



FUGRO

Fugro is a worldwide leader of geophysical, geological and engineering technical services to the oil & gas, construction and mining industries, focusing on collecting and interpreting data related to the earth's surface, seabed and the soil and rocks beneath. Based in Leidschendam, The Netherlands, Fugro has 12,000 employees in more than 50 countries.

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Matt Grey, Unix/Linux Systems Manager, Fugro

The Challenge

As the global demand for oil and gas increases, so does the need for companies like Fugro to accelerate their seismic data processing results. High Performance Computing is a critical success factor for increasing seismic processing and ensuring faster oil and gas reserve discovery.

To maintain its position as the leading provider for surface and sea bed data, Fugro must continually increase its processing efficiency while reducing overall costs. The company relies on large-scale Linux clusters as the center of its seismic processing operations, deploying hundreds of server nodes to quickly churn through data-intensive processing jobs. Using state-of-the-art seismic processing software, Fugro is able to achieve fast, accurate results, which lead to faster, more accurate discovery of oil and gas reserves.

With a steady increase in complex seismic processing jobs, Fugro was faced with the challenge of simultaneously managing many seismic data projects across many systems. In addition, I/O bottlenecks became more common as many users simultaneously attempted to access and manipulate data from a single storage server, which resulted in sluggish processing.

Fugro realized that these continual challenges stemmed from inherent deficiencies of its current direct attached and SAN storage systems. They decided to replace the deficient storage systems with a new storage infrastructure. Requirements for the new storage system included not only meeting Fugro's high-performance and scalability demands, but partnering with a provider with a proven market vision.

Fugro began its rigorous evaluation and testing program, benchmarking its current direct attached/SAN storage systems against the Panasas® ActiveStor parallel file storage solution and other storage architectures including traditional and clustered NFS servers.

After six weeks of intensively testing clustered and parallel NFS systems to identify the optimum performance and scalability, Fugro chose Panasas parallel storage. Exceptionally high application performance and scalability of this solution, in conjunction with parallel NFS capabilities, were deciding factors for Fugro in selecting Panasas ActiveStor Storage.

SUMMARY

Industry: Oil and Gas

- **The Challenge:**
To maintain its leadership position by executing faster turnaround time of seismic data processing results which it delivers to customers to use for oil and gas reserve discovery.
- **The Solution:**
Panasas ActiveStor Parallel Storage with the patented PanFS™ object-based parallel file system
- **The Result:**
 - A 5X boost in seismic application performance
 - Increased productivity while dozens of users work simultaneously without degradation of processing time
 - Reduced support staff headcount, increased productivity and cost savings due to ease of management

The Solution

Fugro purchased Panasas ActiveStor Parallel Storage with the PanFS™ parallel file system as the foundation of its new storage infrastructure. In addition, the company utilized software optimized for parallel storage, and reorganized its cluster set-up to maximize the throughput. Fugro has realized dramatic productivity gains in its complex seismic data processing jobs.

“The Panasas ActiveStor Parallel Storage system has been extremely reliable and stable in our Houston seismic processing center,” said Matt Grey, Unix/Linux Systems Manager at Fugro. “Whenever issues arise, the Panasas support team has been terrifically responsive and creative. We’ve found that the Panasas team treats our data issues as if they are the only ones in the world, which tells me we definitely made the right decision by choosing Panasas storage.”

The Result

The new solution provided by Panasas has accelerated the seismic data analysis processes. The primary advantage of this new solution is the ease of management and optimized performance. With Panasas ActiveStor storage deployed, Fugro has enabled multiple users to work on the same data simultaneously, creating a dramatic improvement in productivity, while decreasing the amount of time needed to achieve results.

This has been achievable without taxing the system or reaching its full processing capabilities, which, for Fugro, translates into finding more oil resources faster and at lower associated costs. The Panasas storage along with

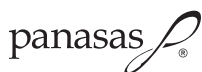
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optimized seismic processing software has resulted in more than a 5X performance improvement in overall application I/O processing.

The ease in adding Panasas parallel storage has proven to be very beneficial to Fugro, as they have already upgraded their system with minimal effort or disruption to operations.

The Panasas parallel storage system delivers near-linear data throughput and the ActiveScale Operating Environment delivers intelligent Predictive Self-Management tools which enable the Fugro IT staff to focus less on managing their storage infrastructure and increase their productivity. Seamless integration of additional storage into their existing infrastructure, the ability to maintain balanced scaling by ensuring bandwidth increases as capacity is added, and the lower overhead associated with their storage environment translate to ongoing manageability, scalability and high performance advantages from their computing environment; attributes bound to contribute to Fugro’s competitive advantage and market leadership.



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