



**ACTIVE** Archive

## CHALLENGE:

When MLB Network launched on January 1, 2009, the production team needed an IT infrastructure capable of capturing and preserving high-definition video content for use in producing television programming.

## SOLUTION:

Tape-based active archive consisting of:

- Oracle SL8500 Tape Library
- 1,500 slots in the Tape Library, expanded to 3,000 in 2010
- LTO-4 Fujifilm Tape Media – Currently consuming over 8,000 tapes per year
- Front Porch DIVArchive management software
- Fujifilm Tape Environment Analysis (TEA) and Archive Verification Service (AVS)
- Grass Valley video server system

## RESULTS/BENEFITS:

- Significant operational savings compared to videotape workflows
- Highly optimized tape systems capable of handling 400 to 500 hours of daily HD content and consuming 25 to 30 TBs of LTO-4 tape storage daily
- High availability, partial file restore of video content, reliability

# CASE STUDY

## MLB Network

Major League Baseball's 24/7 Cable TV Network

# MLB Network Hits Home Run with Active Archive

In 2013, MLB Network recorded over 2,500 games, with as many as five different video feeds per game. MLB Network show content was also recorded and catalogued. All of this content translated into over 6.5 petabytes of stored content. In 2014, MLB Network recorded as many as seven different video feeds per game, and exceeded 2013's storage consumption.

Starting with the 2009 season, MLB Network needed every pitch of every game played to be captured and catalogued, enabling the advanced tagging of events along with other descriptive data, such as the camera angle. MLB Network, along with other MLB partners, undertook the internal development of a custom logging system, referred to as the DIAMOND System. Today, DIAMOND is utilized to capture and catalog more than 500

hours of live video content per day. This generates petabytes of information annually. Additionally, Major League Baseball looked to utilize the same IT infrastructure to digitize a vast historical videotape library representing the history of baseball, as well as capturing and logging all MLB Network original programming content.

### The main objectives at the outset were to:

1. Within six months, design and implement a data storage network capable of recording, archiving and managing live, high-definition content.
2. Devise a flexible infrastructure that could support the migration and archive of historic video footage from legacy videotape technology to a digital format.

"Our goal was to archive the game of baseball, preserve it, and mine that information in order to produce compelling programming," said Tab Butler, director of media management at MLB Network. "We needed a solution that could help us meet our high-volume data storage needs while at the same time provide us with quick, easy access to the data when we needed it."

To meet the requirements of the real-time HD content and historical digital archiving projects, the team designed and deployed an active archive system to support both goals on one common platform — an Oracle SL8500 LTO-4



# CASE STUDY Active Archive Alliance

tape library with Front Porch DIVArchive management software, which ties into a Grass Valley video server system. For MLB Network's storage needs, they established a three-SAN system — utilizing two, 70TB high-performance disk arrays to record content, and a half-petabyte SATA near-line disk drive storage system as a temporary “parking lot” for project work and game highlights.

To maximize the IT network's performance and to ensure the integrity of the recorded data in the archive, MLB Network selected Fujifilm to implement a tape monitoring solution leveraging its Tape Environment Analysis (TEA) and Archive Verification Service (AVS), both of which are powered by the Crossroads ReadVerify Appliance (RVA).

MLB Network has standardized on Fujifilm LTO tape stock. With its live game captures, studio production recordings, and the massive archiving project, MLB expects to consume more than 8,000 LTO tapes each year for the next 5 years.

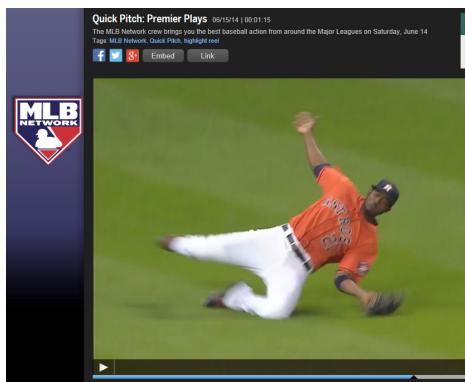
MLB Network has adopted a high-availability model for protecting its archive materials. The content written to the LTO data tape is recorded onto two or more LTO tape cartridges. One LTO copy is stored off-site at a disaster recovery facility, while other LTO copies of the content are stored on-site at the MLB Network facility for daily use.

## Efficient Storage and Quick Access to Content

In this new digital environment, MLB Network can quickly move content, log it, store it, and retrieve it for video highlights and producing television shows.

As an example of these capabilities, MLB Network is able to search an archived 4-hour game recording, select only the footage they want to use, and perform a Partial File Restore within a few minutes, enabling the video editor high speed access to only the content they need, providing a more streamlined, and efficient use of the archive storage.

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From MLB Network's Quick Pitch: Premier Plays recap videos

In addition, MLB Network has the ability to create complex searches within DIAMOND and mine and retrieve this information quickly. They can request content from the library and have it within 2 to 3 minutes for on-site content and within an hour for the deepest off-site archives. The active archive environment enables these accelerated data access times, which previously would have taken hours or days.

## Cost Avoidance

By implementing a tape-based archive, MLB Network was able to deploy a lower cost alternative than a disk-based archive. The active tape archive easily accommodates MLB Network's large-scale data growth by migrating infrequently accessed data to the most economical storage. The data stored in the active archive is proactively moved between storage platforms to meet storage requirements

set by the archive software's policies. This policy-driven data approach optimizes the active archive's tiered storage platform, and delivers cost savings while also enabling MLB Network to quickly access the data when needed.

From an environmental standpoint, storing data on tape utilizes far less energy than storing data on spinning disks that are constantly consuming power and generating heat. This results in a significant increase in energy savings over disk-based solutions. Additionally, the cost per terabyte of tape storage is significantly less than spinning disk storage.

“We consume tape very rapidly. An active archive provides an ideal way for us to effectively and efficiently cost manage the tremendous volume of content that is recorded and produced,” said Butler. “We could not do all of this on spinning disk, for it would be exorbitantly expensive. With tape, we get high reliability, efficiency and data integrity at a much lower cost.”

## Accommodating Future Growth

Today, MLB Network records over 5,200 hours of content per week, and its yearly consumption of tape has grown by 25-30% per year for the last four years. There are currently over 24,000 tapes in the library, which is equivalent to 19.2 petabytes of content.

MLB Network is looking to expand its active archive in the future with both LTO and an enterprise-class environment. They are planning for a much larger library and will migrate from LTO-4 to the latest generation tape format for daily ingest, record and retrieval.

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