Spectra Cube
Tape Library →

Optimized for ease of use

One Library
for Any Environment

Optimized for ease of use, the Spectra Cube™ tape library can be quickly deployed, dynamically scaled, and easily serviced without tools or downtime. Its robust design and enterprise-class components ensure the utmost reliability for the peace of mind that your data is always safe and accessible.

The Spectra Cube library embodies flexibility, offering seamless integration across any edge-to-enterprise environment. From leveraging the advantages of on-premises storage to harnessing the agility of hybrid setups, and the scalability of cloud environments, this innovative solution ensures that your data is accessible wherever you need it most.

Customize your Spectra Cube library to reflect your application or organization

Innovative Library Management **Software**

The Spectra Cube library is managed by LumOS library management software, the industry's most advanced management system. It has intuitive and feature-rich interface which allows secure local, and remote management and monitoring. LumOS software enables an optional assisted self-maintenance model for rapid component replacement without needing service personnel.

Spectra Cube Tape Library: Modern Tape Design Benefits

- Brings the highest versatility, ease of use, and cost-effectiveness to long-term retention

- Retains terabytes to petabytes of data in cloud, traditional environments, or both

- Integrates with Spectra BlackPearl® Nearline Object Gateway to create Amazon S3 Standard-compatible and S3 Glacier-compatible storage tiers

- Compatible with rack environments with accessible front and back service panels, zero side clearance required

- Easily manage, scale, and service in minutes without tools or special training

The Spectra Cube library fully supports modern backup and archive applications through seamless integration with BlackPearl file and object storage systems. This integration creates highly cost-effective on-premises or hybrid cloud object-based tape tiers, allowing you to leverage the benefits of both tape and object storage. Amazon S3-compatible and S3 Glacier-compatible API access is fully supported. It is also an ideal platform for managed, or cloud service providers to deliver storage services.

Optimized Data Center Space

When data center real-estate counts, the Spectra Cube library offers unsurpassed storage density and minimal footprint through a unique and highly efficient design. Key benefits are

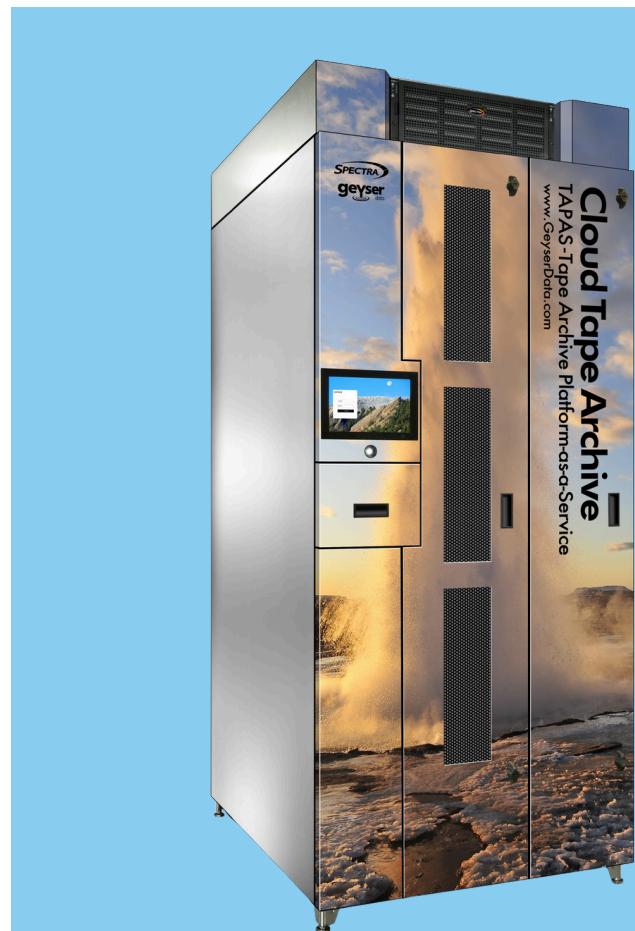Minimizes floor space with optimal data density
- 4.4PB per square foot density
- 42U rack-sized footprint with optional 12U loft enclosure
- 3 standard tiles width can fit 2 - Spectra Cube libraries

