

XenData SX-10

LTO Video Archive Appliance

Managed by
XenData6 Server software



Overview

The XenData SX-10 appliance manages a robotic LTO tape library or stand-alone LTO-5 tape drives and creates a cost effective digital video archive that is optimized for the requirements of the media and entertainment industry.

The SX-10 runs XenData6 Server software on a Windows 7 platform and scales to 75 TB of near-line LTO. It is available in 6 standard configurations - supporting from a single stand-alone LTO-5 tape drive to a 50 slot LTO tape library with up to two internal LTO-5 drives.

It is ideal for video production, post production and departmental requirements and may be used in many different workflows. The LTO cartridges written using the SX-10 are self-describing and may be transferred between systems running XenData6 Server and XenData6 Workstation software.

Compatibility

The SX-10 connects to a network and files are archived to and restored from LTO just as files are transferred to and from a standard network share. The system supports the CIFS/SMB network protocol and FTP. When using CIFS/SMB, the system is optimized for PC clients running Windows and Mac clients running OS X.

This approach of presenting the LTO archive as a standard file system that is accessed via a network share means that the SX-10 has broad application compatibility.

The archive can be used simultaneously by multiple standard applications and is compatible with most MAMs and NLEs including Avid Media Composer*, Adobe Premiere and FCP. Additionally, files and nested folder structures may be manually transferred to and from the LTO archive using Windows Explorer, Finder or FTP utilities.

*Media Composer requires Parking from Marquis Broadcast.

About XenData

XenData is a leading provider of digital archive solutions focused on the needs of the media and entertainment industry. XenData digital video archives are installed in over 50 countries, especially at TV stations, video production companies, post-production organizations and video service organizations.

The company was founded in 2001 and is based in Cambridge, UK and Walnut Creek, California, USA. Key factors in XenData's success are reliable high performance products and an organization focussed on the needs of the customer.

XenData archives range from multi-petabyte server solutions which archive video files to RAID and robotic LTO tape libraries, through to lower cost workstation systems that archive to LTO-5 tape drives. Based on a standard file system, XenData server solutions make the digital video archive appear as a network share which provides easy integration with other standards-based systems. Video files are written to LTO data tape using the open standard POSIX tar format. This is important for long term archives because it means that files can be restored for decades to come using a wide range of native Linux and Unix operating systems, Windows Services for Unix - as well as using XenData software. When these standards based advantages are combined with the ability to deliver the high performance and reliability required for today's demanding video applications, XenData provides a winning formula for the media and entertainment industry.

Introduction

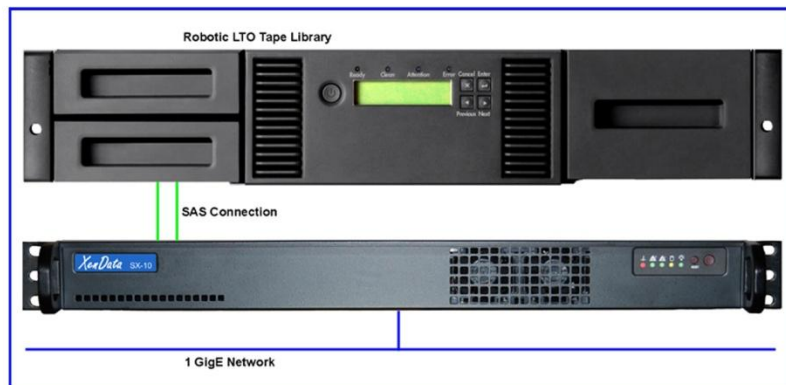
The SX-10 archive appliance manages either one or two external LTO tape drives or an LTO tape library. It creates a cost effective digital video archive that is optimized for the requirements of the media and entertainment industry.

The solution delivers high performance, writing and reading at many times real-time; yet it is non-proprietary, presenting the LTO archive as a standard Windows file system accessed as a network share. The SX-10 network share supports the standard Windows network protocol (CIFS/SMB) and FTP file transfers. In addition, storage devices may be plugged into the USB ports on the SX-10 and files may be transferred locally between the USB device and LTO. This non-proprietary approach to the interface means that the archive can be used simultaneously by multiple standard applications including those running on Windows and Mac OS X. Furthermore, it does not tie the user to any particular asset management, automation or NLE system.

