

XenData® Product Brief:

SX-250 Archive Server for Amazon Web Services



An SX-250 Archive Server manages a Virtual Tape Library (VTL) in the Amazon Cloud connected via the AWS Storage Gateway VTL interface. The SX-250 also supports up to two locally attached LTO drives for optional on-premises storage of content.

The system is optimized for broadcasters, video production companies, post-production and media operations. The system provides immediate access to archived content when files are stored on virtual tape cartridges in the Amazon VTL. When immediate access is not required, virtual tape cartridges may be moved from the VTL to Amazon Glacier storage to reduce costs.

Introduction

The SX-250 archive server manages archive and restore operations to a Virtual Tape Library (VTL) on the Amazon Cloud, interfacing to it via the AWS Storage Gateway VTL. The SX-250 supports management of files held on internal disk, the Amazon VTL and files sent to Amazon Glacier.



The SX-250 runs XenData6 Server software on a Windows Server 2012 R2 operating system. Files are presented in a standard file/folder structure which is typically shared over your network. In addition to the file/folder interface, the SX-250 provides an object storage interface using an XML API.

You can transfer files to and from the SX-250 using either the standard Windows network protocol (CIFS/SMB) or FTP file transfers. Files may also be transferred locally.

The SX-250 includes a 6 TB disk cache which is used to enhance archive and restore performance and may also be used to retain selected files on disk. The cache disk acts as a buffer for files waiting to be uploaded to AWS and for files that are being restored and are waiting to be transferred to their target destination.

The SX-250 pushes files to AWS and pulls files from AWS. It manages virtual tape drives within a virtual tape library in the Amazon Cloud, communicating with them as iSCSI devices.

About AWS Storage Gateway-VTL

Gateway-VTL provides up to 1 PB of virtual tapes. Each virtual tape can be stored in a Virtual Tape Library backed by Amazon S3 or a Virtual Tape Shelf backed by Amazon Glacier. The Virtual Tape Library exposes an industry standard iSCSI interface which provides the SX-250 with on-line access to the virtual tapes. When you no longer require immediate or frequent access to data contained on a virtual tape, you can use the SX-250 Management Console to move it from its Virtual Tape Library to your Virtual Tape Shelf in order to further reduce your storage costs.

Components of the Amazon VTL are as follows.

- ❖ **Virtual tapes** – A virtual tape is analogous to a physical tape cartridge. However, virtual tape data is stored in the AWS cloud. Like physical tapes, virtual tapes can be blank or can have data written on them. When setting up the system, you create blank virtual tapes by using the AWS Storage Gateway console. The gateway can contain up to 1500 tapes or up to 1 PB of total tape data at a time. The size of each virtual tape is configurable between 100 GB and 2.5 TB.
- ❖ **Virtual tape library (VTL)** – A VTL is analogous to a physical tape library with robotic arms and tape drives, including the collection of virtual tapes stored within the library. The Gateway-VTL comes with one VTL which contains 10 virtual tape drives and a virtual medium changer. These are controlled by the SX-250 as iSCSI devices.
- ❖ **Virtual tape shelf (VTS)** – A VTS is analogous to an off-site tape holding facility. Content on VTS is stored in Amazon Glacier. You can move virtual tapes from VTL to VTS using the SX-250 Management Console by exporting the tape. The VTS is located in the AWS region in which you activated the gateway. Even though the files sent to the VTS still appear in the SX-250 file system, they cannot be read directly. To read an archived tape, you must first move it back to your gateway-VTL by using the AWS Storage Gateway console. A retrieved tape will be available in your VTL in about 24 hours.

Functionality

File System Interface - The digital archive accepts all file types and presents them in a single Windows file/folder structure. Files are written to and retrieved from the archive as though from a standard disk drive. They are stored on AWS, the internal disk cache and/or a locally attached LTO drive according to policies defined by the administrator. **Benefit:** Makes archiving to AWS like writing files to a Windows server. For files on virtual tapes in the VTL, restoring multiple or individual files is like reading files from a Windows server.

Object Storage Interface – In addition to the file system interface, an XML interface is provided. The XML instructions include the ability to pull assets from a source location and push them back to that location. The instructions are sent and received from a network socket (port 3466). **Benefit:** The object storage interface provides a tight integration with several applications used in the creative video industry.

Standard Network Protocols - The solution is optimized for CIFS/SMB and FTP, as well as local file transfers.