Reduces energy consumption & CO_2 emissions
- Made for hot/cold aisle environments
- 95+% energy-efficient dual power supplies
- Lowest storage energy consumption: 50PB of storage consumes less than one (1) kilowatt
- Power efficiency and usage reporting

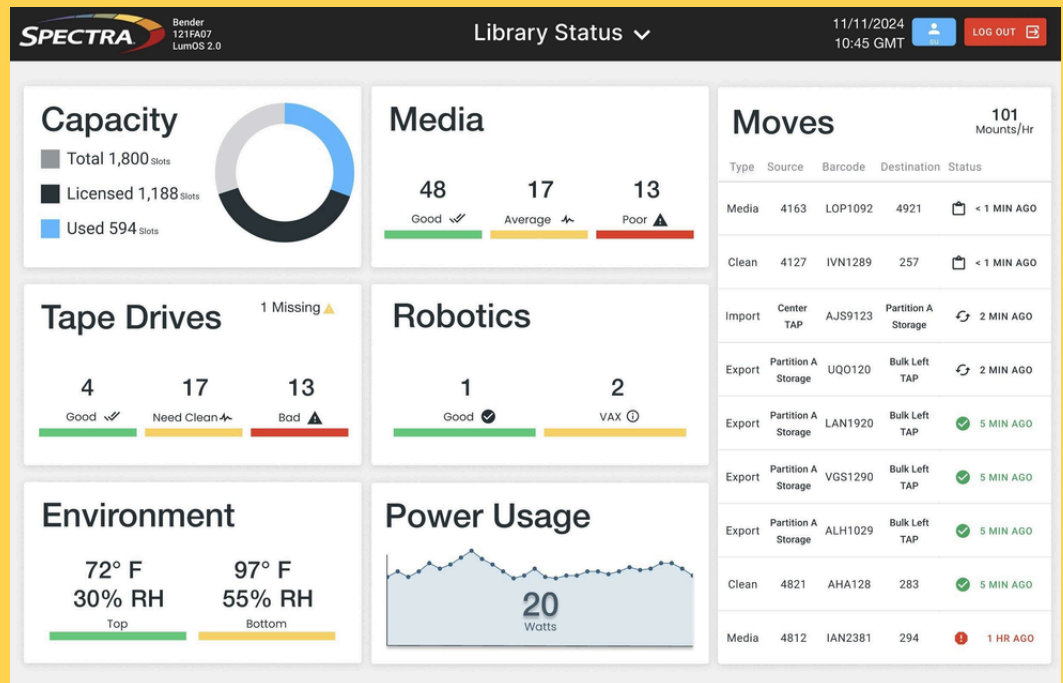Optional 12U loft enclosure increases space efficiency

- Simplifies connectivity for standard 19" rack equipment, including BlackPearl storage, industry-standard servers, network devices & more

Spectra Cube library with optional 4U loft on top

Ease of Use

LumOS library management software is the advanced next-generation operating system for managing, monitoring, and controlling Spectra Cube libraries. This intuitive software interface allows secure local, and remote HTML management and monitoring.

LumOS Library Management Software

With LumOS software, the Spectra Cube library is easy to manage & monitor:
- Feature-rich interface with high-resolution touch panel
- Secure local touch screen and remote access via any web browser
- Integrated partitioning for shared, or multi-tenant environments, and applications, up to 16 partitions

Streamlines tasks to simplify and save time:
- Full REST API for automation of all library functions, including software upgrades
- Multi-threaded operations to complete multiple tasks simultaneously
- Proactive monitoring and diagnostics with email notifications and automatic support ticketing

Efficient Media Handling

The Spectra Cube tape library saves IT teams valuable time by automating much of the media handling process. This efficiency allows IT staff to focus less on routine tasks like media management and more on high-impact projects that drive greater value for the company.

