SPECTRA®

The Minnesota Supercomputing Institute adds Spectra T950 and BlackPearl to its research data archive

" At the University of Minnesota, Spectra Logic's T950 and BlackPearl are important components in our strategic and comprehensive storage plan for hundreds of terabytes of critical research data. "

Jeffrey McDonald, Assistant Director for HPC Operations, Minnesota Supercomputing Institute, University of Minnesota Twin Cities

Spectra T950 dual-frame Tape Library and BlackPearl Converged Storage System

About Minnesota Supercomputing Institute

The Minnesota Supercomputing Institute (MSI) addresses the high-performance computing needs of research groups at the University of Minnesota. MSI provides access to supercomputing that benefits traditional fields, based on advanced computation and scientific visualization, as well as advanced imaging, microarray analysis, next-generation sequencing data analysis, data mining, application and work-flow development, and the design of cutting-edge medical devices. MSI also plays a role in the understanding of the weather and climate, and engages in extensive cancer research.
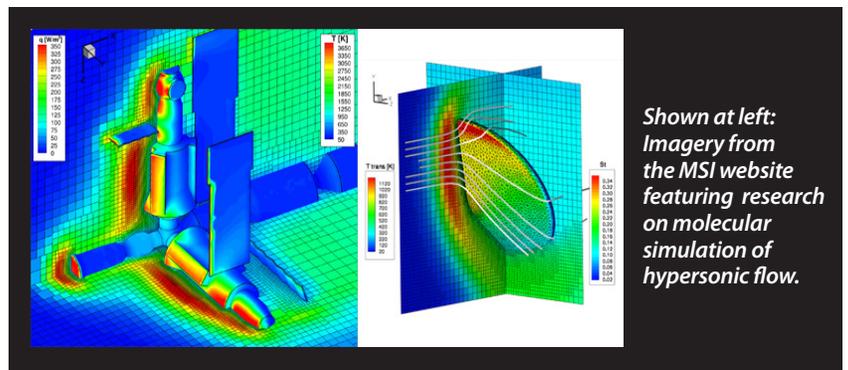
The Minnesota Supercomputing Institute (MSI) is committed to expanding and developing the services it offers in order to continue to play a key support role across the growing spectrum of scientific innovation. The institute is dedicated to facilitating university and industry collaboration and to promoting technology transfer through the interchange of ideas in the field of supercomputing research, including the dissemination of research results accomplished with MSI resources. MSI utilizes Globus Connect software so university data can be transferred easily.

The Challenge

In 2011, the Minnesota Supercomputing Institute applied for a National Institute of Health (NIH) grant for research that required a large data archive system. Prior to installing their Spectra® T950 tape library, MSI had been using an IBM® TS3494 library and planned to phase it out to support their new research project.

The Solution

After working with Spectra on the proposed grant solution – and learning more about the widespread use of Spectra tape libraries in the High-Performance Computing (HPC) industry – MSI chose a dual-frame T950 tape library with LTO-5 tape drives and Spectra certified media. This original archival solution offered unbeatable density, reliable features and supreme scalability to help the institute store mass quantities of data to support both the NIH project as well as

Shown at left: Imagery from the MSI website featuring research on molecular simulation of hypersonic flow.

the university's data. Spectra's partitioning was a critical feature allowing the institute to partition the library for both traditional backup and HSM (Hierarchical Storage Management).

Having remained a loyal customer since 2011, MSI was in need of a tape technology upgrade, and was also interested in incorporating a disk storage appliance into their environment. After reviewing their specific data storage needs, they determined that adding a Spectra® BlackPearl® and upgrading their LTO-5 drives and media to LTO-7 was the ideal solution. MSI upgraded all of their drives and added the BlackPearl in 2015. MSI's most recent modification to their data center was the addition of Globus client software. Globus, a Spectra Logic technology partner, offers software solutions specifically designed for the education industry, making the sharing of research data easier. The Globus client software allows the faculty to easily move data files between computers, servers and its supercomputing facility, using a simple browser. This prevents groundbreaking research efforts from being stalled when IT technical issues arise. MSI's configuration enables the university to archive and share petabytes of information in a convenient solution.

