THE UNIVERSITY of UTAH

CASE STUDY

How Spectra Logic Helped the University of Utah Build a Better Backup Strategy

With Spectra Logic®, the University of Utah's Center for High-Performance Computing built a future-proof, resilient archive and backup strategy.

THE CHALLENGE

The University of Utah's Center for High-Performance Computing (CHPC) faced a critical vulnerability: **30+ petabytes of research data lacked a reliable archive.** Budget constraints made it difficult to justify a secondary storage system. Past disk-based hardware failures underscored the need for a more resilient, affordable solution.

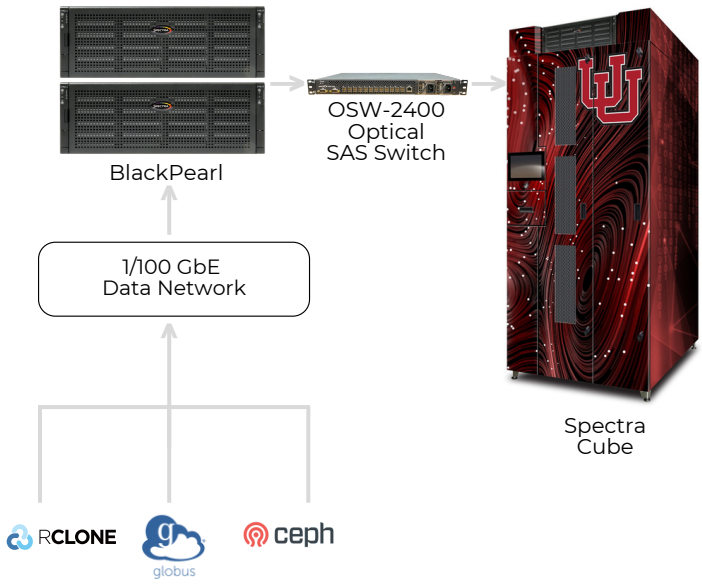
THE SOLUTION

CHPC implemented **a cost-effective tape-based backup solution featuring the Spectra Cube™ tape library**. This approach ensured geographic redundancy and compliance with the industry-standard 3-2-1-1-0 backup protocol, securing archival data against threats and offering a less expensive archive storage tier to users.

THE RESULT

CHPC reduced backup storage costs to just $7/terabyte and slashed power consumption. CHPC can now follow data protection best practices, easily comply with long-term retention requirements, and ensure scientific data is safeguarded for decades. Most importantly, Spectra gave their storage team peace of mind.

THE SYSTEM



THE ENVIRONMENT SNAPSHOT

- The Spectra Cube tape library
- BlackPearl® Nearline Object Gateway
- Spectra OSW-2400 Optical SAS Switch
- 8 x LTO-9 SAS tape drives
- RCLONE software

SPECTRA

THE STORY

In the next 50 years or so, geologists believe Utah will experience “The Big One” — a 6.75+ earthquake capable of causing devastating damage near the densely populated Salt Lake City, home to the University of Utah (U.U.).

This unsettling forecast was one reason Sam Liston, Senior IT Architect at the University of Utah’s Center for High-Performance Computing (CHPC), was finding it hard to sleep at night.

Tasked with overseeing data storage for U.U.’s ever-expanding research efforts, Liston knew that a catastrophic earthquake could wipe out decades of scientific data — information he was trusted to protect.

Although CHPC had primary disk-based infrastructure for managing frequently accessed “hot” data, it **lacked a robust, disaster-resilient backup system for archival-tier "cold” data** that was accessible to the university’s user base of researchers.

WATCH: VIDEO TESTIMONIAL

Sam Liston, Sr. IT Architect at CHPC, explains how tape technology enables his team to:

- Follow best practices
- Reduce electricity costs
- Enjoy peace of mind

Watch Now

Like many budget-conscious institutions, the problem boiled down to cost.

“It was hard to find a backup solution that was cheaper than our primary disk storage,” explains Liston. “The majority of our data — around 30 petabytes — was flapping in the breeze. That’s not a great way for a data storage manager to live.”