Tape Media Handling

Efficient tape media handling is achieved with TeraPack® tape magazines, which have a unique design feature that allows for efficient storage and transport of tape media. Instead of traditional tape slots, the Spectra Cube library uses innovative "shelves" and TeraPack® magazines to store ten LTO slots in a single container.

This approach gives Spectra libraries greater storage density, allowing you to store more data in a smaller footprint. When paired with the high-performance transporter (HPT), the TeraPack magazine is not just a storage container but a vehicle for transporting 300TB of LTO-10 data to drives, storage shelves, import and export in a single robotic movement, reducing the time required to manage media by 90 percent while providing the highest robotic mount rate of any library in its class.

TeraPack magazine holds ten LTO tape cartridges and improves media handling by reducing the time spent loading individual tapes into a library by 90%

TeraPack Access Port

The Spectra Cube library has a TeraPack Access Port (TAP), a convenient front-panel Entry/Exit enabling the selective import or ejection of a TeraPack magazine. The TAP, holding one TeraPack of up to 10 tapes, simplifies and reduces tape handling to a single non-disruptive operation.

To maximize mount performance, the Spectra Cube library leverages a combination of proven Spectra technology: high-performance transporter robotics, TeraPack magazines, and TeraPack Access Port and software features like Slot IQ to deliver faster tape movement and exchange rates.

Easy to Scale

The Spectra Cube tape library offers exceptional scalability to grow with an organization's data storage needs. Spectra provides a unique capacity-on-demand model that allows adding tape slots via simple software activation, avoiding expensive hardware changes or disruptive downtime. This flexible model enables you to start with a minimal configuration, and seamlessly expand the storage capacity and performance as data volumes increase, all without downtime, tools or service calls. This helps optimize initial investments and provides a future-proof platform to keep pace with escalating data growth cost-effectively. Additional hot-swappable tape drives may be added to support new workflows without disrupting operations.

The Spectra Cube library dynamically scales
- Capacity: 50 to 1,670 slots (up to 50PB native with LTO-10 media)
- Performance: Intermix 1 to 16 full-height (FH) and 30 half-height (HH) LTO tape drives (1.08TB to 32TB per hour native)
- Partitions: 1 to 16 partitions for shared or multi-tenant environments

With the Spectra capacity-on-demand expansion model, organizations can easily manage capital budgets while responding to unpredictable data growth patterns.

Protecting
Your Investment

The Spectra Cube library delivers lifetime investment protection, making capacity and performance upgrades quick, seamless, and economical. Migration of existing tape drives and media from Spectra or other libraries is supported, ensuring maximum preservation of previous capital investments.

The Spectra Cube library delivers lifetime investment protection,

- Capacity on Demand enables organizations to start with a minimal configuration and expand storage capacity as needed. This helps optimize initial investments and reduce upfront costs. Adding tape slots via software activation eliminates the need for expensive hardware changes and downtime, providing a seamless and dynamic solution to support rapidly growing volumes of data

- Supports the migration of existing tape drives and media from Spectra or other libraries, ensuring maximum preservation of previous capital investments

- Currently supports LTO tape drive technology generations LTO-6, LTO-7, LTO-8, LTO-9, LTO-10 and reads back to LTO-4 media

- Maintains a comprehensive LTO technology roadmap to ensure long-term investment protection, with the ability to readily capitalize on future increases in capacity and performance while maintaining the ability to use existing drives and media for many years

LTO-10 Tape Drive
and LTO Tape

The Spectra Cube library delivers lifetime investment protection and ensures maximum preservation of previous capital investments.

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Transforming Data Center Tape Storage Connectivity

A Transformation for Tape Connectivity

Spectra Logic Tape Connectivity Options (TCO) deliver scalable, cost-effective solutions for integrating tape libraries into modern IT environments. Compatible with all Spectra tape libraries and Object-Based Tape (OBT) solutions, TCO simplifies deployment, reduces costs, and ensures high performance across evolving infrastructures.

