



CASE STUDY

Spectra and the Tandy Supercomputer shorten calculation rates from days to minutes, saving time and lives

“ Spectra Logic’s products have a strategic roadmap that appealed greatly to us. Spectra NAS is an affordable, scalable, easy to use and extremely flexible solution, which allows us to address ever-changing needs of our environment. With our Spectra solution, the Tandy Supercomputing Center is prepared for anything... ”

George Louthan, Director, Tandy Supercomputing Center



Spectra NAS Solution and Tape Library



TANDY SUPERCOMPUTING CENTER

The Tandy Supercomputing Center (TSC) is an initiative of the Oklahoma Innovation Institute, a not-for-profit corporation committed to building an innovative economy in the Tulsa region.

TSC offers the nation’s first community supercomputer, providing access to academic, corporate, and government entities needing high performance computational capabilities. High performance computing increases the efficiency of research while decreasing the time it takes to transition products to market.

The result is a competitive advantage in the development of new technologies and commercially viable products.

America’s First “Community” Supercomputer

TSC’s business model is unique because it creates a community of users, sharing the costs of infrastructure and support, making this resource available to parties who couldn’t otherwise afford it. Located in the Data Center at One Technology Center (Tulsa City Hall), TSC is committed to continuously provide their users with modern high performance technology by regularly updating the supercomputer with state of the art technology. This allows TSC to seamlessly add nodes as its membership base increases.

The Challenge: Affordable, Transparent File Storage

The Oklahoma Innovation Institute launched its community supercomputer project in 2013. TSC currently manages approximately 30 TB of data for its users, primarily scientific data sets for research projects. TSC has a large, high-performance Panasas object storage system and acts as a global storage pool for multi-user access. The IT team decided to house some data on-site at their Tulsa datacenter, and sought a reliable, scalable storage solution to archive information being accessed by multiple users at any given time.

TSC needed to provide an alternative from their primary Panasas NAS for medium-term archive and lower-speed workflows with many metadata operations. The envisioned solution would ease the load on the primary storage to increase the overall performance of demanding research and engineering workflows. TSC wanted to offer transparent file storage access that was invisible to the individual users accessing the data frequently.



George Louthan and the Tandy Supercomputer

CASE STUDY: Tandy Supercomputing Center

The Solution: File Storage Combined with Tape Backup

TSC selected a Spectra NAS Solution and a Spectra® T50e Tape Library with LTO-6 drives to cache backups and primary storage for their supercomputer. The Spectra NAS stages TSC's backup data using AMANDA backup software before it is sent to the tape library for backup.

Results

TSC's focus was on moving certain lower-priority, lower-performance operations off of their expensive primary tier of storage and onto something with lots of capacity and low price per TB. Those types of operations on primary disk slowed down users' access to data they needed for currently-running jobs.

By adding the Spectra NAS, TSC was able to improve the usage patterns on its primary storage tier to increase performance dramatically for the high priority active scientific and engineering jobs while maintaining availability, acceptable performance, and capacity for archived results and other data at rest.

The Spectra solution met the requirements of Tandy Supercomputing Center for a tape-disk solution with good performance, reliability and price per terabyte.

Why Spectra?

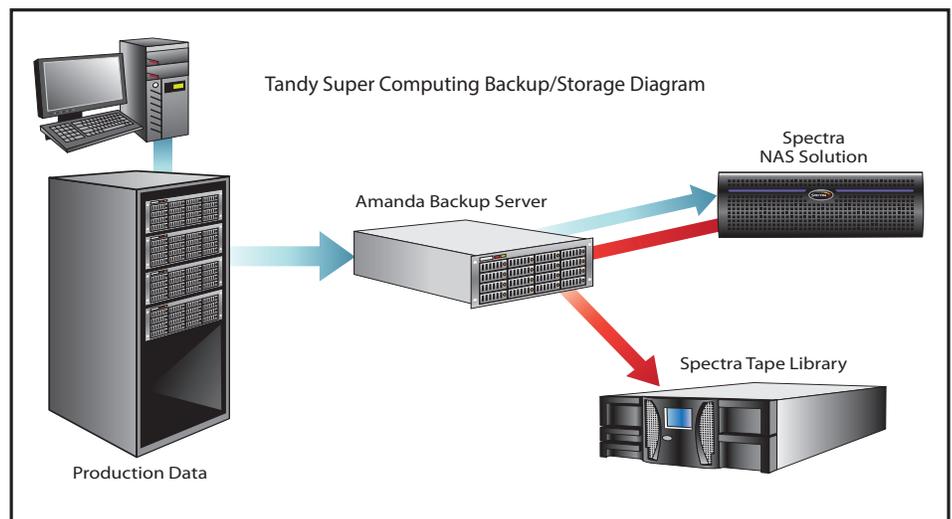
- Transparent file storage access
- High reliability
- Scalability
- Capacity
- Cost-effective price per terabyte
- ZFS features: triple parity, snapshots and data integrity
- Performance
- Flexibility to solve unpredictable HPC-specific storage challenges
- Strategic product roadmap

Network Environment

- Spectra NAS solution
- 10 GBE connection
- Spectra tape library with two LTO-6 SAS drives
- AMANDA backup software
- Panasas NAS primary disk
- Fujitsu x86 compute nodes

“ TSC's shared environment serves four higher education institutions and multiple private sector users. In an unpredictable HPC environment with multiple users from a variety of institutions and disciplines, storage is one of our biggest IT challenges. We need the tools to react to the evolving needs of our users quickly and flexibly. The Spectra NAS and tape combination supports our data staging, backup, and archive needs better than the market alternatives. ”

George Louthan, Director, Tandy Supercomputing Center



Solution Recap

Spectra Tape Libraries – Spectra tape libraries offer advanced LTO technology, powerful library management and increased security through our integrated BlueScale® Encryption. For data archive backup and recovery, Spectra tape libraries lead the field in innovation.

Spectra NAS Solution – The Spectra NAS Solution is the optimal disk platform for the storage of mid-tier data, including primary storage offload, data staging, backup and archiving. Flexible, simple and affordable, the Spectra NAS delivers file storage for as low as 7.5 cents per gigabyte. The expandable NAS disk solution provides raw storage capacities from 48TB to 10.7PB. Designed for a variety of workloads, a single NAS solution supports three different disk drive types, including 4TB, 8TB and 12TB enterprise drives; 8TB archive drives; and high-performance SSD drives. Reliable, economical and archive-ready, Spectra NAS simplifies the data storage process.



A post-doctoral research associate at OSU Center for Health Sciences, used the Tandy Supercomputer to refine a software technology he has developed to predict the onset of heart attacks. Computations that previously took 20 to 30 minutes were finished in less than a minute. The associate was also able to complete calculations from 24-hr EKG data that were impossible on his desktop computer in about five minutes with the Tandy Supercomputer. The research data is securely stored with TSC's Spectra Logic storage solution.