



Spectra Logic Family of TranScale Libraries

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ABSTRACT

An important feature for IT managers when considering the purchase of an Automated Tape Library is the ability to expand the capacity of the library. Does the library provide expansion via Capacity on Demand, by adding additional modules or frames, or connecting multiple libraries together via pass-thru? The TSeries libraries from Spectra Logic provide multiple ways to expand capacity including Capacity on Demand and the ability to add additional frames. In addition, the Enterprise line of the TSeries libraries provides a capacity expansion feature not offered by other competitive products; the TranScale® process. TranScale is the ability to transform a smaller TSeries library onsite into one of the family's larger libraries in approximately four to five hours.

INTRODUCTION

The nearly exponential growth of data within the enterprise data center requires IT administrators to plan well into the future. Users must be able to adapt easily to quickly changing data storage requirements. Doing so typically means deploying easily scalable storage solutions that can match the growth requirements of the data being stored.

Spectra Logic recognizes this need and has architected a family of automated tape storage libraries that readily meet these requirements. The architecture that provides users the ability to match storage requirements to the torrent of data they are tasked with storing and managing is called TranScale (Transform + Scale).

TRANSCALE PROCESS: THE BASICS

Component interchange is at the core of the TranScale process. Simply move components from the smaller library to the larger library frame. At the same time, the original library's identity to the wide area network and its configuration data travel with it to the larger enclosure. This preserves both your initial investment in the library and the time spent fine-tuning the library's configuration. The TranScale family is shown in Figure 1.

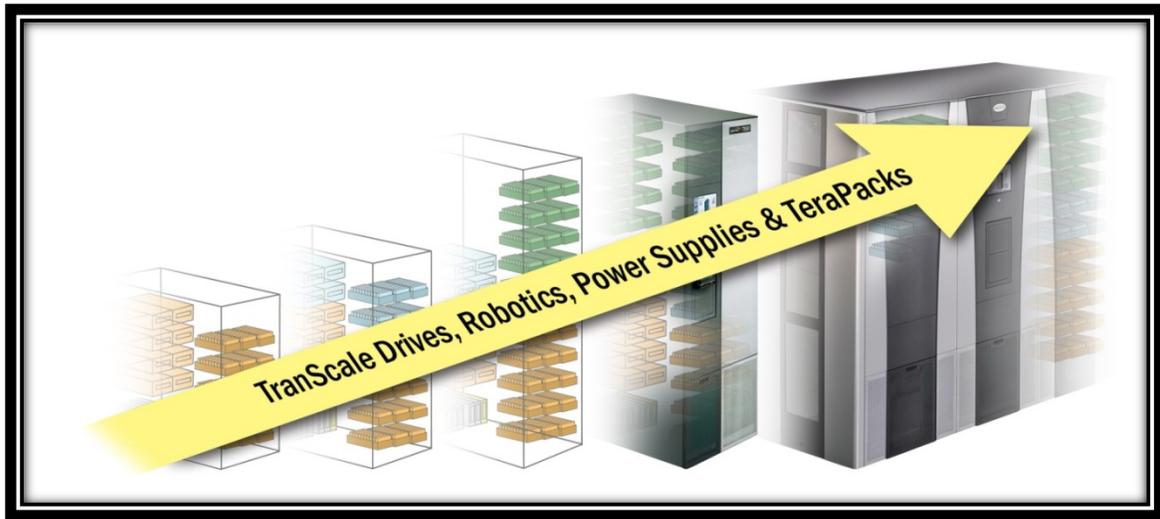


Figure 1: A family of tape libraries designed for scalability

Because of the TranScale libraries' modular design, components simply slide in—most using no tools. For example: to move a drive, slide the latch on the sled and then pull the drive out using the built-in handle. Insert the drive by sliding it in until it latches; the simple process is shown in Figure 2.

That simplicity, inherent in the design of the T200, T380, T680, T950, and TFinity libraries allows Spectra Logic to offer a complete upgrade usually within four hours to five hours.



Figure 2: Easily moved components

Parts that are moved (if applicable) during the TranScale process include:

- Tape Drives
- Power supplies
- Robotics Interface Modules
- Robotics
- TeraPack magazines
- Media
- Cables

THE TRANSCALE FAMILY OF LIBRARIES

The TranScale libraries make it easy to grow from 50 to to over 400,000 LTO slots or over 300,000 TS1150 technology slots—easily achieving over 3,500,000 TB of storage (2.5:1 compression) with LTO-6 and 7,500,000 TB of storage (2.5:1 compression) with TS1150 technology.

Table 1: Tape Series library capacity

Library	LTO06	TS1150 Technology
	6.25 TB compressed/2.5 TB native	25 TB compressed/10 TB native
T200	1,250 TB Compressed	
	500 TB Native	
	200 Slots	
T380	2,375 TB Compressed	6,525 TB Compressed
	950 TB Native	2,610 TB Native
	380 Slots	261 Slots
T680	4,188 TB Compressed	
	1,675 TB Native	
	670 Slots	
T950	62,625 TB Compressed	190,350 TB Compressed
	25,050 TB Native	76,140 TB Native
	10,020 Slots	7,614 Slots
TFinity	2,505,000 TB Compressed	7,623,000 TB Compressed
	1,002,000 TB Native	3,049,200 TB Native
	400,800 Library Complex (50,100 per library)	304,920 Library Complex (38,115 per library)

The TranScale TSeries libraries include support for full height LTO and in some cases TS1150 technology drives. The T200 houses a maximum of 8 LTO drives, the T380 offers 12 LTO or TS1150 drives and the T680 house a maximum of 12 LTO drives. The T950 offers up to 120 LTO or TS1150 drives, while the flagship TFinity Library Complex supports a whopping 960 LTO or TS1150 technology drives.