Tape Connectivity Options

- **Spectra OSW-2400 Optical SAS Switch:** the industry's first 24G SAS-4 switch utilizing active optical cables that extend connection distances up to 100 meters. This innovative solution eliminates the need for Fibre Channel HBAs, switches, and cables, supporting switched topologies without requiring specialized storage networking skills. The OSW-2400 lowers per-port costs to one-third of Fibre Channel while maintaining enterprise-grade performance, scalability, and security.

Spectra OSW-2400 Optical SAS Switch

- **Ethernet to SAS Bridge:** Leverage the flexibility and cost-efficiency of Ethernet by eliminating Fibre Channel and SAN dependencies. These bridges simplify infrastructure, reduce costs, and improve operational efficiency.

- **Fibre Channel to SAS Bridge:** Integrate cost-effective SAS tape drives into Fibre Channel environments. Ideal for modernizing infrastructure while preserving performance and extending connectivity up to 500 km — supporting long-term scalability and business continuity.
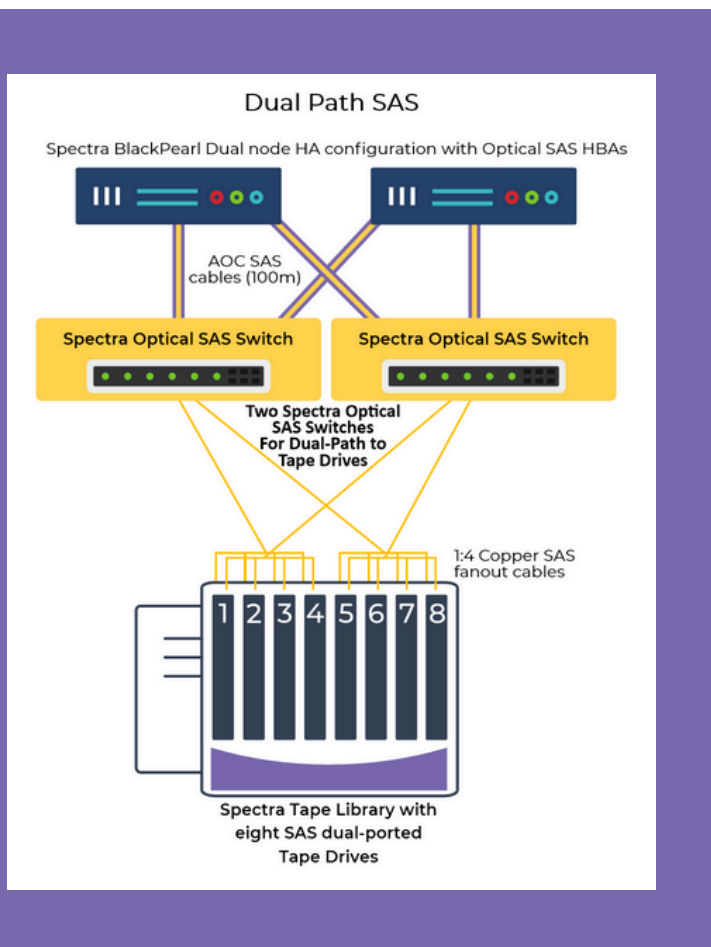
Tape Storage Connectivity

Use Case: Spectra Optical SAS Switch High Availability

The Spectra OSW-2400 Optical SAS Switch can be configured for high availability using redundant connections and multipath I/O software to ensure uninterrupted access to tape drives. The following steps outline how this solution is implemented:

Dual Path SAS

Spectra BlackPearl Dual node HA configuration with Optical SAS HBAs

AOC SAS cables (100m)

Spectra Optical SAS Switch   Spectra Optical SAS Switch

Two Spectra Optical SAS Switches For Dual-Path to Tape Drives

1:4 Copper SAS fanout cables

1 2 3 4 5 6 7 8

Spectra Tape Library with eight SAS dual-ported Tape Drives

- Connect both ports of each tape drive to separate switch ports on the Spectra OSW-2400, creating redundant data paths

