Digital Archiving for the Media and Entertainment Industry

Today’s news and broadcast industry is a fast-paced, highly competitive environment, where 24/7 news reporting, the race to be first to uncover and air breaking news, and the ongoing chase for higher ratings are driving broadcast producers to embrace new technology and new methods to speed workflows and stay ahead of the competition.

Meeting Growing Requirements for Media Archiving While Keeping Costs Down

The importance of media asset archiving is rising as the media and entertainment industry continues its digital transformation. Digital storage is a key element enabling that transformation. In its report, “2012 Digital Storage for Media and Entertainment,” analyst firm Coughlin Associates predicts the media and entertainment sector will consume $7.8 billion of digital storage infrastructure by 2017, representing more than 80 exabytes of digital storage capacity. Within media and entertainment, demand for storage capacity is being driven by preservation and archiving with content distribution, followed by acquisition and post-production workflows.

Editors, directors, and producers need to be able to find, preview, edit, and format digital content from their desktops. The days when they searched manually through large collections of videotapes in the archive room, then previewed content before marching off to the editing and production room, are quickly becoming a thing of the past. Digitization and archiving of media assets with a modern media asset management (MAM) system are enabling media and broadcast outlets to manage large repositories of media assets and quickly search and retrieve relevant content for programming, followed by acquisition and post-production workflows.

However, deploying and ramping up MAM systems can be a challenge for media and broadcast outlets with limited IT staff and knowledge. In particular, understanding the underlying digital storage infrastructure and how it impacts the overall value of the MAM solution is not typically well understood.

The question is how to meet the digital storage and archiving requirements of the solution while keeping the overall cost of the infrastructure low and reducing the risk of corruption or loss of the media assets. And, the storage infrastructure must support these objectives without compromising ingest performance, access, or delivery capabilities.

The answer is tape storage that is linear tape file system (LTFS) enabled and combined tape and disk tiered storage solutions. Implementing LTFS-enabled tape storage or an HSM-enabled tiered storage infrastructure, consisting of both disk and tape and integrated with a MAM solution, provides a high-performance and highly efficient archive architecture for digital production environments. Tiered storage and tape-only architectures are designed to maximize the value of digital media and media archives by improving access to media assets while simultaneously reducing storage costs.

Key Advantages of Oracle’s Tiered Storage Solutions

- Nearly 3x lower total cost of ownership (TCO) than competitor’s “disk only” solutions and 70 percent lower acquisition cost
- Improved storage efficiency for digital media archives with automated, policy-based data placement, and migration across storage tiers
- Massive scalability for both capacity and performance
- Reduced risk with Oracle Optimized Solutions through pretested and pretuned configurations
Addressing Digital Media Workflow and Archiving Challenges with LTFS

LTFS is a significant step forward in moving tape storage away from its reputation as complex and difficult to use. LTFS allows customers to capitalize on the advantages of tape, including the low $/TB and low TCO of tape storage without the perceived management challenges, complexities, and time-consuming constraints of legacy tape operations. LTFS provides an open source specification for a self-describing file system on a tape cartridge that provides a wide variety of applications direct access to tape storage. LTFS changes the game for tape storage by allowing tape to be used as a NAS-like storage device and has the potential to open up significant new use cases for tape storage. The self-describing, NAS-like file structure can be accessed directly by the OS, so that accessing and managing files on tape is similar to how these tasks are done on disk and flash storage devices such as NAS filers and thumb drives. LTFS allows users to drag and drop files between tape cartridges and tape libraries and between tape storage and disk storage devices without using specialized and expensive tape backup software.

How Does LTFS Enable the Media Asset Management (MAM) Workflow?

