



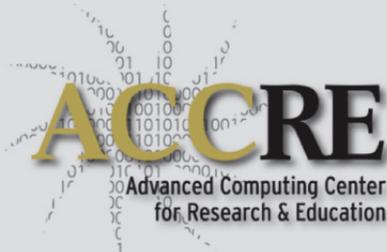
CASE STUDY

The ACCRE at Vanderbilt University expands capacity with Spectra T950 and BlackPearl

“ Spectra Logic provided us with a highly scalable and cost-effective solution. The unsurpassed density of the T950, combined with BlackPearl’s object storage capabilities, provide seamless access to our growing content. ”

Alan Tackett, Technical Director and Lead Developer, ACCRE

Spectra BlackPearl and T950 tape library



About ACCRE at Vanderbilt

The Advanced Computing Center for Research and Education is the premier resource for the high-performance computing (HPC) needs of research throughout Vanderbilt University. The 4,000 square foot facility is located on Vanderbilt’s Peabody Campus and houses over 10,000 computational cores for research and 10PB of disk storage. The ACCRE networked computer cluster is used for research in a wide variety of fields, including genetics research, particle physics and astronomy. The cluster is maintained by roughly a dozen staff members who report to a faculty steering committee.

While the Advanced Computing Center for Research and Education (ACCRE) operates separately from Vanderbilt University Information Technology (VUIT), it processes data from over 50 departments and centers and more than 850 researchers across the University. Their high-performance computing (HPC) operations run on their own internally developed file system named LStore, a massively scalable logistical storage system, along with the IBM Spectrum Scale file system. Departments, research teams and grant projects turn to ACCRE for a multitude of services, from utilizing their Big Data cluster, to leveraging their large high-bandwidth distributed storage network, to employing their tape backup services.

The Challenge

The ACCRE cluster was designed to accommodate different user needs while leaving room for expansion. They had a multitude of unique factors to address in the implementation of their next-generation storage platform, including new security requirements instituted for Controlled Unclassified Information (CUI) by the recent United States presidential administrations to protect grant research data.

They expect to grow from 7PB to an estimated 10PB by the end of 2018, with significantly more capacity anticipated by 2020, so additional data storage is critical. Not only were they seeking to increase capacity and data protection for the vast number of departments and researchers across Vanderbilt University,



Partial view of the ACCRE supercomputer in action.

CASE STUDY: ACCRE at Vanderbilt University

but also for collaborations with external partners, processing complex scientific research from data-intensive environments like CERN, where the Large Hadron Collider, the most powerful particle accelerator and largest machine in the world, operates at the very boundaries of scientific knowledge.

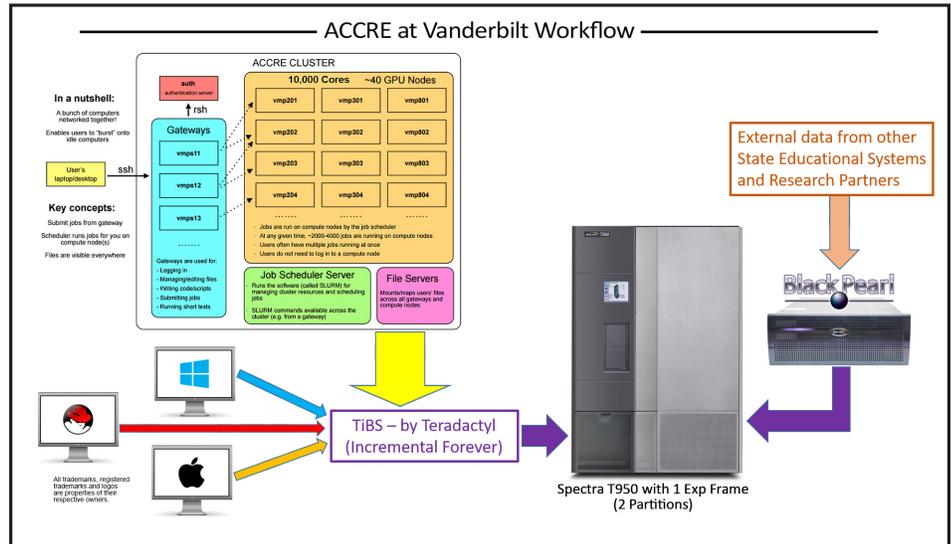
The Solution

Previously performing nightly backups to an IBM® TS3500 tape library, ACCRE upgraded their system to a Spectra® T950 Tape Library with 11 LTO-8 tape drives and an additional media frame. The center also deployed a Spectra® BlackPearl® Hybrid Storage Platform to enable direct end user access to archival storage. BlackPearl is an object storage platform that combines NAS and Spectra's S3-based interface with multiple storage targets into a simple and affordable solution. Designed for numerous concurrent workflows, BlackPearl eliminates the need for expensive third-party data movers by integrating Spectra S3 with a range of certified clients and simple file movers.

Through a collaboration with Teradactyl®, a trusted technology partner that specializes in file systems for high-performance computing and wide area networks, custom industrial servers were designed, built, tested, and put into production for LStore. The joint solution resulted in a highly scalable, cost-effective, and secure platform for research computing. With this deployment, ACCRE has been able to reduce annual storage operating charges for their clients by over 50 percent and expect further cost reductions.

Environment Snapshot

- Spectra T950 Tape Library
- Eleven LTO-8 tape drives
- BlackPearl Hybrid Storage Platform
- LStore file system
- PteroStor™ Edition of Teradactyl True incremental Backup System (TiBS)
- cLuster Guard™ Backup appliances
- IBM Spectrum Scale



Why Spectra?

- Industry's highest density
- Scalability
- Reliability
- Affordability
- Broad feature set with object storage

Solution Recap

About Spectra Enterprise Tape Libraries: Spectra enterprise tape libraries are designed for incremental growth, as they accommodate the storage requirements of organizations in

every state of their growth lifecycle. When data growth requires more slots than the library's current capacity, Spectra transfers the components of the existing library and puts them in a larger chassis. As data needs expand, all that changes is the outgrown frame.

About BlackPearl: BlackPearl provides an object-based, hybrid storage platform that easily and cost effectively scales up as object and file volumes grow; adapts as operational requirements change; and enables easy synchronization of data between on-prem and cloud storage.



ACCRE's location on the Vanderbilt University campus in Nashville, Tennessee.