- Use dual SAS controllers on the host side, each connected to the switch, to establish multiple paths to each tape drive

- Implement host-based multipath I/O (MPIO) software to manage failover and load balancing across all available paths

This setup ensures continued connectivity in the event of a failure in any path, port, or controller, maintaining operational continuity.
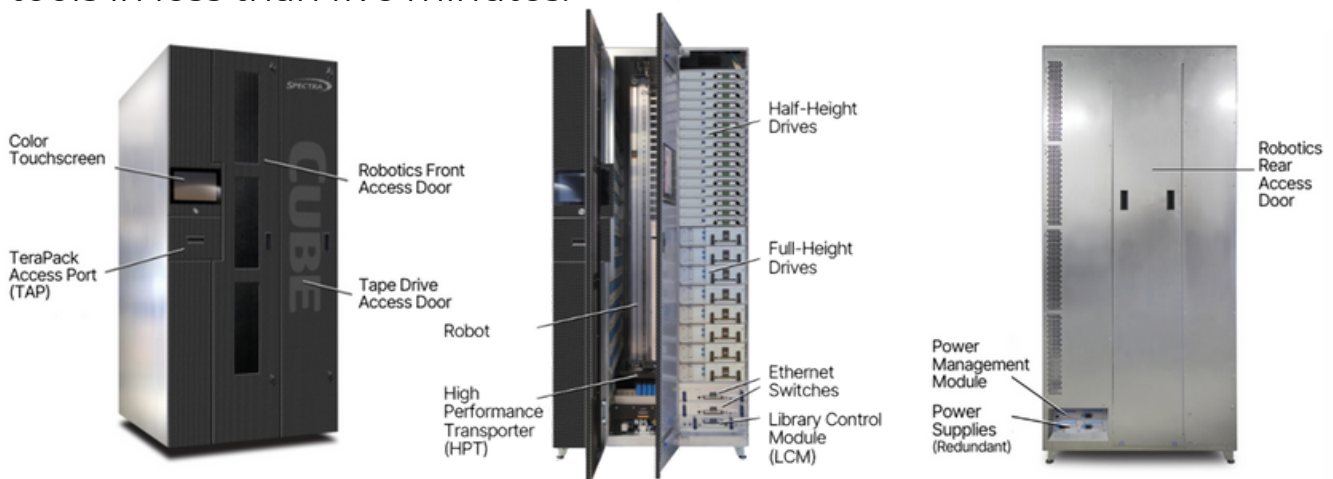
Easy to Service

The Spectra Cube tape library provides ease of maintenance with features like the TeraPack architecture that allows front-panel TeraPack Access Port (TAP) for non-disruptive import/export of tapes, tool-less component replacement, and flexible support options, including assisted self-maintenance (ASM).

Front and Back Service Access

The Spectra Cube library is designed for service accessibility and component replaceability. Components, such as robotics, tape drives, controllers, etc., are replaced through the front access (the cold aisle), and power supplies are replaced through the rear access (the hot aisle). Non-technical staff can replace components without tools in less than five minutes.

Flexible Support Options

Customers can choose from various support options depending on their needs and preferences. These options include next business day or four-hour on-site service contracts, 24x7 phone support, and Assisted Self-Maintenance (ASM). With ASM, organizations keep common spare components onsite for rapid component replacement without needing service personnel.

With all service offerings, you will receive support from the SpectraGuard® support team and have access to all resources, including comprehensive service guides and videos.

Designed for Reliability

Enterprise-class Components

For over 45 years, Spectra Logic has pioneered data storage technology, evolving from a modest startup into a global powerhouse with solutions in over 10,000 installations across 80 countries. Our experience supporting customers has driven our focus on designing reliability, with enterprise-class components.

