

Getting the Most Performance from Your Tape Technology

Tandberg Data tape storage products include VXA™ and Linear Tape Open (LTO®) Ultrium format. VXA and LTO Ultrium have significant performance gains over previous tape technologies.

In order to realize the increased performance capability the infrastructure supporting this technology must be capable of providing comparably high data rates. Otherwise, full performance and reliability may be impacted. Listed below are topics and best practice to consider when supporting the capabilities of Tandberg Data VXA and LTO Ultrium tape technologies.

TAPE TECHNOLOGY PERFORMANCE CAPABILITIES			
TAPE TECHNOLOGY	NATIVE CAPACITY	BUFFER DATA RATE	NATIVE TRANSFER RATE TO TAPE
VXA-2	Up to 80GB	80 MBps	6 MBps
VXA-3	Up to 160GB	160 MBps	12 MBps
LTO-2	Up to 200GB	160 MBps	35 MBps
LTO-2 HH	Up to 200GB	160 MBps	24 MBps
LTO-3	Up to 400GB	160 MBps	80 MBps
LTO-3 HH	Up to 400GB	160 MBps	60 MBps
LTO-4	Up to 800GB	160 MBps	120 MBps

CPU PROCESSOR AND BUS SPEED

When the data path is routed through the server as in SCSI or Fibre Channel direct attached architecture higher CPU speeds and increased PCI bus widths will support increases in tape performance. Dedicating a server to manage backup operations allows the full performance of the CPU and bus to support tape operations. High Speed Dual processors, 64bit PCI bus architectures are highly recommended to support the high transfer rates.

INTERFACE

The VXA and LTO drives include a high-speed interface. Connecting drives to a comparable performance interface is recommended to allow data to flow into to and from the tape drive at its fullest capability. Matching interface specification to the burst transfer rate of the tape drive is recommended. Also, consider the entire data path and look for bottlenecks that do not perform at least the native transfer rate of the tape drive.

DISK DRIVES

High rotational speed disk drives and disk array's with high spindle counts supply and receive data at higher rates. Archiving to tape directly from these resources will support higher data rates to tape drives.

NETWORK

Backing up over an Ethernet network to tape can significantly impact tape drive performance especially during times of high traffic. When the data path includes Ethernet, gigabit speeds are highly recommended for Tape.

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SOFTWARE

There are many backup software options to choose from when planning for a data protection solution. Software that includes enterprise level functionality is better suited to maximize tape performance. Disk to disk to tape, virtual tape library, large image and Serverless backup functionality are all examples that would support performance tape technology.

DEVICE TUNING

Most backup software and operating system command line archive tools allow setting write and read block sizes and buffer settings. Since differences exist across the range of installations, pre production testing with different block sizes should be implemented to benchmark the best setting for a given installation and tape drive technology.

Which Tape Technology is right for you?

CATEGORY	VXA-2	VXA-3	LTO-2	LTO-3	LTO-4
Largest Cartridge Size (Native)	80GB	160GB	200GB	400GB	800GB
120 MB/s, 432GB/h Tape Drive Performing Rating					120MB/s
80 MB/s, 252GB/h Tape Drive Performing Rating				80MB/s	
35 MB/s, 126GB/h Tape Drive Performing Rating			35MB/s		
12 MB/s, 43.2GB/h Tape Drive Performing Rating		12MB/s			
6 MB/s, 21.6GB/h Tape Drive Performing Rating	6MB/s				
Ultra (40MB/s) SCSI Interface					
10/100 Ethernet effective Transfer Rate 8 MB/sec					
Ultra2 / LVD SCSI Interface					
Single Disk Drive					
32 bit CPU (132 MB/s bandwidth)					
Gigabit Ethernet effective Transfer Rate 60 MB/sec					
Ultra 160 LVD SCSI Interface			2 drives/bus	1 drive/bus	
Ultra 320 LVD SCSI Interface			2 drives/bus	2 drives/bus	
1 GB/s Fibre Channel Interface					
2 or 4 GB/s Fibre Channel Interface					
64 bit CPU (528 MBps bandwidth)					
Gigabit of Faster Ethernet Network Data Path					
High Spindle Count Disk Array (RAID/JBOD)					

GREEN = Information

GREY = Caution

PURPLE = Preferred Match

RED = Not Recommended

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