



The Leader in Clustered Storage



#### Applications

Primary clustered storage for advanced 2D and 3D seismic processing services used to locate oil and gas reserves.

#### Challenge

Kelman Technologies required an extremely reliable, high-performance storage solution that could easily scale to support its growing, worldwide seismic processing operations.

#### Isilon IQ Benefits

Kelman Technologies thoroughly evaluated Isilon IQ along with numerous traditional SAN and NAS systems and ultimately selected Isilon IQ clustered storage for its:

- Ability to sustain high throughput and I/O
- Significant capital savings
- High performance
- Ability to scale in less than 60 seconds without downtime
- Unparalleled ease of use
- Support for SyncIQ™ file-based replication

*"We rigorously evaluated a number of storage solutions and ultimately chose Isilon because it offered the most compelling combination of high performance and low capital acquisition costs. The performance and manageability of the Isilon IQ storage system has provided Kelman with a huge business advantage."*

— Pat McKenny,  
V.P. Geophysical Processing,  
Kelman Technologies.

## ISILON IQ CASE STUDY

### Kelman Technologies Uses Clustered Storage to Help Locate Oil And Gas Reserves Faster, More Reliably and With Less Cost

Kelman Technologies Inc. (KTI) is a publicly traded Canadian company with offices in Calgary and Toronto in Canada, Denver, Houston and Oklahoma City in the United States, and London and Tripoli. KTI provides a full suite of seismic processing and online data management and archival services that its customers use to locate oil and gas reserves.

KTI selected the revolutionary Isilon IQ clustered storage systems in response to its rapid business growth, which in turn created a growing need to store and process more data with greater speed and efficiency.

A leader in the field of seismic data processing for use in oil and gas exploration, KTI required a highly scalable, high-performance storage system in order to quickly load, analyze and process seismic data. Seismic data is collected in marine and terrestrial environments using geophones (advanced microphones) to record vibration information from strategically placed explosives. This raw data, which can exceed 10 Terabytes for each sampled area, is collected on tape systems and then sent to KTI for processing. By using its Isilon IQ clustered storage systems in conjunction with its large array of high performance Intel® Linux® computing systems, Kelman Technologies is able to deliver cutting edge datasets to its customers that help them gain a competitive edge.

### Isilon Clustered Storage Helps Kelman Technologies Win Previously Unattainable Business Without Expanding It Staff

After installing a state-of-the-art Intel® Linux® high-performance clustered computing farm, KTI discovered that its legacy storage systems, which consisted mainly of low-end RAID sub-systems, were inadequate to keep up with the speed of its growing computing systems.

Kelman Technologies initially deployed more than 25 Terabytes of Isilon IQ 1920i clustered storage at its Houston, Texas location to meet the massive data throughput requirements of its high-performance computing clusters. Isilon IQ clustered storage enabled the company to achieve extremely high concurrent data throughput while removing the burdensome management constraints of traditional SAN and NAS storage systems. In addition, because of the superior speed of the Isilon clustered storage solution, Kelman was able to implement its cutting-edge depth migration technologies and win previously unattainable contracts with large international oil and gas companies without expanding its IT staff.

The move to Isilon IQ clustered storage perfectly complemented KTI's existing clustered computing architecture, seamlessly permitted file access using NFS, and immediately paid dividends. While KTI's legacy storage systems required a tiered architecture and excessive manual intervention in order to balance datasets and avoid starvation of the computing farm, Isilon IQ, using high-performance, low-latency InfiniBand® for intracluster communication, automatically balances data across all nodes in a cluster and allows single file systems to be seamlessly expanded in less than 60 seconds with no downtime.

To date, Kelman Technologies has deployed more than 40 Terabytes of Isilon IQ clustered storage systems across multiple sites with each cluster using 24-port Cisco SFS 7000 Series InfiniBand server switches for intracluster communication. KTI's Isilon IQ clusters can be scaled to hundreds of Terabytes in a single file system and more than 6 Gigabytes/second in throughput. Isilon IQ's flexible and high-performance architecture enhances KTI's business by allowing storage nodes to be added in the face of increased business, processing needs or capabilities.