End-to-End Verification – The system verifies content written to AWS. **Benefit:** provides an automated check-sum operation for all data written to AWS.

File Version Control - The software provides comprehensive file version control. Deleted files and old file versions may be restored from AWS.

Partial File Restore - With very large files there is often a need to read only a portion of the file. For example, this frequently occurs with multi-gigabyte video files when a short clip is requested. The XenData object storage interface is available with partial file restore (PFR) based on timecodes. In addition, the XenData file system interface supports PFR based on byte offset which when combined with applications such as a Dalet media asset management system provide a timecode based PFR solution.

Metadata Backup and Restore - A file system metadata backup and restore utility provides rapid system restore in case of rebuild after disk cache failure.

Alert Module - A software module is included which provides e-mail and on-screen alerts. These are tailored to the needs of archive system operators, system administrators and IT support personnel.

Cartridge Contents and Search Reports - The files contained on any virtual tape cartridge can be listed in a report. The reports may be exported to Excel for further analysis.

LTO Drive Support – One or two LTO external drives may be connected to the SX-250. **Benefit:** gives option to send specific files to in-premise LTO.

Industry Standard File Security - The file server runs Windows Server 2012 R2 and integrates fully with the Microsoft Windows security model based on Active Directory.

Great Compatibility

The AWS-XenData system is optimized for video files from creative video and video surveillance applications. It works with most video management systems used in video surveillance and with most media asset management systems and other applications used in the creative video industry. Compatible MAMs include those from:

- ❖ **Apace**
- ❖ **axle Video**
- ❖ **Cinegy**
- ❖ **Dalet**
- ❖ **Empress Digital (eMAM)**
- ❖ **Evertz (Mediator)**
- ❖ **IPV (Curator)**
- ❖ **Metus**
- ❖ **Squarebox Systems (CatDV).**

In addition, software modules are available to deliver a tight integration with specific creative video applications, including **Avid Interplay Production** and for archiving Avid projects from shared edit storage.

XenData File Management Policies

The system administrator defines policies that determine where files will be physically stored. The SX-250 supports three main levels of storage hierarchy:

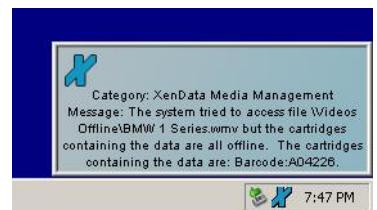
SX-250 disk – with an instance of the full file on the 6 TB disk cache and, in addition, there will typically be an instance on the Amazon VTL or VTS. In this case, the file will be retrieved from disk when accessed over the network.

VTL - with an instance of the file on a virtual tape cartridge within the VTL and no instance of the full file on disk. When the file is read, it is automatically transferred directly from the Amazon Cloud in response to the read request.

VTS – with one instance of a file on the VTS. The virtual tape must be moved into the VLT before it can be restored.

When a file is stored in the VTL or VTS and an instance of the file is no longer held on the SX-250 disk, the file is represented in the file system as a stub file. This stub file has all the properties of the full file (path, name, size, dates, etc.) except the Windows offline attribute is set. This approach means that the SX-250 seamlessly interfaces with most applications because the XenData-AWS archive system appears like a disk volume on a Windows server.

If there is an attempt to read a file that has been moved to the VTS, the SX-250 will issue an on-screen message and/or send an email alert that identifies which virtual tape contains that file, as illustrated opposite. The tape should then be moved back into the VTL using the AWS Storage gateway console.



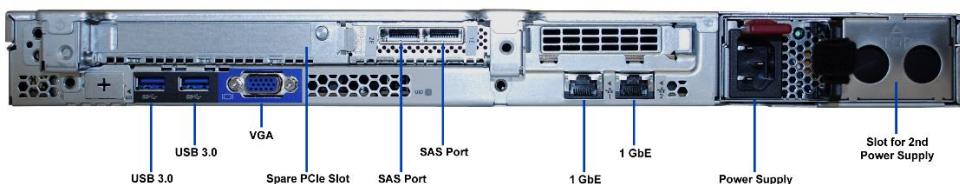
Connecting to your Network

The SX-250 connects to an Ethernet network via 1 GbE or 10 GbE. The network share supports the standard Windows network protocol (CIFS/SMB) and FTP file transfers. The base SX-250 includes two 1 GbE network ports and a spare PCIe slot which may be used for an optional 10 GbE interface card. Alternatively the PCIe slot may be used for an optional Fibre Channel interface card for connection to a SAN.

