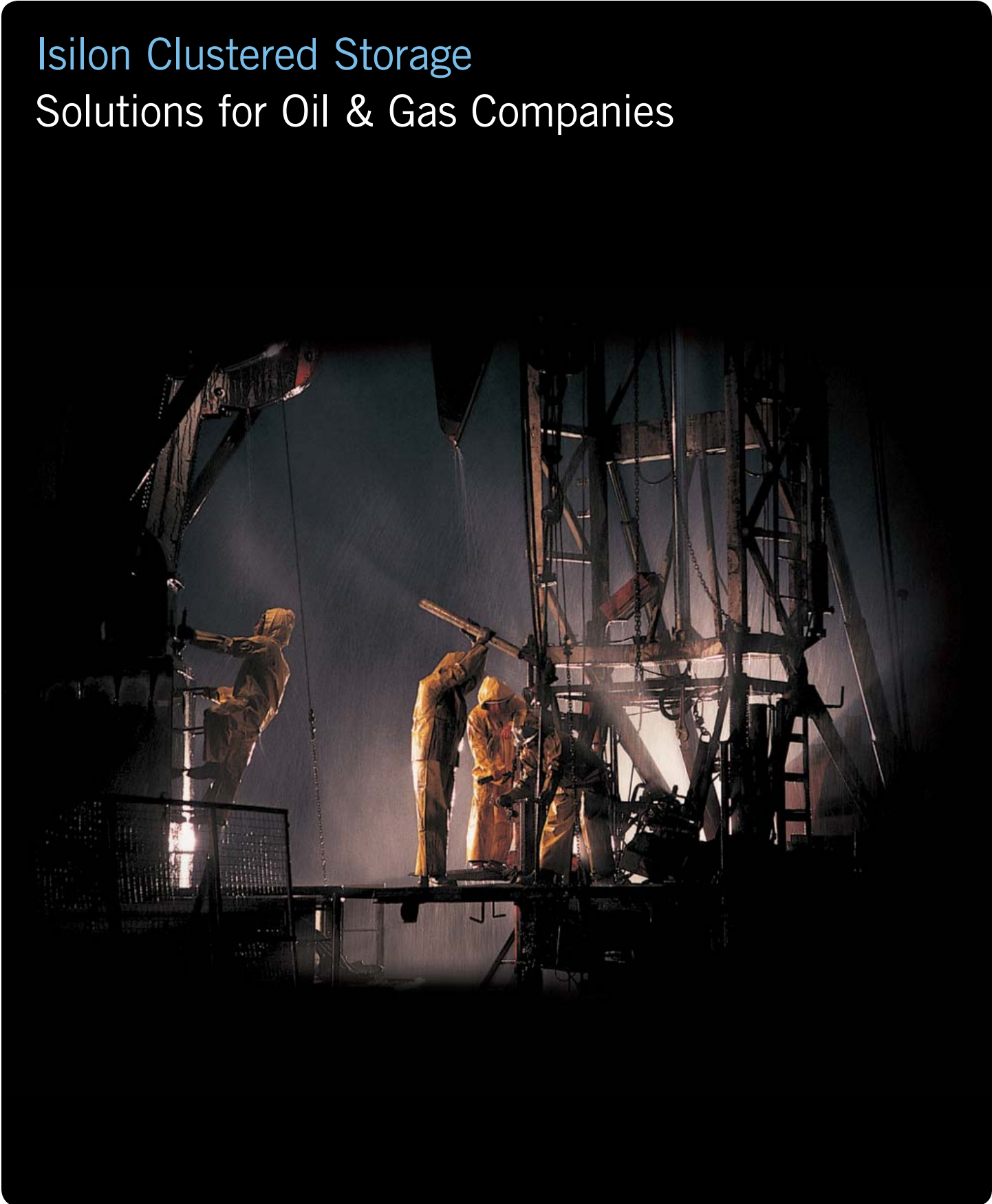




*How breakthroughs begin.™*

Solution Brief

# Isilon Clustered Storage Solutions for Oil & Gas Companies



# Solutions for Oil & Gas Companies

## Isilon Clustered Storage: Speeding Data Acquisition and Analysis for Oil and Gas Companies

*Upstream oil and gas exploration, production and seismic data acquisition along with downstream management and delivery of that data is placing an enormous burden on traditional storage systems. This is most evident in 3-D and 4-D seismic imaging techniques that provide a better view of drilling locales—but often bring along huge datasets that can cause performance bottlenecks across the network.*

