Quantum

Accelerating Discovery in Life Sciences with Intelligent Data Management

Crack the Code with Storage Built for the Challenges of Genomics & Medical Imaging

Advances in life sciences technologies are changing the world, enabling research that benefits healthcare, veterinary medicine, agriculture, and even climate science. But those advances also create a flood of data. Dramatic declines in the cost and run times for genome sequencing enable researchers to do more, faster. But cutting-edge instrumentation, bioinformatics analysis, and medical imaging technologies push the capacity and performance limits of your storage infrastructure. To get the most value out of –omics research data, organizations need storage that delivers high-speed shared access to large data sets across distributed research sites. And good research takes time—data needs to be kept available for decades, sometimes even indefinitely.

Quantum is dedicated to delivering intelligent data management for genomics, bioinformatics, and medical imaging workflows—from data capture to analysis to archive and beyond. With storage infrastructure that provides the right combination of speed, scale, access, and cost, you can focus on what you do best—the science.

"GENOMICAL" DATA GROWTH IS A FACT OF LIFE TODAY

The first genome took 15 years and 4 billion dollars to sequence. Today's next-gen sequencers can sequence in days for less than $1,000. More genomic data is being generated faster than ever before, and more sophisticated analysis software acts as a multiplier, generating even more data. Legacy storage infrastructure can't keep up with today's "genomical" data growth. StorNext® tiered storage solutions—including Lattus™ object storage—give researchers and clinicians immediate, high-speed access to their data with storage ready to scale with today's massive data growth. Regardless of operating system, application, or network topology, data stored locally and in the cloud can be ready wherever and whenever scientists need it.

MEDICAL IMAGING SCIENCES ARE GOING PETASCALE

Breakthrough levels of detail in functional MRIs have given researchers the ability to observe brain functions as they happen. And higher-definition imaging like 3D mammography stands to double the average file size of 30 MB per image. The multi-year studies that use these technologies are generating more and more images and analysis. In a given study, scientists also need the ability to compare the latest images to older images. Clinicians and researchers need both high-speed access to data for analysis and easy access via desktop when compiling reports—even as medical imaging repositories reach petascale levels.

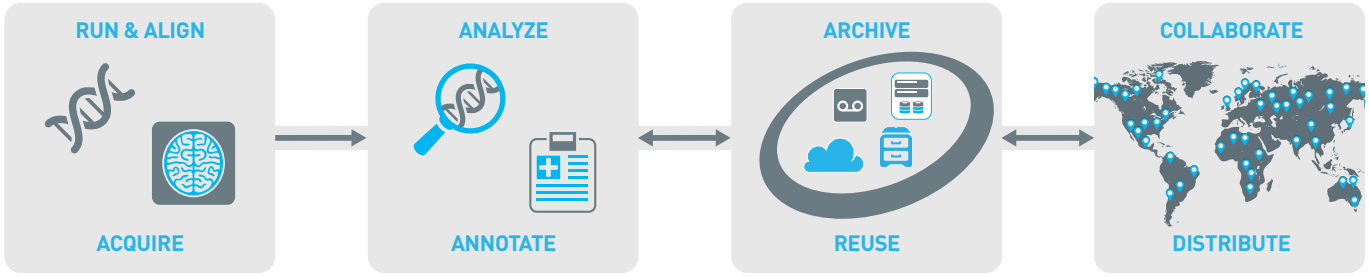
StorNext®

> By combining high-speed data sharing and cost-effective content retention in a single solution, StorNext has enabled our researchers to access the data they need quickly and easily.
>
> *- Director of Information Systems in Genomic Research*

STORNEXT SCALE-OUT STORAGE

StorNext is high-performance shared storage designed to accelerate complex information workflows. StorNext tiered storage includes primary storage, object storage, tape archives, and a cloud tier—all powered by StorNext data management, the industry's fastest streaming file system and policy-driven tiering software.

Figure 1. ***Efficient Life Sciences Workflows Need Intelligent Data Management at Every Step***



LIFE SCIENCES WORKFLOWS BENEFIT FROM THE ECONOMICS OF TIERED STORAGE

Life sciences organizations need a cost-effective approach to data growth that allows them to match the right storage technology to the right data to support the workflow. With policy-driven tiering, StorNext automatically moves data between tiers of storage—tiers that include flash, high-speed primary disk, object storage, tape archives, and cloud. You can collaborate on current projects using high-performance disk and preserve data on a durable, scalable archive tier that keeps data available while controlling costs.

StorNext allows tens, hundreds, or thousands of scientists to access large data sets like those generated from NGS and medical imaging workflows with a storage solution proven in some of the most data-intensive industries—such as geospatial intelligence, high-performance computing, media and entertainment, and oil and gas.

OBJECT STORAGE IS THE FUTURE OF SCIENTIFIC DATA

Storing, managing, and providing access to life sciences data at massive scale presents unique data management challenges. Maintaining reliable access to data for teams that may be distributed around the globe only gets more complex as file sizes and data sets grow.

Built on next-generation object storage, Lattus enables you to extend primary storage with a scalable and more cost-effective online storage tier designed to meet the challenges of massive scale. High throughput ensures you have fast access to data. The self-healing, redundant design keeps data available even when storage components fail. And because object storage is designed to spread data across multiple sites, it's ideal for enabling distributed teams to collaborate. Lattus integrates easily into life sciences workflows, including cloud technologies that are becoming more common in the industry—its native interface supports cloud storage protocols like HTTP REST and S3. With unmatched levels of scale, data durability, and economy, Lattus object storage helps you preserve data for the long term—even forever.

To learn more about how this solution would work in your environment, please visit us at www.quantum.com/lifesciences or email scaleoutstorage@quantum.com.

BENEFITS OF STORNEXT

- **Industry's best streaming performance**
  Meet the most extreme requirements for fast capture and analysis of sequencing and imaging data with the industry's fastest streaming file system.
- **Shared access**
  Increase productivity for scientists with simultaneous file sharing via SAN and LAN, for NFS, CIFS, StorNext, S3 and HTTP REST.
- **Built for scale. Petascale.**
  Support billions of files to keep up with massive life sciences data growth.
- **Flexible access**
  Integrate seamlessly with existing workflows, providing access to research data via GbE, 10 GbE, FC, iSCSI, and InfiniBand.
- **Intelligent tiered storage**
  Enable transparent access to files regardless of whether stored on SSD, disk, object storage, LTO/LTFS tape, or in the cloud.
- **Scalable, self-healing object storage**
  Preserve petabytes of research data for decades with low-latency, massively scalable Lattus object storage.
- **Integrated cloud storage**
  Provide easy access to cost-effective, on-demand cloud storage for increased flexibility, data protection, and availability.

ABOUT QUANTUM

Quantum is a leading expert in scale-out tiered storage, archive, and data protection, providing solutions for capturing, sharing, and preserving digital assets over the entire data lifecycle. From small businesses to major enterprises, more than 100,000 customers have trusted Quantum to address their most demanding data workflow challenges. Quantum's end-to-end, tiered storage foundation enables customers to maximize the value of their data by making it accessible whenever and wherever needed, retaining it indefinitely and reducing total cost and complexity. See how at **www.quantum.com/customerstories**.

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