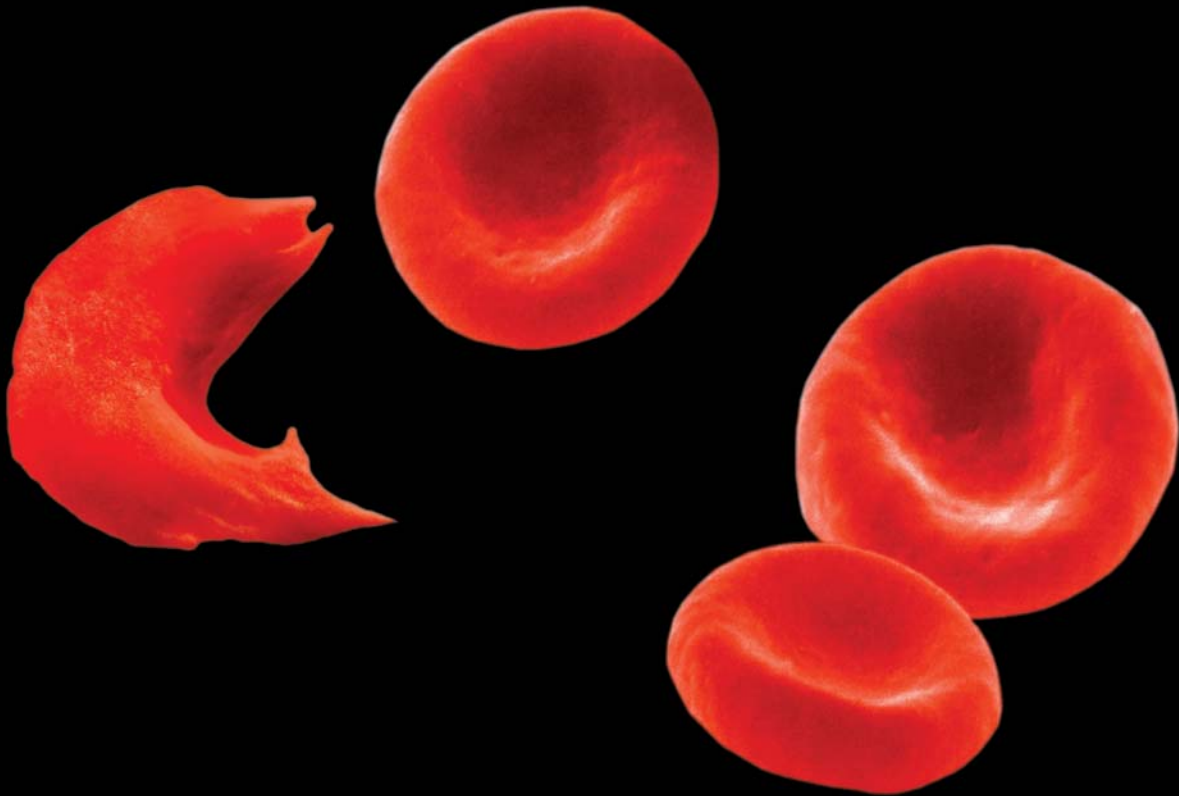




How breakthroughs begin.™

Solution Brief

Isilon Clustered Storage Solutions for Life Sciences Companies



Solutions for Life Sciences Companies

Isilon Clustered Storage: Accelerating Scientific Discovery and Other Breakthroughs for Life Sciences Companies

Breakthroughs in medical research depend on scientists, researchers and clinicians developing and using massive datasets that will provide new insight into the treatment of human disease. This qualitative and quantitative increase in datasets requires a more scalable, higher-performance storage system—Isilon IQ.

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 to deliver modular, pay-as-you-grow, enterprise-class storage systems—enabling Life Sciences companies and organizations to focus on research breakthroughs, not storage challenges.

Industry Leading Scalability To Meet Growing Dataset Demands—up to 2.3 PB in a Single File System

Isilon IQ's modular architecture was built to scale to tens of gigabits per second of throughput and hundreds of terabytes of capacity, so it can easily expand along with rapidly-growing datasets. Isilon IQ easily scales storage requirements, unifying vital data into one file system, increasing the performance of applications and reducing the time spent managing storage. Isilon IQ achieves this by delivering industry-leading scalability—up to 96 nodes in a single cluster and up to 2.3 petabytes in a single file system.

Powerful Performance For Increased Collaboration

The volumes of data being created and analyzed in life sciences and related research organizations are immense and growing at non-linear rates. A single research initiative or process can require the use of thousands of high-resolution images or complex datasets, each one potentially multiple terabytes in size. Isilon IQ uses a truly distributed file system so that very large datasets can be maintained and made available for running BLAST and other data-intensive visualization and modeling software programs. Isilon IQ delivers industry-leading total throughput, up to 20 GB/second, 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

Accessing, archiving and protecting datasets used in gene sequencing, protein engineering and drug discovery is critically important. Isilon IQ ensures that data is always available, easily withstanding the loss of multiple disks or entire nodes without users losing access to 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 can still deliver 100% of the files without interruption.