*Isilon IQ® clustered storage solutions are designed to meet these increasing storage demands while ensuring that datasets are highly accessible, protected and useful for business. Isilon's award-winning family of IQ clustered storage systems combines the fifth generation of Isilon's unique OneFS® operating system software with the latest advances in industry-standard hardware and a robust suite of clustered storage software applications to deliver modular, pay-as-you-grow, enterprise-class storage systems—enabling companies in the oil and gas industry to transform data into information, and information into breakthroughs.*

### Industry Leading Scalability for Seismic Data— up to 2.3 PB in a Single File System

New technology advancements used in the collection of seismic data for oil and gas exploration enable the creation of advanced 3-D and 4-D models. However, this unprecedented level of detail can quickly overwhelm legacy storage systems. Isilon IQ easily scales storage, unifying vital seismic data into one file system, increasing the performance of seismic applications and reducing the time spent managing storage. Isilon IQ delivers industry leading scalability—up to 96 nodes in a single cluster and up to 2.3 petabytes in a single file system.

### Powerful Performance

No matter whether it's upstream seismic data or downstream ERP, Isilon IQ delivers instant, reliable and unfettered access to massive amounts of data while providing up to 20 GB/second of throughput. Isilon IQ delivers industry-leading throughput, accelerating data access for multiple projects and multiple users and groups.

In addition, Isilon IQ Accelerator-x platform extension nodes enable single stream performance of up to 400 MB/second, concurrent performance of up to 700 MB/second and delivery of over 26,000 transaction I/Ops.

### Unmatched Reliability

Isilon IQ ensures that data is always available, easily withstanding the loss of multiple disks or entire nodes without users losing any content. With Isilon, all files are striped across multiple nodes within a cluster, and no single node stores 100% of any file. If a node fails, all other nodes in the cluster still deliver 100% of the files without interruption—resulting in reliable data access for oil and gas companies of any size.

### Easy To Use, Easy To Manage

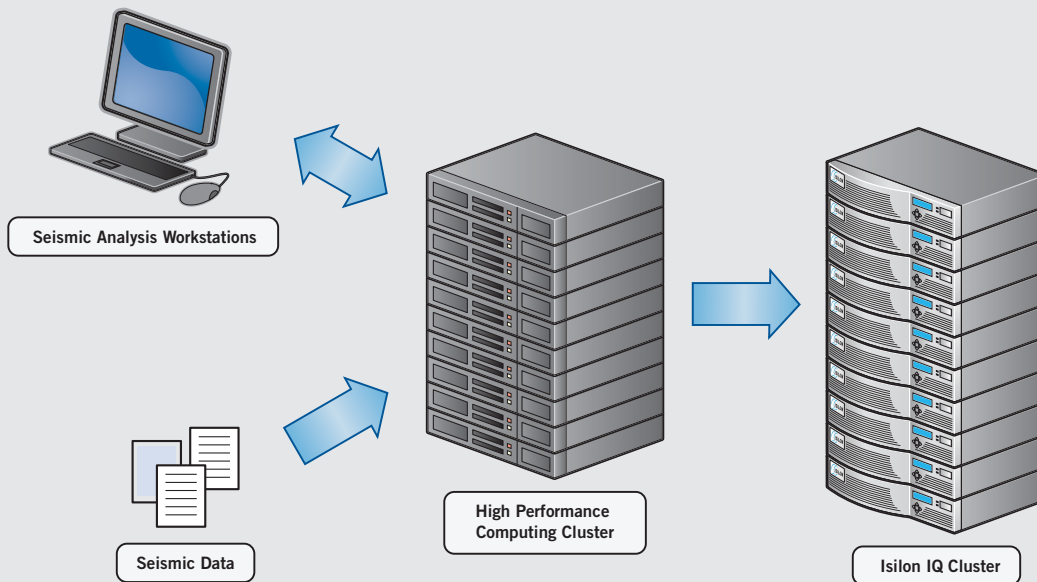
One seismic survey can easily produce several terabytes of data. Isilon IQ clustered storage—a unique appliance platform with proprietary software—unifies vast libraries of seismic data into one easily scalable, easily accessible shared pool of data. Isilon IQ clustered storage dramatically reduces the time and resources required to manage data—allowing companies to refocus vital resources towards interpreting the data and delivering results to management, partners and customers. With Isilon IQ, one person can now manage petabytes of data derived from seismic studies—representing an incredible leap in efficiency.

