSINESS INTO THE FUTURE

A pioneer in the oil and gas exploration industry, Arcis Corporation understands that staying ahead of the innovation curve is critical to its ability to not just survive but thrive in a constantly evolving industry. But innovation doesn't end with the latest technologies deployed in the field. Making sense of the vast volumes of seismic data that the company has amassed over a period of 10 years represented a key opportunity to fully leverage one of its most important corporate assets—hundreds of terabytes of seismic data that were locked away in disconnected silos.

Founded in 1996, Arcis recognized that advances in geosensory technology were making it possible to literally see deeper beneath the earth's surface and that these innovations could help oil and gas companies fine-tune their exploration capabilities. Providing advanced seismic research solutions to leading oil and gas giants from around the world, Arcis realized over time that the way they were managing their massive seismic data archive was beginning to hinder their ability to service their customers.

"We had been looking at storage as something that had to be managed rather than as an opportunity to extend our capabilities and differentiate ourselves. Our business is not simply about providing seismic data but rather delivering detailed analysis that can then be used by our customers to make more intelligent drilling decisions," says Rob Howey, Senior Vice President for Arcis Corporation. "Consequently, our success is predicated on our ability to leverage this asset in a more strategic manner and this required an entirely different approach to the way we thought about storage."

> "Our ability to quickly collect, organize, and analyze seismic data is a critical business enabler that our customers rely on to make accurate exploration decisions. Without Isilon, we simply would not be able to perform and deliver such rich analysis to our growing customer base. Isilon not only worked as advertised, but delivered a wealth of value beyond what we expected."
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> ROB HOWEY
> SENIOR VICE PRESIDENT, ARCIS CORPORATION

To create an individual geoseismic survey, Arcis installs thousands of highly sensitive ground motion transducers called geophones to measure and record the magnetic resonance following a small, controlled detonation. When the charge is detonated, the geophones trace the blast by collecting time-series data, sampled at two milliseconds for a period of up to eight seconds or more. This measurement process typically produces hundreds of billions of samples along with hundreds of millions of traces, with an average of 4,000 data points per trace. Through these surveys, Arcis has compiled one of the most comprehensive libraries of two- and three-dimensional seismic datasets in the Western Canadian basin. However, with every new data sample comes the burden of managing raw individual files that can generate up to several terabytes of data.

Says Howey, "Not only were we generating more seismic data but we were also producing higher-resolution images that were becoming more cumbersome to manage via traditional means. Data throughput issues were causing unacceptable latencies and housing all of this data across 40 file systems was impeding our engineers' ability to conduct their research. We knew something had to give and began investigating new storage alternatives."

A UNIFIED STORAGE FILE SYSTEM ENABLES A SEISMIC SHIFT IN GEOPHYSICAL ANALYSIS

Arcis set out to identify a more efficient way to manage their storage archive and selected EMC® Isilon® following an extensive review process. Among their many requirements of a scale-out network-attached storage (NAS) system was one that could quickly add on new storage nodes without system downtime, meet the heavy usage demands of a 24X7 operating environment, and most important of all, unify their 40 disconnected file volumes into a single, fully redundant file system.

In addition, Arcis wanted to maximize another key IT investment—an 850-node Opteron-powered clustered computing environment. Before Isilon, Arcis's compute farm was effectively starved for data, with storage unable to keep pace with such a demanding processing environment. After selecting Isilon, Howey reports a more than 10X increase in productivity.

"Transforming raw data into knowledge is how we provide value to our clients and distinguish our suite of seismic services from competitive offerings," continued Howey. "Taking billions of data points and converting it into something useful is no small task and requires a new approach to the way one manages and accesses large volumes of data. Isilon has empowered our staff to focus on providing higher value-added analytical services and enabled us to open up entirely new lines of business."

Arcis now utilizes Isilon for their near-line production operating environment, with upwards of 25 geoscientists continuously accessing the data stored in the Isilon archive to create highly detailed, three-dimensional subsurface terrain maps. With Isilon in place, Arcis can also manage a larger, more robust storage infrastructure without having to requisition more physical storage space or hire additional staff. Not only does Isilon provide a more powerful storage archive to Arcis, but it has also helped improve another key business metric: operating margins. Because Isilon OneFS® operating system is seamlessly integrated across the storage stack, the engineers at Arcis have realized unprecedented productivity gains, enabling Arcis to do more with less and become more profitable.

CONTACT US

To learn more about how EMC Isilon products, services, and solutions help solve your business and IT challenges, contact your local representative or authorized reseller—or visit us at www.EMC.com/Isilon.

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