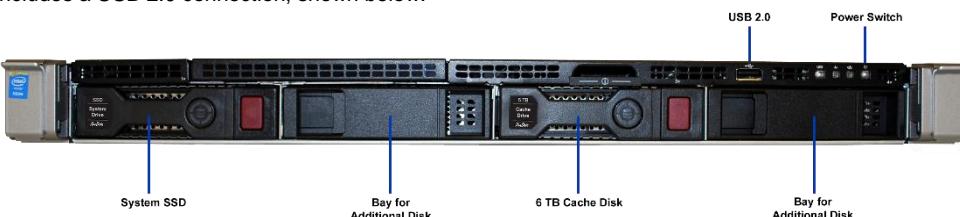
The SX-250 runs Windows Server 2012 R2 Essentials which means it can be deployed in a Workgroup or as the domain controller in an Active Directory domain. However, it cannot be installed as a domain member in a pre-existing Active Directory domain. If this is required, the SX-250 should be upgraded to Windows Server 2012 R2 Standard Edition (XenData SKU 111006).

The SX-250 includes two USB 3.0 connections and two SAS ports. The USB 3.0 connections may be used to transfer files between an attached USB device and AWS. The two SAS ports may be used to attach one or two local external LTO drives. In this case, the SX-250 policies can be configured to archive some content to LTO.

Connections to the rear of the SX-250 archive server are shown below.



The front of the SX-250 includes a USB 2.0 connection, shown below:



Specifications – base configuration (XenData SKU 222030)

Archive management software:	XenData6 Server
Notification software:	XenData Alert Module
Operating system:	Microsoft Windows Server 2012 R2 Essentials
Processor:	Intel® Xeon® 6-core processor
RAM:	32 GB
System disk:	240 GB SSD
Cache disk:	6 TB SAS 7,200 rpm
Network connections:	2 x RJ45 connectors; 1000BASE-T, 100-BASE-TX, 10BASE-T
USB connections (rear mounted):	2 x USB 3.0
USB connection (front mounted):	1 x USB 2.0
SAS connections to LTO drives:	2 x SFF-8088 connectors; 6 Gb/s SAS
Number of power supplies:	1
Power:	100-240V; 50-60 Hz; 6.2-4.1 Amp max
Operation temperature:	50-95°F (10-35°C)
Operation humidity:	8-90% non-condensing
Form factor:	1U, 23.9" deep
Dimensions (HxWxD):	1.7" x 17.1" x 23.9" (42.9mm x 434.6 x 607.6mm)
Weight:	25.4 lbs (11.5 Kg)
Rack rails:	Included

Upgrade Options

XenData SKU	Description
Connectivity Options	
101048	Dual port 10 GbE network adapter HP 560SFP+ pre-installed in SX-250. This adds two 10 GbE ports to the SX-250 and uses the spare PCIe slot. Transceivers not included.
101057	SFP+ 10 Gb/s LC Short Range Transceiver for insertion in SKU 101048. HP part number J9150A. Quantity 2 required to use both 10 GbE ports in the adapter.
107130	Dual port 10 GbE network adapter for use with standard CAT6 or UTP cabling pre-installed in SX-250. It is an HP model 561T adapter and uses the spare PCIe slot.
101023	Fibre Channel adapter pre-installed in SX-250 for FC SAN connectivity. Provides two 8 Gb/s FC ports with LC type connectors. Uses the spare PCIe slot.
Redundancy Options	
222010	Additional power supply for SX-250, providing redundancy.
222050	Disk Redundancy Upgrade. Includes an additional 6TB cache disk and system SSD which are pre-installed and configured as mirror disks.
Performance Options	
222056	SX-250 Disk Cache Upgrade. Includes an additional 6TB cache disk pre-installed and configured in RAID 0 (striped), taking the cache capacity to 12 TB.
222057	SX-250 Disk Cache Upgrade. Includes two additional 6TB cache disks pre-installed and configured in RAID 0 (striped), taking the cache capacity to 18 TB.
222051	32 GB of additional RAM pre-installed in the SX-250, taking the total RAM capacity to 64 GB. Upgrading the RAM is useful when additional applications are running on the SX-250.
Operating System Upgrade	
111006	Upgrade of operating system for SX-250 or DX-240 from Windows Server 2012 R2 Essentials to Windows Server 2012 R2 Standard Edition. This is required if the server is to be installed as a member of an existing Windows Domain.

Additional Information

For further information, please contact XenData.

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