### Easy To Grow, Easy To Own

The Isilon IQ clustered storage product line addresses the oil and gas industry's full spectrum of storage needs—from the highest performance Tier-1 applications to Tier-2 enterprise archive, disk-to-disk backup and disaster recovery. Powered by OneFS, the Isilon IQ family of products creates a single pool of expandable storage that is easy to install and grow—once racked, a 10, 50 or 100+ terabyte cluster takes less than 10 minutes to configure and set up, and capacity can be added on the fly in less than 60 seconds with no downtime. Isilon IQ enables customers to maximize their budgets by easily expanding storage on a modular pay-as-you-grow basis.

### Breakthroughs Begin With Isilon

The Isilon product line is comprised of the Isilon IQ 200, 1920, 3000, 6000, 9000 and 12000 platform nodes; the Isilon EX 6000, EX 9000, EX 12000 and Isilon IQ Accelerator-x extension nodes; and licensable software applications such as SyncIQ™, SnapshotIQ™, SmartConnect™, SmartQuotas™ and Aspera for Isilon IQ. This set of flexible and innovative products define new industry standards by delivering a single file system that scales to 2.3 petabytes of capacity, up to 20 GB/second of throughput and supports high-performance InfiniBand® for low-latency, high-bandwidth intracluster communication—providing companies in the oil and gas industry with the power to transform their critical digital assets into business breakthroughs.



## Customer Success



Brigham Exploration is a pioneer in the field of data interpretation used to help discover oil and gas reserves. Brigham uses Isilon IQ clustered storage to unify its vast libraries of seismic data into one, easily scalable and shared pool of data. By combining Isilon IQ with its Schlumberger GeoFrame seismic data interpretation application, Brigham Exploration is able to significantly reduce costs, increase productivity and provide its users and high-performance applications with instant and unfettered access to massive amounts of seismic data.

*“New technology advancements used in the collection of seismic data for oil and gas exploration have enabled the creation of advanced 3D and 4D models that have unprecedented levels of detail—a wealth of information that has overwhelmed our legacy storage systems. Isilon clustered storage has dramatically reduced the time and resources required to manage our data and has allowed us to refocus vital resources towards interpreting the data and delivering results to our management and partners.”*

—David Kirchhoff, Manager of Information Technology for Brigham Exploration



Arcis Corporation, a leading provider of seismic processing for oil and gas industry, is leveraging Isilon clustered storage to achieve an amazing 10-fold increase in the delivery of seismic data and services in oil and gas exploration. Using Isilon IQ, powered by Isilon's OneFS® operating system software, Arcis has unified its vast stores of seismic data into one,

easily scalable and shared pool of data that for the first time meets the extreme concurrent data performance requirements of its 850-node clustered computing server farm.

*“In the ever-intensifying and expanding search to discover new, extractable sources of oil and gas, rapid and accurate analysis of seismic data is the key to gaining a competitive advantage in this high-stakes race and feeding massive consumer demand. In order to maximize the value of our vast library of seismic data and deliver the deepest and most accurate analysis possible to our customers, we require storage with unparalleled concurrent performance, ease of use, simplicity and scalability. Isilon IQ delivered as advertised.”*

—Rob Howey, Senior VP, Arcis Corporation



Kelman Technologies Inc., is a publicly traded Canadian technology company listed on the Toronto Stock Exchange under the trading symbol KTI with offices in Calgary, Houston, Oklahoma City, Denver and Toronto. KTI provides client companies from 45 countries around the world with a full suite of technology solutions in seismic processing and online data archival and data management services.