Easy to Use, Easy to Manage

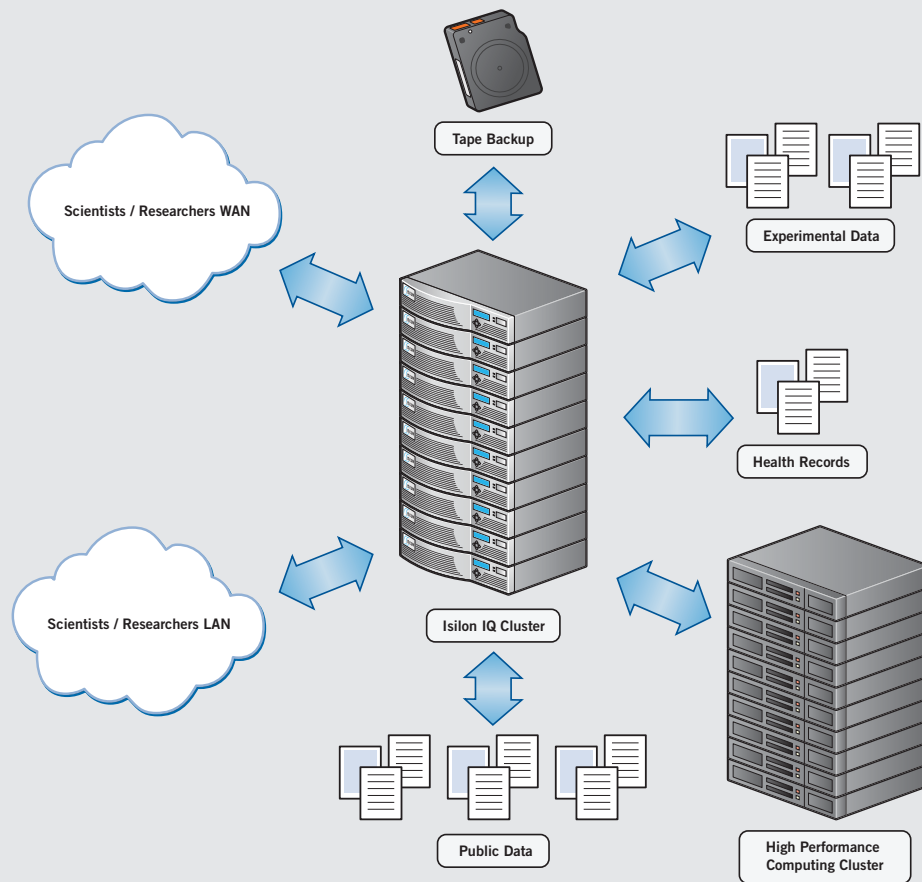
A proteomic analysis of a single drop of blood, used in the evaluation of new cancer therapies, can generate more than 60 gigabytes of data. Isilon IQ clustered storage unifies vast libraries of data into one easily scalable, easily accessible shared pool. Isilon IQ clustered storage dramatically reduces the time and resources required to manage data—one person can now manage petabytes of data derived from studies—allowing the refocusing of vital resources towards interpreting data, delivering results and achieving new breakthroughs.

Easy To Grow, Easy To Own

The Isilon IQ clustered storage product line addresses Life Sciences' 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 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 Life Sciences companies the power to transform their critical digital assets into breakthroughs.



Customer Success



San Diego Supercomputer Center is using Isilon IQ in a project to power new breakthroughs in scientific visualization and analytics applications, enabling University of California San Diego Cancer Center scientists to gain deeper insights into their research while accelerating the discovery process. SDSC, which resides within the top ten percent of the Supercomputing 500 (<http://www.top500.org/>), is a world leader in using, innovating and providing information technology to enable advances and new discovery in science and engineering across academia, industry and the scientific community.

"Today, the line between real world applicability and scientific theory continues to fade as technological advancements and scientific knowledge unite to take scientific insight beyond the laboratory and into much broader arenas of comprehension and analysis. SDSC provides cutting-edge technology and expertise to extend the reach of science and continue to advance scientific accomplishments, and Isilon clustered storage forms part of a Web-based, Cellular Imaging Portal for cancer scientists."

—Dr. Steve Cutchin, Manager, Visualization Services, SDSC



UCLA Laboratory of Neurological Imaging (LONI), one of the foremost neurological research centers in the U.S., is using Isilon clustered storage to power critical research advancing the scientific understanding of the human brain. UCLA's LONI is using Isilon to store the world's largest repository of high resolution neuro imaging data.

"We recognized some time ago that as imaging resolution continued to improve, our storage requirements would grow geometrically, putting a significant strain on our storage capabilities as well as impeding our researchers' ability to gain instant access to this critical information. Quite simply, there was no way we could keep up with our data requirements at the rate we were growing. We evaluated several storage solutions and Isilon came out far ahead of the pack due to its inherent scalability and system redundancy. Best of all, whereas it used to take four days to add storage to our SAN, we can now add Isilon nodes in about 10 minutes, without any system downtime."

—Rico Magsipoc, Chief Technology Officer, LONI

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 data sets 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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