*"The manageability of Isilon IQ has been a huge advantage in comparison to our previous environment. With Isilon, we are able to cost effectively store, archive and process our data directly off of the Isilon IQ cluster."*

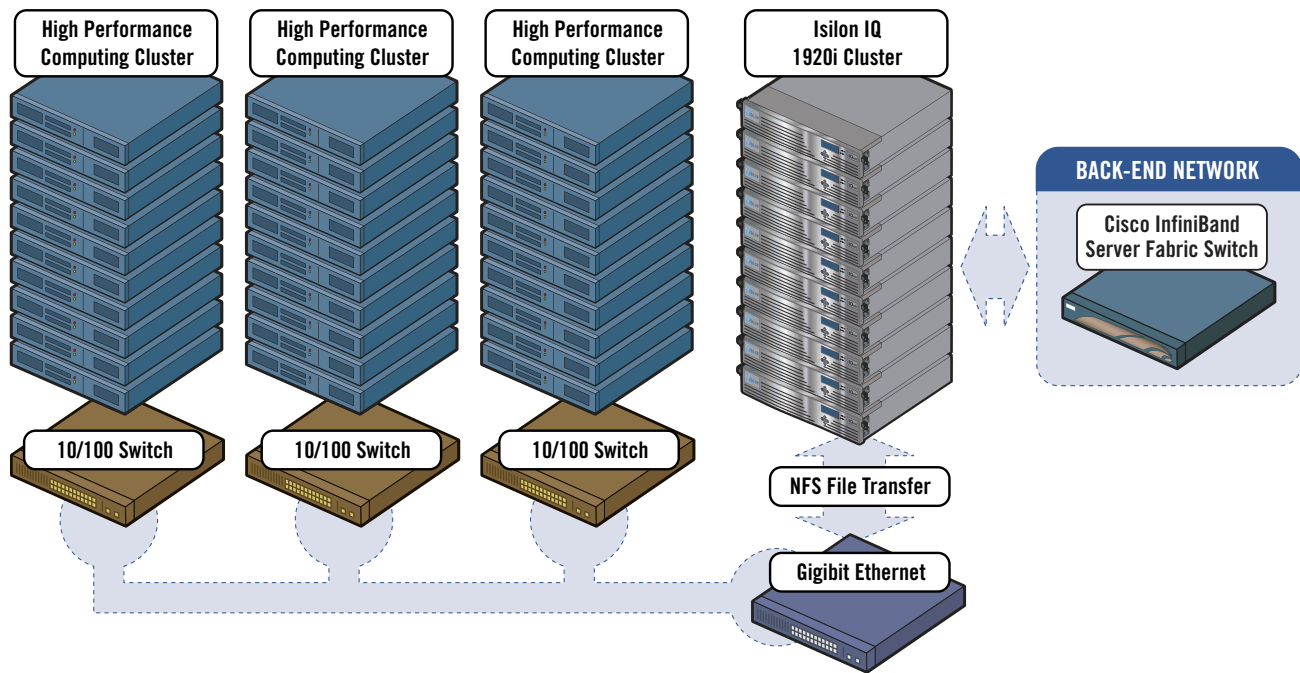
*— Brad Stephens, Manager of IT Infrastructure for Kelman Technologies.*

## The Bottom Line – Performance

Without consistent high performance in their storage system, KTI would be unable to provide the state-of-the-art processing, data management and archiving systems its customers rely on to make multi-million dollar oil and gas decisions. Isilon IQ, in concert with Cisco InfiniBand server switches, and Intel Linux processing farms, enables KTI to streamline workflow, simplify operations and fulfill orders more quickly. With Isilon IQ and its clustered computing systems, KTI has assembled a mission-critical, fully clustered solution that delivers the performance required in order to assist in locating scarce natural resources.

Isilon IQ's modular clustered storage solutions allow KTI to easily respond to increasing customer demand while also meeting the requirements of the expanding resolution of its processing applications. With 24x7 worldwide operations, KTI is able to operate its storage clusters in lights-out facilities around the clock and can easily expand capacity and performance with simple plug-and-play installation.

"We can seamlessly expand our storage infrastructure by adding additional Isilon IQ nodes. For a 24x7 operation like ours, we depend on Isilon IQ's ability to expand a cluster with no downtime and no impact to our existing jobs. Our customers rely on us to provide the most accurate processing in the industry, and we rely on Isilon IQ clustered storage to help us do that," said Brad Stephens.



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