*“We require highly scalable and reliable storage systems to store and analyze seismic data for our oil and gas customers. Isilon IQ clustered storage offers unsurpassed reliability, scalability and ease of use that enables us to perform our analysis more efficiently.”*

—Brad Stephens, Manager of IT Infrastructure for Kelman Technologies

## Isilon IQ Clustered Storage

The Isilon IQ family of clustered storage systems was designed from the ground up to meet the needs of data-intensive enterprises and high-performance computing environments. By combining Isilon's OneFS® operating system software with the latest advances in industry-standard hardware, Isilon delivers modular, pay-as-you-grow, enterprise-class clustered storage systems.

- Isilon's OneFS distributed file system creates a single, shared global namespace
- First and only truly symmetrical clustered storage architecture
- System can scale from 4TB–2.3PB in a single file system
- Unmatched aggregate throughput from a single file system with up to 20 GB/second
- Single stream performance of more than 400 MB/second, concurrent performance of 700 MB/second and over 26,000 transaction I/Ops
- Industry leading, high availability for clustered storage systems
- Powerful, easy-to-use Web-based management
- 60-second scaling of both capacity and performance
- Built-in, automatic application/client connection load balancing
- Industry-standard protocol support (NFS, CIFS, HTTP, FTP, NDMP, SNMP, LDAP, ADS, NIS)

Isilon also offers a robust suite of clustered storage software applications that optimize data protection and management:

### SyncIQ™

Enterprises increasingly need to distribute large, mission-critical datasets to multiple shared storage systems and teams in multiple locations. SyncIQ replication software is the industry's only policy-based file replication system designed exclusively for clustered storage, combining a rich set of policies for creating and scheduling storage replication jobs with innovative bandwidth throttling and cluster utilization capabilities.

### SnapshotIQ™

Isilon Systems introduces a true breakthrough in snapshot technology that provides a uniquely simple, scalable and flexible way to enable enterprise-class protection and user-driven data recovery for clustered storage. With the ability to support an unlimited number of snapshots within a highly-scalable single pool of clustered storage and up to 1,024 snapshots within any single directory, SnapshotIQ represents a significant advancement over traditional snapshot technology.

### SmartQuotas™

SmartQuotas quota management software delivers quotas and thin provisioning technology for clustered storage and provides data-intensive enterprises with an unparalleled solution for optimizing the value of their storage resources. SmartQuotas enables businesses to simply and flexibly manage storage resources across their entire organization—with both hard quotas and thin provisioning capability—to support growing storage demands with minimal resources.

### SmartConnect™

Isilon Systems' exclusive SmartConnect software application allows IT Managers to meet the demands of an always-on, 24x7x365 world by ensuring the highest levels of performance and industry leading high availability. With intelligent client connection load balancing and failover support, SmartConnect represents a breakthrough in optimizing clustered storage performance and availability.

### Aspera for Isilon IQ

Aspera and Isilon have partnered to provide a solution for quickly transferring the largest files across wide area networks or directly to end-users, independent of network conditions or distance. Files of any type—video, audio, images or other large, rich media files or file-based data—can be rapidly transferred without impacting other network traffic, while scaling to speeds that meet growing business demands.

### About Isilon Systems

Isilon Systems is the worldwide leader in clustered storage systems and software for file-based data, enabling enterprises to transform data into information—and information into breakthroughs. Isilon's award-winning family of IQ clustered storage systems combines Isilon's OneFS operating system software with the latest advances in industry-standard hardware to deliver modular, pay-as-you-grow, enterprise-class storage systems. Isilon's clustered storage solutions speed access to critical business information while dramatically reducing the cost and complexity of storing it.



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