



## Solution Brief: XenData Digital Video Archives in a Dalet Environment

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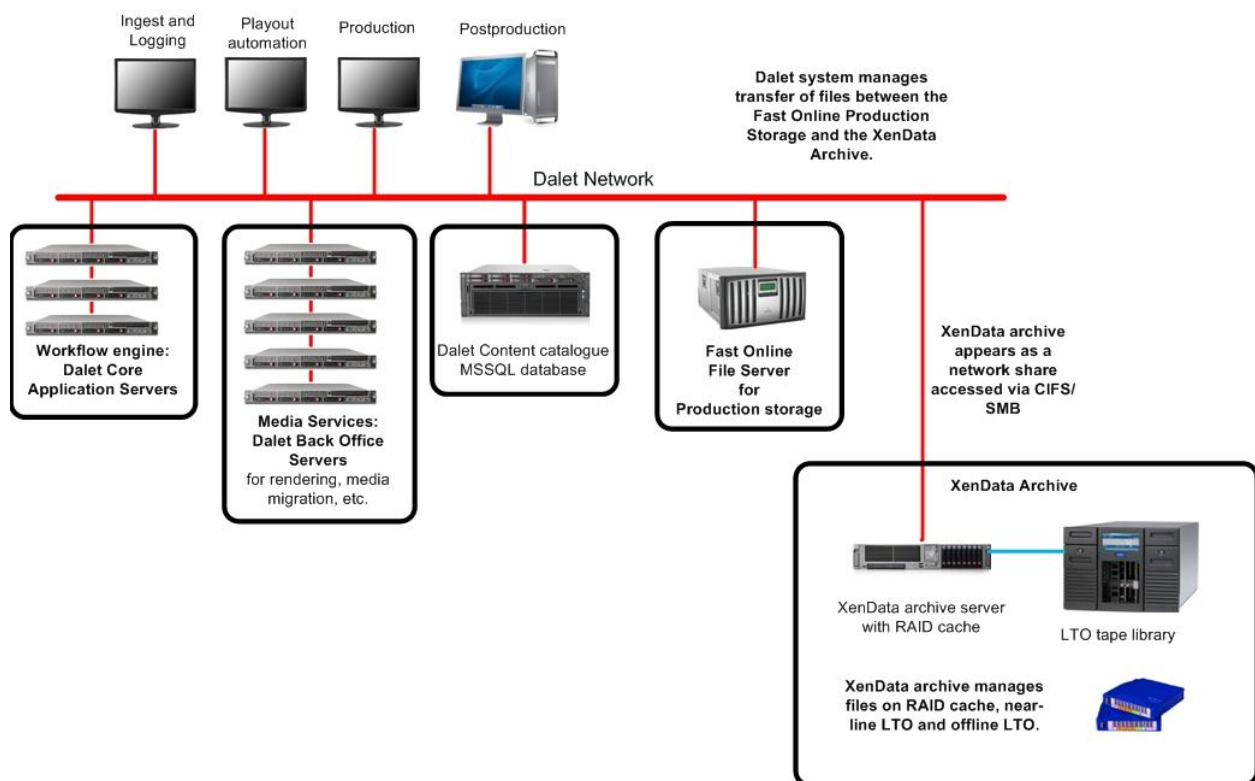
## 1. Introduction

Dalet provides a single integrated system that combines a robust and proven Asset Management platform with advanced metadata capabilities; a configurable workflow engine, and a comprehensive set of purpose-built creative and production tools. This integrated and open environment enables end-to-end management of the entire News and Sport and Program content chain, and allows users to significantly improve efficiency, and to maximize the use and value of their assets.

XenData provides digital video archive systems that deliver high performance and are based on IT standards. XenData's X64 Edition software runs on a single Windows server and manages a LTO robotic tape library, creating a digital video archive which interfaces with Dalet systems via a standard file system interface and the CIFS/SMB network protocol.

This document gives information about how a XenData archive works in a Dalet environment and lists many successful installations.

## 2. XenData – Dalet Configuration



### Basic Operation

An example configuration is illustrated above. One or more XenData archive servers are attached to the Dalet network via 1 Gb/s or 10 Gb/s Ethernet. A LTO tape library is attached to the archive server via fibre channel or SAS and the XenData archive server is typically configured with a small RAID cache (up to 2TB) which is used for file caching during both archive and restore operations.

The CIFS/SMB network protocol is used for archiving and restoring files. The files stored on LTO tape appear in a standard Windows share which shows the archived files within a folder structure defined by Dalet. Typically one of

the Dalet Core Application Servers will instruct a file transfer to or from the XenData archive between the archive and the high performance production file server or local storage. A Dalet File Transfer Agent may be installed on the XenData archive server to maximize performance.

### **Multiple Archive Servers Supported**

A Dalet system will support multiple XenData archives attached to the Dalet network. Each archive server is connected to a logical tape library; the logical tape libraries may be partitions of one physical library or may be independent physical units.

Multiple XenData archive servers can be used to scale total throughput. It can also be used for redundancy as the Dalet system may be configured to replicate files, sending duplicate files to different archives.

