



# CASE STUDY

## The Laureate Institute for Brain Research manages massive expansion of brain imaging data with Spectra Logic's scalable archive solution

“ Since we manage enormous volumes of data at our research site, we needed advanced capabilities for storage and archiving with the ability to expand for future growth. The Spectra T950 plus BlackPearl solution gives us the comfort we need to do our work without worrying about capacity issues for many years. ”

*Dr. Jerzy Bodurka, Associate Professor/CTO, Laureate Institute for Brain Research*



*Spectra T950  
Tape Library  
and Spectra  
BlackPearl Deep  
Storage Gateway*



### About the Laureate Institute for Brain Research

The Laureate Institute for Brain Research houses a multi-disciplinary team of scientists and clinical research staff who apply neuroimaging, genetic, pharmacological and neuropsychological tools to investigate the biology of neuropsychiatric disorders. The purpose of the studies conducted at the institute is to develop more effective treatments or prevention strategies for these disorders. The studies are led by scientists from diverse backgrounds, including physics, cognitive neuroscience, psychology, psychiatry, developmental neuroscience, computer science and genetics.

### The Challenge

The Laureate Institute for Brain Research (LIBR) was in need of a storage solution for their many Terabytes of ever growing data. In the beginning, the organization had one fMRI (Functional Magnetic Resonance Imaging) machine – a device which scans the brain, creating hundreds of thousands of images daily. An average of four human subjects are scanned by the machine each day, generating approximately 4GB of data per subject. However, with future technology enhancements that number is expected to grow by a factor of 10. Not long ago, the institute purchased a second fMRI machine, causing their data production to double, and added an additional subject per day, per machine.

LIBR was also concerned about older, untouched data, which still held potential value, taking up large amounts of their storage space. In the past, they stored all their data on disk, including off-site backup, which was very costly. They needed a cost-effective way to store their expanding data indefinitely.

### The Solution

Taking into consideration their exponential data growth, their desire to retain data for many years, and positive feedback they had received about Spectra Logic's products from Tandy Supercomputing, LIBR selected a Spectra T950 tape library with a Spectra BlackPearl Deep Storage Gateway archival solution. The BlackPearl helped free primary disk storage for recent scans and allowed them to comfortably move un-accessed data from disk to tape. In addition, BlackPearl also enabled them to streamline their workflow giving their investigators the ability to retrieve their own work. By implementing a

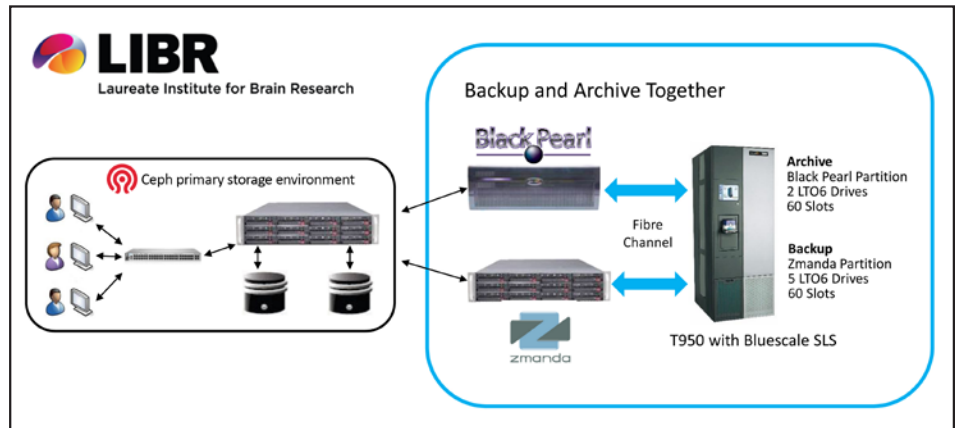


*The Laureate Institute for Brain Research campus is in Tulsa, Oklahoma*

# CASE STUDY: LIBR (Laureate Institute for Brain Research)

BlackPearl private cloud-based infrastructure, LIBR's tape and object storage solution provided a cost-effective, scalable way to manage and archive their data.

To leverage BlackPearl in their Ceph clustered file system storage environment, LIBR utilized Spectra's Software Development Kits (SDKs) to develop the first-ever Ceph client for BlackPearl in the fall of 2016. Designed for both backup and archiving purposes, the integration has allowed LIBR to significantly reduce backup periods, saving the organization both time and resources.



## Features

- BlueScale® Encryption protects neuro images and other sensitive data
- MLM improves tape reliability by ensuring their research will be accessible when needed
- SLS allows for multiple data sets, that need to remain separate, to live in the same library

## Network Environment

- Spectra T950 Tape Library
- Spectra BlackPearl Deep Storage Gateway
- Ceph primary file system storage environment
- 7 LTO-6 drives, 3 partitions
- Client: CSDK/Java/Python
- Spectra Certified Media
- Media Lifecycle Management (MLM)
- Shared Library Services
- BlueScale Encryption
- 175TB of imaging data

## Why Spectra?

- Scalability
- Cost effectiveness
- Solution architecture
- Reliable support
- Customer service
- Archiving capability
- Good first experience with their T950 tape library
- Good references (Tandy Supercomputing)

## Solution Recap

### The Spectra T950 library

The Spectra T950 is designed to meet the stringent requirements of the enterprise environment for data integrity, data security and high reliability. The T950 library reduces staff involvement significantly, affordably scales in capacity and throughput, and delivers the best total cost of ownership of any tape solution. Support options range from the expected 24x7 worldwide onsite support to more advanced offerings, including our industry-first Assisted Self Maintenance (ASM) program as well as proactive management and reporting tools that ensure optimal system availability.

### Spectra BlackPearl Deep Storage Gateway

To meet the demands of exponential data growth and long-term retention, the Spectra BlackPearl Deep Storage Gateway enables users to easily store massive amounts of data forever at virtually no cost. Designed for organizations where data is a significant part of their operations, the BlackPearl allows data to move seamlessly into mass tape storage in a way not previously possible. The BlackPearl enables users to deploy a tier of deep storage that is cost effective, easy to manage and scalable to exabytes of data. With BlackPearl's simple, RESTful Spectra S3 interface and embedded tape management software, organizations can confidently store all of their data at costs as low as pennies per gigabyte.

### Spectra Logic Developer Program

The Spectra Logic Developer Program is designed for developers who wish to develop Spectra S3 applications to move data to tape and disk archive. Spectra's S3 software interface is made possible by the BlackPearl Deep Storage Gateway. The BlackPearl hardware sits in front of Spectra tape libraries and disk archive systems and allows users to move data using simple HTTP commands. Spectra's HTTP command set is called Spectra S3 and is an extension of the S3 storage interface popularized by Amazon.

For more information, visit: <https://developer.spectrallogic.com/>