- LumOS library management software
- Field-proven robotics using Spectra High-Performance Transporter
- Redundant 80 PLUS® Platinum certified power supplies

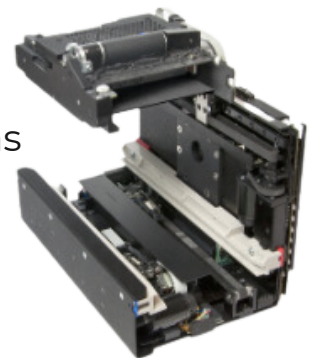## Optimal Tape Handling Design

The Spectra Cube library uses the Spectra High-Performance Transporter (HPT) to import, export and move TeraPacks and media within Spectra enterprise libraries. This HPT is also used in TFinity Plus libraries, the largest and fastest in the market today.

The HPT provides faster move performance and enhanced reliability.
- Faster time to operations
- Maximizes the life of the robotics by streamlining operations with minimal steps

The HPT was designed "from the ground up" with four primary goals:

- Greater performance by reducing cycle time, or tape mount time
- Higher reliability through increasing mean cycles between failures with enterprise-class components, and more advanced hardware and firmware design
- Leading mixed media support. Spectra Cube library supports five generations of LTO technology and has a robust roadmap for future LTO releases
- Better environmental sensing. New sensor and features, including temperature and humidity readings, provides actionable information to optimize the tape operating environment

Spectra HPT delivers superior reliability, performance and flexibility to Spectra enterprise tape libraries.

Lifecycle Management

Spectra LumOS library management software delivers a comprehensive feature set that spans security, monitoring, redundancy, reporting, library partitioning, and on-demand capacity. Proactive monitoring of media, system components and data integrity delivers reliability you can count on.

Spectra Cube library with custom graphic wrapping

Library Management

Manages the health of library components with utilization metrics relative to the expected useful life of library robotics, and other common library hardware components

Drive Lifecycle Management

Monitors and reports drive usage and performs verification tests to help prevent drive failures

Media Lifecycle Management

An integrated, proactive media management tool records and reports more than 40 metrics each time a tape is used in a drive. Combined with Spectra Certified Media, this gives up-to-date health metrics for all tapes in a Spectra Cube library with automated notifications if a cartridge's health changes

Data Integrity Verification (DIV)

Regularly checks the integrity of data on tape media to detect any errors or issues that may arise over time. It helps ensure data remains intact and accessible, reducing the risk of data loss

Spectra Certified Media

Media quality is at the core of efficient, pain-free backup, and archive. All manufactured tape differs, leaving your data to chance with suspect media. Only the highest-quality media available on the market becomes Spectra Certified Media, ensuring you have the most reliable, and worry-free data protection.

Spectra Certified Media provides considerable time and management efficiency benefits. It lowers your tape-related operational expenses and allows your staff to focus on high-value tasks.

To deliver the greatest tape media efficiency and reliability, Spectra has meticulously designed a 7-step process that all media must go through before it qualifies as Spectra Certified Media.

The rigorous certification process has been refined over multiple tape generations, millions of cartridges and several patents, ensuring, superior media quality for efficient, pain-free backup and archive.

Check out the Spectra **7-step tape media certification process** on the next page

7-Step Tape Media Certification Process

1 Environmental Acclimation
A 24-hour media acclimation period in an environmentally controlled lab.

2 Barcode Tagging
Install custom or certified media barcodes to save you time and avoid duplicates.

3 Initialize and Calibrate Media
LTO-9 media from the factory requires pre-calibration before use. Spectra does it for you, saving up to 30 minutes per tape.

4 CarbideClean
Proprietary media cleaning process to remove harmful manufacturing process debris.

5 Read/Write Verification
Test each cartridge using an algorithm against pre-established metrics.

6 Write Metrics to Memory
Write all tested and verified metrics on each cartridge's Media Auxiliary Memory (MAM) RFID chip for superb media tracking, reporting and management.

7 Final Inspection
Verify that the media has passed all tests and qualifies as Spectra Certified Media.

We have you covered. Spectra Certified Media has a Lifetime Guarantee ensuring your tapes are free from defects in materials and manufacturing for the life of the media. We will exchange any defective tape free of charge.