LTFS supports LTO 5 and LTO 6 tape technology generations, as well as Oracle's StorageTek T10000C ultra high-capacity enterprise tape drive. LTFS enables LTO tape media to be mounted and read directly by the operating system, essentially turning an LTO 6 tape cartridge into a 2.5 TB (6.25 TB with 2.5:1 compression) thumb drive. When used with Oracle’s StorageTek T10000C tape drive, LTFS turns a tape cartridge into a 5 TB (10 TB with 2:1 compression) thumb drive. In short, LTFS provides a platform for easier interchange and portability of media across a variety of broadcast and production applications. Most MAM providers now support LTFS, and its adoption is going to be significant across the broadcast industry.

Basic Architecture - Entry Level Digital Broadcast Solution

StorageTek tape storage solutions support LTFS.
The Value of Tiered Storage for Digital Media Archiving

Tiered storage refers to an archive storage environment in which digital content or media files can be stored on different types of storage media—such as performance disk, capacity optimized disk, and long-term tape—and moved automatically between those different platforms to optimize for cost, performance, access, and protection requirements (see Figure 2). Tiered storage has caught on for digital media archiving because it can deliver the following benefits:

- Reduced infrastructure cost by balancing cost considerations with performance and capacity needs, leading to reduced acquisition costs and improved total cost of ownership (TCO) of the storage infrastructure for digital media archiving
- Reduced operational cost by reducing manual intervention via automated, policy-based content placement and migration across digital storage tiers
- Investment protection via highly scalable architecture across both capacity (hours of digital content) and performance (streaming rate of digital content)
- Risk reduction via Oracle Optimized Solutions with pretested, optimized hardware and software components

Tiered storage can increase efficiency, boost performance, and streamline media archives.

Oracle, a leading provider of both disk and tape storage solutions—and the #1 enterprise database, middleware, and application vendor—has tiered storage solutions for digital media archiving that are deployed in large broadcast and media outlet operations. Oracle’s tiered storage solutions offer the ability to scale both the capacity and performance of media archives, while minimizing the cost per minute or per hour of digital content stored.
How Can The Long Term Integrity Of Media Files In The Archive Be Ensured?

Oracle’s disk and tape solutions have built-in data integrity validation to ensure that the media assets sent from the MAM/archive or HSM server are properly recorded to the storage medium. Periodic validation checks can be performed over the lifetime of the media assets to ensure they remain uncorrupted. Additionally, Oracle’s StorageTek Tape Analytics software can proactively monitor the health of the tape libraries, tape drives, and tape media for the life of the digital archive.

What Happens If The Original MAM/Archive or HSM Application Becomes Obsolete?

Traditional backup and archive management applications store digital files in proprietary formats. This means the application is required to retrieve the data. Modern MAM/archive and HSM applications, including Oracle’s StorageTek Storage Archive Manager, store digital media files on tape in an open format so that data is always available with or without the application being available. By storing data in an open format, such as LTFS (or TAR), users can be assured that they can always access that data, even without the application that stored it.

What About Hardware Lifecycles?

It is inevitable that digital storage hardware will eventually reach end of life (EOL), and the media assets stored on them must be migrated to the latest technology. While tape storage can help ease this pain by having the longest of all lifecycles, users need a seamless way to initiate media migrations. Modern HSM applications, such as Oracle’s StorageTek Storage Archive Manager, have sophisticated file migration capabilities that enable the migration of digital files from existing technology to new platforms.

StorageTek Tape Storage in the Broadcast, Media, and Entertainment Industry

Oracle’s StorageTek tape storage is deployed widely in the broadcast, media, and entertainment sector, and StorageTek tape storage is supported behind most modern MAM, production, playout, and digital archiving solutions in use by broadcast and media outlets. In addition, LTFS is a key technology behind the digital transformation of the broadcast, media, and entertainment industries, and Oracle is the co-chair of the Storage Networking Industry Association’s (SNIA) working committee chartered with developing the LTFS specification. As the importance of media asset archiving grows for both preservation and reuse, the scale of individual archives will continue to grow. To meet these needs, Oracle has highly scalable, secure, and reliable digital storage products and is committed to meeting the needs of any size content library, from the smallest to the world’s largest media archives.

CONTACT US

For more information about Oracle’s tiered storage solutions for data archiving, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.