### **Partial Restore**

Dalet supports partial restores from a XenData archive for archived essence files and Quicktime reference files. The current version of Dalet software (version 3) does not support partial restores from container files such as MXF, but this will likely be added in future versions.

The file size threshold for the usefulness of partial restores keeps getting higher as the performance of restores from data tape advances with each new generation of LTO: there is little to be gained for file sizes less than 10 GB with LTO-5, the latest generation, which restores files from tape at over 1 Gbit/s.

A Dalet system provides more efficient workflows when editing material from the archive whether partial restore is used or not. The Dalet system may be configured to restore the applicable high resolution files from archive as soon as a low resolution proxy is selected for editing and adding to a timeline. The editing and review process is typically longer than the time taken to restore files from archive which means there is no delay in building high resolution content, unlike conventional workflows.

## **3. XenData Functionality**

Digital video archives running XenData X64 Edition software provide the following functionality.

**Standard File Interface** - The digital archive accepts all file types and presents them in a single Windows file system. Files are written to and retrieved from the archive as though from a standard magnetic disk drive. Windows and Apple OS X clients are natively supported without the need for loading any client software.

**Multi-Purpose** – The digital archive can be used with a Dalet system and simultaneously with other applications. For example, a pool of LTO tapes can be mapped to one network share that is used by Dalet and another pool of LTO tapes can be mapped to another share which is used for Final Cut Pro archives or P2 files.

**Standard Network Protocols** - The solution is optimized for CIFS/SMB and FTP file transfers. (CIFS/SMB is used for the interface to Dalet.)

**Standard POSIX tar Tape Format** - The archived files are written to 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.

**Industry Standard File Security** - The file server integrates fully with the Microsoft Windows security model based on Active Directory.

**Partial Read of Large Files** - 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. XenData software supports partial reading of large files based on byte offset. When combined with a Dalet system, the total solution provides partial restores based on time code.

**Self-Describing Data Tapes** - Each tape cartridge contains all the file system metadata necessary to recover all the files stored on it whether using XenData software, Microsoft Services for Unix, Linux or UNIX operating system commands.

**Tape Replication** - The software automatically generates replica data tape cartridges that may be exported from the library for off-site retention. Furthermore the tapes may be rapidly imported into a replica DR system.

**Supports Tape Cartridge Spanning** - The Administrator defined policies can be set to allow or prevent files being spanned across multiple tape cartridges. This option is particularly useful when very large files are being archived.

**Multiple Tape Pool Support** - The software allows groups of file 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.

**Dynamic Expansion of Tape Sets** - The system will dynamically expand tape sets to meet capacity demands, minimizing system administration.

**Optimized 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.

**Repack of Tapes** - This copies only current files, excluding deleted files and old versions of files, to new tapes. Benefits: permits recovery of capacity from rewritable tapes.

**Transfer of Content between Systems** - Export and import functions allow LTO tapes to be easily transferred from one location to another. There is compatibility between the SX Archive Servers and systems running XenData6 Workstation, including X1500 and X800 archives.

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

**Tape Contents Reports** - The files contained on any tape, including offline tapes, can be listed in a report which may be exported to Excel.

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

## 4. List of Dalet Installations with XenData Archive

Dalet installations with a XenData archive include the following.

User	Location	Installed	LTO Hardware
AMV	New York, NY, USA	Feb-2010	Standalone
ARTEAR	Buenos Aires, Argentina	Dec-2010	IBM TS3500 LTO Library
BBC Arabic Channel	London, UK	Jun-2007	Qualstar TLS LTO Library
BBC Persian Channel	London, UK	May-2008	Qualstar TLS LTO Library
Canal del Fútbol	Santiago, Chile	Nov-2010	StorageTek SL3000 LTO Library
Canal del Fútbol	Santiago, Chile	Nov-2010	StorageTek SL500 LTO Library
DAMSmart	Canberra, Australia	Jun-2010	IBM TS3310 LTO library
ERT	Athens, Greece	Jul-2006	IBM TS3500 LTO Library
ETV	Cape Town, S Africa	Nov-2007	Qualstar TLS LTO Library
ETV	Johannesburg, S Africa	Dec-2007	Qualstar TLS LTO Library
Metropolitan Opera	New York, NY, USA	Jul-2008	Qualstar RLS LTO Library
S4C	Cardiff, UK	Dec-2007	Qualstar TLS LTO Library
S4C	Cardiff, UK	Dec-2007	Qualstar RLS LTO Library
Time Warner Cable News 14	Charlotte, NC	Apr-2009	Qualstar RLS LTO Library
Time Warner Cable NYY	Buffalo, NY	Feb-2009	Qualstar RLS LTO Library
TMZ (Warner Bros)	Los Angeles, CA, USA	Jul-2007	HP MSL6000 LTO Library
tvOne	Jakarta, Indonesia	Nov-2007	Qualstar RLS LTO Library
WBNS (Dispatch Group)	Cleveland, OH, USA	Aug-2005	Sony PetaSite

## 5. XenData Contact Information

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