Table 2: Tape Series Library Throughput

Library	Drive Type	Maximum Throughput	Drive Type	Maximum Throughput
T200	8 Full Height LTO-6	11.5 TB/Hour Compressed		
T380	12 Full Height LTO-6	17.3 TB/Hour Compressed	12 TS1140	
Technology	27.6 TB Hour Compressed			
T680	12 Full Height LTO-6	17.3 TB/Hour Compressed		
T950	120 Full Height LTO-6	172.8 TB/Hour Compressed	120 TS1140 Technology	276 TB/Hour Compressed

FEATURES AND FLEXIBILITY

Figure 3 shows the main screen for the BlueScale library management interface.

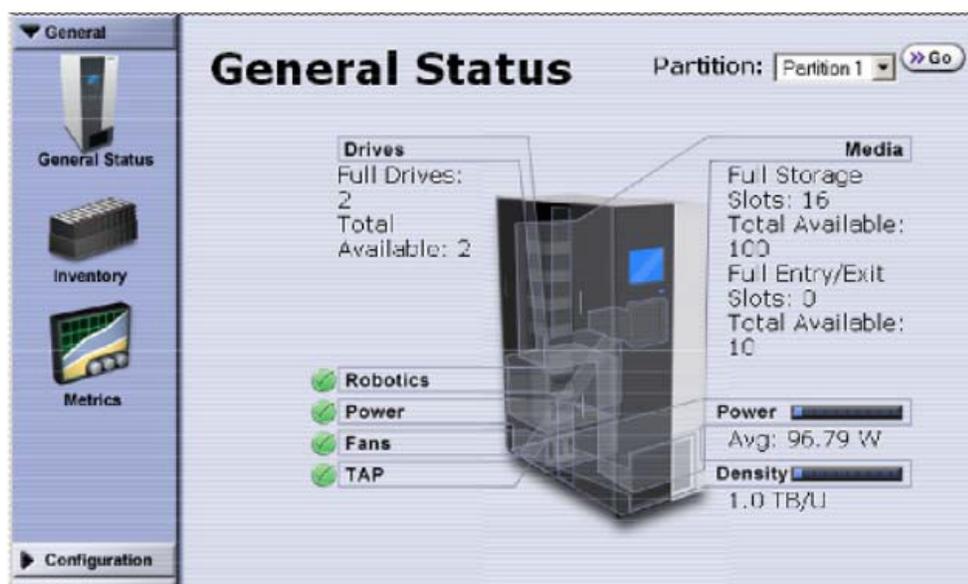


Figure 3: BlueScale Library Display



The Spectra Logic TSeries BlueScale® library control software provides enterprise-level command and control features unparalleled in the tape market. BlueScale software operates the same on all TSeries libraries adding to the ease of moving from one TSeries library to another.

HIGHLIGHTS OF COMMON BLUESCALE FEATURES

Integrated Encryption and Key Management - BlueScale encryption key management is the only encryption solution that completely integrates library administration with encryption key management. Encrypting data on tape in a Spectra TSeries library is easy to manage, efficient—and free.

Spectra TKLM Encryption key management - Spectra TKLM is a robust encryption key manager that delivers a unified key management strategy to streamline your encryption deployment.

Media Lifecycle Management - Media Lifecycle Management (MLM) records over 40 data points every time a tape is loaded providing vital statistical and diagnostic information that helps to proactively manage the library tape inventory. Using Spectra Certified Media and MLM together, provides the ability to proactively manage, track, and report all facets of tape usage from creation to retirement.

Drive Lifecycle Management – Drive Lifecycle Management (DLM) presents the current health status of all library attached drives using an easy to identify color coding system: green indicating good health, yellow for caution, and red requiring user interaction.

Data Integrity Verification – The Spectra BlueScale management interface offers a sophisticated suite of standard features that allow you to verify a tape is healthy and available to be written to as well as actively check data already written to a tape. Each process is performed by the library independent of the application that is used to read and write the data to the tape.

All the functions and information about the components noted above port from one TranScale library to the next very easily. This ensures you do not lose any critical data about your library environment or media health when scaling your library in size to meet increased storage demand.

CONCLUSION

The unique Spectra TranScale architecture utilizes components that are interchangeable among the T200, T380, T680, T950, and TFinity tape libraries. The TranScale process provides the ability to seamlessly transform and scale a Spectra library in the event that data growth requires additional throughput or capacity. The TranScale process makes it possible to protect your initial investment in a TSeries library, improve your total cost of ownership, and still meet the demands of your data growth.

Deep Storage Experts

Spectra Logic develops deep storage solutions that solve the problem of long term storage for business and technology professionals dealing with exponential data growth.

Dedicated solely to storage innovation for more than 35 years, Spectra Logic's uncompromising product and customer focus is proven by the largest information users in multiple vertical markets globally.

Spectra enables affordable, multi-decade data storage and access by creating new methods of managing information in all forms of deep storage—including archive, backup, cold storage, cloud, and private cloud.

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