Spectra Cube
Graphic Wrapping

Make your Spectra Cube tape library stand out in your data center. A colorful design offers a blend of practicality, aesthetic appeal, and brand representation, allowing you to infuse your data storage infrastructure with individuality and character. From reinforcing corporate identity, to fostering a visually engaging workspace, the option to wrap your Spectra tape libraries with bespoke graphics will resonate across your data center.

Express your organization's individuality from mild to wild with cosmetic graphic wraps. Choose your level of creativity, from pre-designed graphics or create your own fully custom design. Optional side graphics are also available for free-standing libraries or libraries at the end of a row.

The range of possibilities for customizing your Spectra Cube library is boundless.

Maximum Compatibility

Spectra BlackPearl Atempo ARCITECTA® OPERATING SYSTEMS FOR META+DATA **Spectra StorCycle**

HPSS globus

IBM Versity

Hewlett Packard Enterprise bareos

DELL EMC COHESITY VEEAM VERITAS

Spectra tape libraries support nearly every software package written for open systems tape, in parallel with Spectra's Shared Library Services (SLS), to deliver an application integration that maximizes the benefits of your storage, optimize business results, and minimize time-to-value. Combining Spectra storage systems and solutions with leading third party applications, can reduce risk, improve efficiency, and address data protection concerns – while increasing flexibility through a more robust information infrastructure.

- **Archiware** – PreSTORE
- **Arcitecta** – Mediaflux
- **Atempo** – Digital Archive
- **Atempo** – Time Navigator
- **Bacula Systems** – Bacula Enterprise
- **Bareos** – Bareos GmbH & Co.KG
- **Cern Tape Archive** – CTA
- **CommVault** – Simpana and Galaxy
- **Computer Associates** – ARCserve Backup
- **DELL** – Avamar
- **DELL** – Networker
- **Enstore**
- **Globus** – with BlackPearl
- **GRAU Data** – AG
- **Hewlett Packard** – HP OpenView Data Protector
- **HPE** – Data Management Framework (DMF)
- **IBM** – High Performance Storage Systems (HPSS)
- **IBM** – Storage Protect (TSM, Spectrum Protect)
- **iRODs** – with BlackPearl
- **Masstech Group** – MassStore
- **NovaStor** – NovaNET, NovaXchange, and TapeCopy

- **Oracle HSM** (OHSM) – Oracle Secure Backup
- **Phobos** – Parallel Heterogeneous OBject Store
- **QStar Technologies** – HSM and Data Director
- **Quantum** – StorNext
- **Quest Software** – NetVault Backup
- **Roxio** – Retrospect (formerly EMC Retrospect)
- **Rubrik** – Cloud data management
- **SEP** – sesam
- **Seven10 Storage** – StorFirst
- **SGL** – FlashNet
- **StorageDNA**
- **Catalogic Software DPX** – Backup Express
- **Telestream** – Diva
- **Tolis Group** – BRU
- **Veeam** - Backup and Recovery
- **Veritas** – NetBackup
- **Veritas** – Backup Exec
- **Versity** – VSM
- **XenData** – Archive Series
- **Zmanda/Amanda** – Backup

Spectra Cube Library for Edge-to-Enterprise Deployments

The Spectra Cube library is a versatile, cost-effective solution for retaining petabytes of long-term data in on-premises, hybrid cloud or IaaS environments. It delivers enterprise-class reliability, is easy to deploy and manage and can be serviced by administrative staff without tools. It also scales capacity and performance on demand. Now, you can confidently and cost-effectively preserve, protect and defend your data at scale.

Learn more about the Spectra Cube library.

SPECTRA®

About Spectra Logic Corporation

Spectra Logic modernizes IT infrastructures to preserve, protect and defend data, whether on-premises, in a single cloud, across multiple clouds or in all locations at once. Our cost-effective solutions help organizations efficiently manage, migrate and store long-term data, from terabytes to exabytes, with features that make it ransomware resilient.

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