The SX-10 appliance connects to the LTO tape library or external LTO drives via one or two SAS cables. The SX-10 has two RJ45 network ports that support up to 1000BASE-T.

The SX-10 includes a 3 TB disk cache which is used to enhance archive and restore performance and may also be used to retain selected files on disk.

Files are written to LTO tape using the open standard POSIX tar format. This is important for long term archives because it means that files can be restored for decades to come using a wide range of native Linux and Unix operating systems, Microsoft Services for Unix, as well as XenData software.



Functionality

Standard Network Interface and Network Protocols Files are written to and retrieved from the archive as though from a standard disk-based network share. The solution supports CIFS/SMB or FTP transfers.

Windows and Mac Compatibility Windows and Apple OS X clients are natively supported without need for loading any client software.

Manages Integral Near-line Disk and LTO The SX-10 includes a 3 TB near-line disk and it manages one or two LTO drives or a robotic tape library. Administrator defined policies determine how long files are retained on disk. Windows Explorer may be used to pre-fetch and flush files and folders. The pre-fetch operation causes the system to restore the selected files and folders to the 3 TB disk cache and flushing causes the selected files and folders to be removed from disk and replaced with sparse files (often termed stub files).

Manages Unlimited Offline LTO Cartridges The SX-10 manages offline LTO cartridges: if an attempt is made to restore a file from an offline LTO tape, the system identifies the barcode or name of the offline tape and provides an on-screen notification or email alert.

Automatic LTO Replication The system automatically generates replica LTO cartridges that may be exported from the library for off-site retention. (This functionality is not available with model SX-10-001 which supports only one external LTO drive.)

Optimized File Restores The system restores a queue of files in the shortest possible time. The restore requests are processed in an order that minimizes unnecessary tape movement.

Partial Read of Large Files The SX-10 supports partial reading of large files based on byte offsets.

File Spanning The system supports spanning of files across LTO tapes. This is an administrator defined option.

Repack of LTO Cartridges This allows space to be recovered from old file versions and deleted files.

Multiple Tape Pool Support The system allows groups of files to be allocated to specified pools of tapes. The Administrator defined policies can be used to group related files together on the same set of tapes.

Self-Describing LTO tapes Each LTO cartridge contains all the file system metadata necessary to recover all the files stored on it.

Transfer of Content between Systems LTO cartridges may be transferred between SX-10 appliances and other systems running XenData6 Server and XenData6 Workstation software.

Standard POSIX tar tape format The archived files are written to LTO tape using the standard POSIX tar format. This means that, in addition to using XenData software, files may be restored using a wide range of Linux and UNIX operating systems.

Tape Contents and File Search Reports Report results may be exported to Excel.

Automatic Metadata Backup A file system metadata backup and restore utility provides rapid system restore in case of hardware failure.

System Upgrade Upgrading to a later generation of LTO is a very cost effective way to increase the size of the archive. The SX-10 makes for easy system upgrades, going from an older to a later generation of LTO.

Alert Module A software module is included which provides e-mail and on-screen alerts.

XenData File Management Policies

The system administrator defines policies that determine where files will be physically stored on the digital archive. These policies support hierarchical storage management (HSM) and automatic tape cartridge replication. The SX-10 supports three main levels of storage hierarchy:

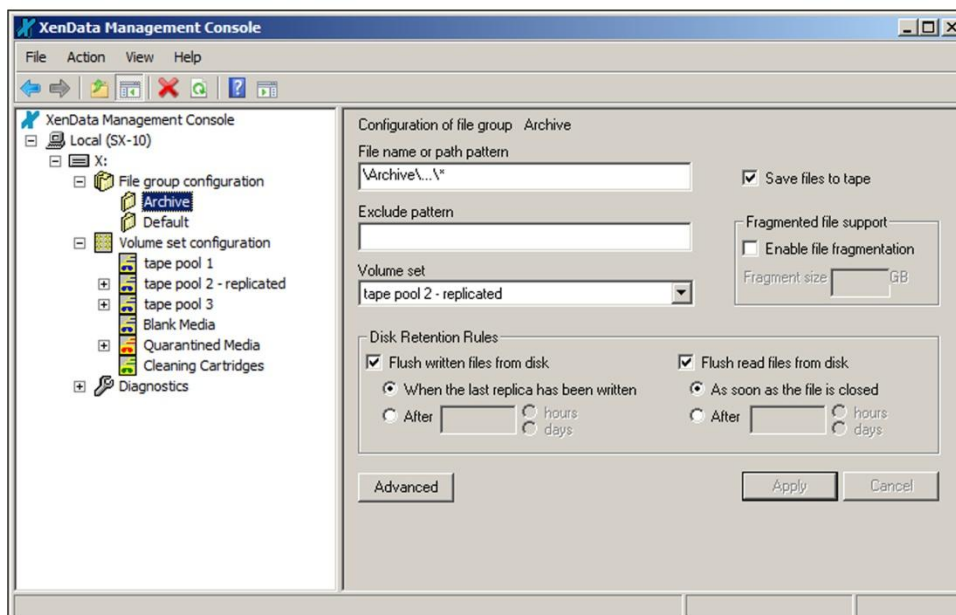
Near-line disk with one instance of a file on the 3 TB disk cache and, in addition, there will typically be one or more instances on LTO tape. In this case, the file will be retrieved from disk when accessed over the network.

Near-line LTO with at least one instance of a file on tape within the tape library or external tape drive and no instance on disk. When a file on near-line LTO is accessed over the network, the XenData6 Server software automatically transfers the file over the network directly from LTO in response to the network read request. In addition, the file is simultaneously transferred to the disk cache.

Offline with no instances on disk and one or more instances of a file on LTO tape, all of which have been exported from the tape library or ejected from the external tape drive(s).

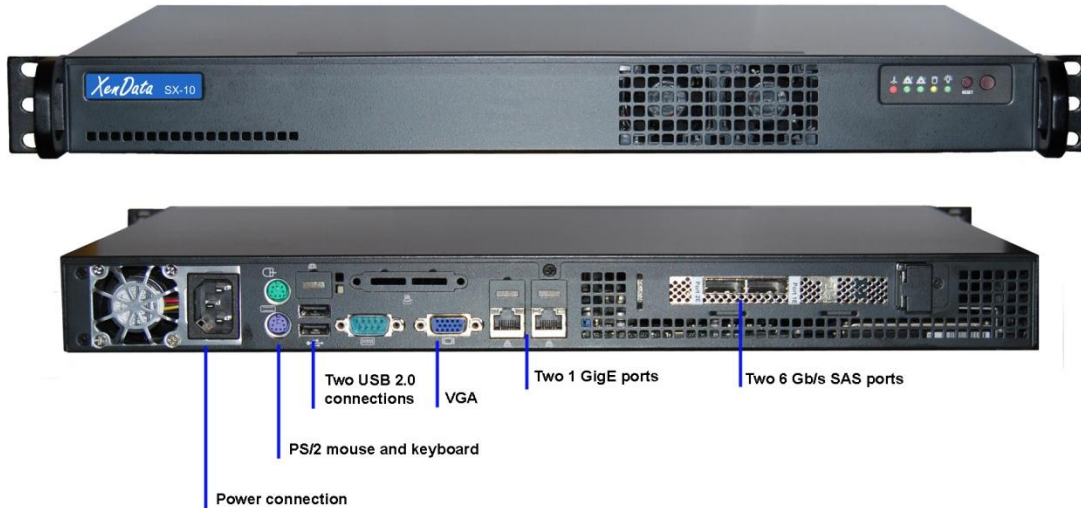
No matter where a file is held in the storage hierarchy, its position in the archive file system does not change. When a file is flushed and it transitions from near-line disk to near-line LTO, the file path, file name and properties do not change, except the Microsoft offline attribute changes to identify that the file is no longer on disk. When a file moves from near-line LTO to being offline because the LTO cartridge on which it is stored is exported from the tape library or ejected from an external tape drive, the file also remains unchanged in the archive file system.

The XenData file management policies are defined by the administrator using the XenData Management Console which is shown below. The SX-10 may have many different policies, tailored to the needs of the different file types and folders that are being archived.