Environment Snapshot

- Spectra® T950 Tape Library
- Spectra® BlackPearl® Converged Storage System
- 10 LTO-7 tape drives
- Spectra Certified Media
- BlueScale® Standard Encryption
- LINUX operating system (CentOS version 6.3)
- Java CLI software
- 16 4TB disk drives
- HPC clustered environment
- Globus Connect software
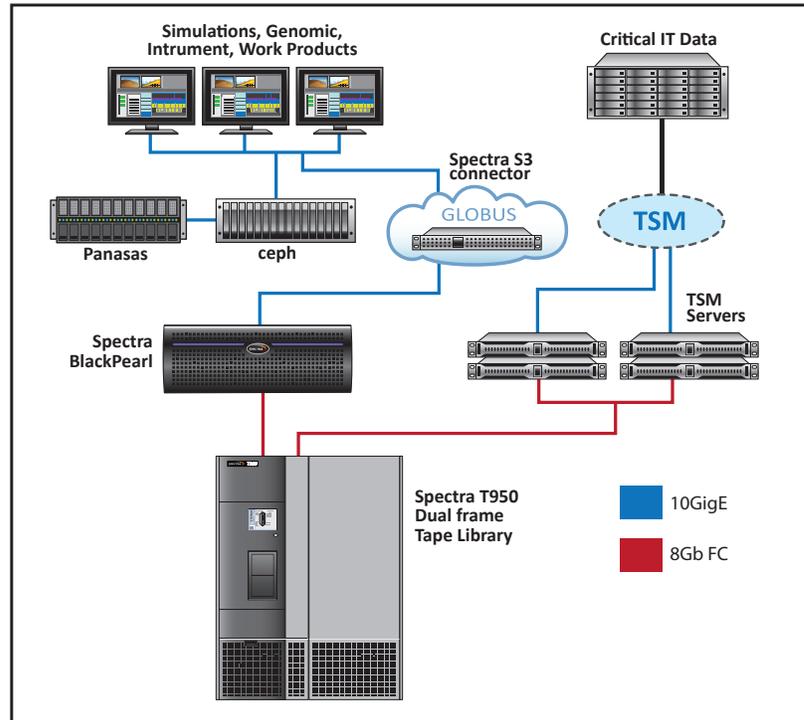
Why Spectra

- Large presence in the HPC community
- Scalability
- Broad feature set
- Partitioning
- Integration with Globus software
- Offers both tape and object storage solutions

Solution Recap

Spectra BlackPearl Converged Storage System – BlackPearl solves the problem of costly and complex approaches to digital preservation by combining multiple standard interfaces and storage targets into a simple and affordable solution designed for diverse workflows. It allows data to move seamlessly into online/nearline disk, tape, and private and public cloud storage in a way not previously possible. BlackPearl's hybrid cloud storage model enables users to deploy a multi-tiered storage strategy that optimizes cost efficiency and is easy to manage. Designed for growth, the purpose-built system breaks away from traditional

and legacy solutions that are based on licensing models, enabling organizations to confidently store exabytes of data forever for pennies per gigabyte.

Spectra T950 Tape Library – The Spectra T950 is designed and built to meet the stringent requirements of the enterprise for data integrity, data security and high reliability. The T950 tape library reduces staff involvement significantly, affordably scales in throughput and capacity, and supports multiple generations of current and future media formats. For data archive, backup and recovery, this elite library leads the field in innovation. From very high storage density to proactive media management, the T950 is always protecting your data.

Globus – This Spectra Logic partner provides researchers at universities, laboratories, and computing facilities around the world a way to share their data and collaborations across organizational boundaries so scientists can focus on their research, not IT issues. Globus services include research data management, campus bridging, and models for creating sustainable software.