He had good reason to worry.

In the past, CHPC had experienced data loss from hardware failures — including double-disk controller malfunctions and multiple disk drive outages — events that couldn’t always be predicted.

Determined to break the cycle, Liston took action to **explore a more affordable, secure archive solution.**

SPECTRA

ADOPTING A COST-EFFECTIVE, RELIABLE BACKUP SOLUTION

To affordably protect CHPC's massive data volumes well into the future, Liston and his team transitioned to a tape-based archive and backup strategy using Spectra Logic technology.

The custom-built solution includes:

- The Spectra Cube tape library
- BlackPearl Nearline Object Gateway
- OSW-2400 Optical SAS Switch
- 8 x LTO-9 SAS tape drives
- RCLONE software

The key drivers behind the move from disk to tape were cost, reliability, and sustainability.

While Liston acknowledges that tape storage may require a significant upfront infrastructure investment, the long-term affordability far outweighs the initial costs — especially when research grants and university policies often require scientists to retain data for decades. When using disk or cloud-only technology, long-term data storage costs often exceed what grant funding covers, forcing universities to shoulder the burden and foot the bill themselves.

The Spectra Logic backup solution afforded the CHPC **enduring cost savings**.

With it, CHPC can now store archival data for just $7 per terabyte — a fraction of the cost of their previous disk-based option, which consumed $50,000 to $100,000 annually in electricity alone.

"We have so much technology that's becoming more power-hungry," says Liston. "It's nice to have some part of our product portfolio that actually decreases power usage."

SPECTRA LOGIC TAPE ENABLES STORAGE BEST PRACTICES

While cost savings were important, the real breakthrough for Liston came with the ability to follow best practices for data backup and recovery.

Remember that looming, once-in-a-millennium earthquake? Thanks to Spectra Logic, it will no longer pose a threat to U.U.'s critical research data.

> **I sleep easier at night** knowing that our research data is backed up in a Spectra Logic tape library.
>
> **Sam Liston**
> Sr. IT Architect
> Center for High-Performance Computing
> University of Utah

Liston had the foresight to install the Spectra Cube library 300 miles south of Salt Lake City at the institution's St. George campus — safely outside the primary quake zone. The remote data center is equipped with a Spectra OSW-2400 Optical SAS Switch, a device that simplifies connectivity between servers and tape storage systems.

The system aligns with the **3-2-1-1-0 backup strategy** — the gold standard in data protection — which calls for:

- 3 copies of data
- 2 types of media
- 1 offline air-gapped copy on tape
- 1 offsite copy for geographic redundancy
- 0 errors

"I sleep easier at night knowing that our data is backed up in a Spectra Logic tape library," says Liston. "Plus, it looks better as a storage administrator when my team is able to follow these best practices."

THE SPECTRA OPTICAL SAS SWITCH

The 24G SAS-4 switch uses active optical cables that extend connection distances up to 100 meters. This allows organizations to streamline tape **connectivity**, enhance **flexibility**, and **minimize infrastructure costs**.

FUTURE-PROOFING SCIENTIFIC DATA WITH CONFIDENCE

Ultra-affordability. Minimal power usage. Remote accessibility.

These are just a few reasons why CHPC now operates with confidence, knowing **its archive solution can protect the University of Utah's most valuable scientific data** — something that simply wouldn't have been possible without Spectra Logic.

"Tape is having a major resurgence," Liston concludes. "It will continue to become more prevalent and necessary in the future. I actually believe spinning media is the data storage medium that will go away."

Contact Spectra Logic

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"A core requirement of our solution was its shareability across all stakeholders."

Douglas Jennewein, Director of Research Computing

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"Spectra provides us a modern solution that is scalable, cost-effective, and enables efficient workflows."

Mike Anderson, Storage Systems Administrator

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UNIVERSITY OF MICHIGAN

"For nearly a decade, Spectra has exceeded our research group's storage needs at an affordable price."

David Braun, Lab Manager, Brooks Lab

Read the story

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