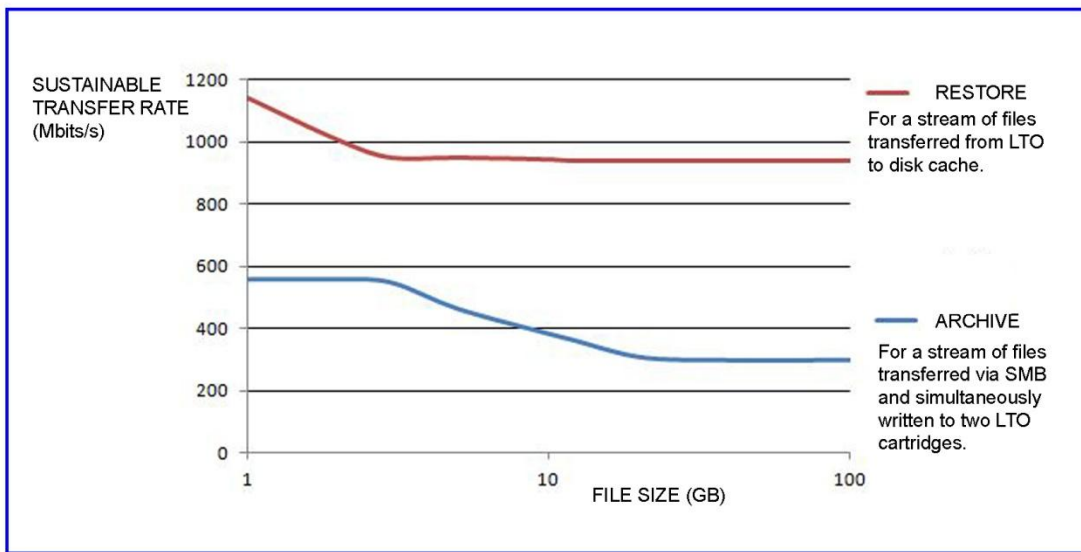
Connections

All connections to the SX-10 archive appliance are at the rear of the unit, as shown below.



Performance

The SX-10 is suitable for archiving several TBs of video assets per day. The graph below shows the sustainable transfer rates for a single stream of files ranging from 1 GB to 100 GB in size. The archive rate shown is when writing over a 1 GigE network to two LTO tapes using the replication capabilities of the system. Higher performance will be achieved when writing to only one tape (without immediate replication) and when archiving multiple simultaneous streams of files. The restore performance shown is for a single stream of files being per-fetched from LTO to the system disk cache.



SX-10 Models

The SX-10 is available in six models, each licensed to support a different LTO drive / tape library configuration:

Model	Licensed Configuration
SX-10-001	One external LTO-5 tape drive
SX-10-002	Two external LTO-5 tape drives
SX-10-003	One tape library with one LTO-5 drive and up to 25 LTO slots
SX-10-004	One tape library with two LTO-5 drives and up to 25 LTO slots
SX-10-005	One tape library with one LTO-5 drive and up to 50 LTO slots
SX-10-006	One tape library with two LTO-5 drives and up to 50 LTO slots

A wide range of LTO tape libraries are supported. Please refer to the XenData web site for a complete and up to date list. Following initial purchase, the license may be upgraded at a later date.

Specifications

Archive management software:	XenData6 Server for Windows 7
Notification software:	XenData Alert Module
Operating system:	Windows 7 x64 Professional
Processor:	Intel Xeon E3 Quad-Core, 3.2 GHz
RAM:	16 GB
Archive disk cache capacity:	3 TB
Connections to LTO library/drives:	2 x SFF-8088 connectors; 6 Gb/s SAS
Network connections:	2 x RJ45 connectors; 1000BASE-T, 100-BASE-TX, 10BASE-T
Keyboard/mouse connections:	2 x PS/2
USB connectors:	2 x USB 2.0
Operating temperature:	50-95°F (10-35 °C)
Operating humidity:	8-90% non-condensing
Power:	100-240V; 50-60 Hz; 2-4Amp max
Form factor:	1U, 11.3" deep
Dimensions (HxWxD):	1.7" x 17.2" x 11.3" (43mm x 437mm x 287mm)
Weight:	11 lbs (5 KG)

Additional Information

For additional information about the SX-10 and the integral XenData6 Server software that manages it, please visit www.xendata.com or contact us:

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