

FUJIFILM CASE STUDY

MLB Network / Major League Baseball Productions

Archiving America's Pastime

Major League Baseball Turns to Fujifilm to Ensure the Integrity of its Large-Scale, HD-Video Capture and Archiving Project

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— Tab Butler, Director of Media Management, at MLB Network

MLB Network needed an IT infrastructure capable of capturing and preserving a high-definition video archive of over 300-400 hours of live video content on a daily basis — generating petabytes of information annually. Additionally, Major League Baseball Productions looked to utilize the same IT infrastructure to digitize a vast video tape library representing the history of baseball.

Digitizing the American Pastime

When it comes to media backup and archiving, few organizations have the combined content volume of Major League Baseball Productions (MLBP) and MLB Network (MLBN).

In 2010, MLBP and MLBN will record roughly 2,500 games (with as many as five different versions per game), which translates to 8 to 9.5 petabytes of content.

In addition to the live content, MLBP has an existing video tape library containing more than 150,000 hours of footage — the audio-visual history of baseball. Elizabeth Scott, VP of Programming and Business Affairs at MLB Productions, oversees the business and asset management strategy of this library, and her team is spearheading the digitalization of this content, which will result in an additional 100 hours of content per day being captured and archived.

Although the sheer volume of content and media may seem insurmountable to some, this is the reality for Tab Butler, Director of Media Management, at MLB Network. In mid-2008, the team at MLB Network was tasked with two monumental feats:

1. Design and implement a network capable of recording, archiving and managing live, high-definition content within six months
2. Devise a flexible infrastructure that could also support MLBP's migration and archive of its historic video footage from legacy videotape technology to a digital format

"In addition to accessing the history of the game, MLB Network needed immediate access to new baseball content for its highlight and live programming. If someone hits a home run 30



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Secaucus, NJ
www.mlbnetwork.com
www.mlbpproductions.com

INDUSTRY

- Entertainment and Sports

IT PROFILE

- Storage Tek 8500 Tape Library
- (15) LTO-4 Tape Drives
- Front Porch DIVArchive management software

BENEFITS ACHIEVED

- Highly optimized tape systems capable of handling 300-400hrs. of daily HD content
- \$20,000 annual savings in equipment maintenance and management
- Fully verified and auditable archives

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seconds ago, one minute from now it needs to be accessible and edited for on-air highlights,” says Butler.

“If that run breaks a 20 year record, the relevant archive imagery may be sought after immediately to enhance the telling of that story. To do this, we needed a system that would provide access to both archived and “live” recorded footage in an HD digital file based format,” says Scott.

MLBN and MLBP concluded that the only way to meet the demand and ensure the footage was properly captured and archived was to utilize new technologies that would provide greater visibility across the IT network — helping maximize system performance, while protecting the integrity of the video data. Furthermore, an undertaking on this scale would require a massive ramp-up of personnel to accommodate the various tasks.

Capability and Visibility

To meet the requirements of this real-time HD content and MLBP’s historic digital archiving project, Butler designed and deployed a system to support both projects on one common platform — a Storage Tek SL8500 LTO-4 tape library with the Front Porch DIVArchive management software, which ties into a Grass Valley video server system. For MLBN’s storage needs, Butler established a three-SAN system — utilizing two, 50TB high-performance disc 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.

However, having a system capable of handling the data volume was only the beginning. It was clear the network would need additional resources — both in terms of technology and personnel — to accomplish the project objectives. As MLBN expanded, Butler’s team continued looking for tools to help identify trends.

To maximize the IT network’s performance and ensure the integrity of the recorded data in the archive, Butler and Scott turned to 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).

They selected the RVA to proactively validate the integrity of tape backup systems and provide a simple, real-time way to monitor, track and report on performance, utilization and the health of tape devices and media. The RVA reporting capability has become a key tool for sharing performance matrixes with hardware and software providers, enabling the tuning of the performance of each component within the library system.

In conjunction with the RVA, Fujifilm AVS enables the team to easily verify the health of individual tapes — reducing the risk of tape degradation — as well as validating the quality and integrity of each video recording, ensuring the ability to retrieve the data being archived.

Most importantly, Butler relies on Fujifilm and the quarterly TEA reports to provide insight into the true health, performance and utilization of his tape library system without placing increased pressure on IT resources.

Meeting Demand and Ensuring Performance

Within six months of beginning the project, Butler had implemented a three-pronged approach to meeting the high data volume demands of MLBN and MLBP. With TEA, AVS and RVA in his arsenal, he is now capable of handling the 300-400 hours of daily HD content generated within the network.

Both MLBN and MLBP have standardized on the Fujifilm LTO tape stock. Including the live game captures, the studio production recordings, along with Scott’s massive archiving project, MLB expects to consume more than 8,000 LTO tapes annually for the next 5 years.

Fujifilm’s TEA reports provide the depth of information that enables Butler to reduce the risk of data loss and lower backup and archive costs by ensuring that the data written to tape is good, recoverable, and consistently transferred.

Both MLBN and MLBP have adopted a high-availability model for protecting the archive materials. The content

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written to the LTO data tape is recorded onto two or more LTO tape cartridges. One LTO copy will be stored off-site at a disaster recovery facility, while other LTO copies of the content are stored on-site at the MLB facility for daily use.

Fujifilm's RVA reports provide the data verification that allow Scott to test and track MLB's off-site redundant archive ensuring data integrity prior to LTO cassettes being shipped into deep storage. Periodic sampling of LTO tapes from archive, using the RVA for comparing the results with the original RVA reports, offers visibility into potentially degrading storage conditions, which enables Scott to conduct proactive validation of the archive.

Additionally, Butler utilizes these reports to analyze performance trends, while performing corrective and cost-saving maintenance on suspect devices before issues occur. In fact, a single TEA report sent to Butler — representing one month of monitoring the system — included recommendations that would lead to an annual recurring savings of more than \$20,000 in library expenses.

"I rely heavily on RVA for its ability to monitor system performance, as well as identify my capacities," says Butler. "RVA makes it very easy to project how I can distribute the load and grow my library — with the tools to manage and operate the system effectively."

Plus, AVS automatically initiates verification procedures at the drive level and analyzes the entire written length of tape media, offering Butler peace of mind in his ability to recover data. "When I need to perform a partial file restore from a game, and bring the content back, I feel confident I can do so," he says.

"I'm focusing on many areas throughout the broadcast chain. To do that, I need to enlist the subject matter experts to come in and say, 'You got it. It's working well,' or, 'Try and tune it this way,' because this is a very complex machine," says Butler. "I want the Fujifilm team looking over my shoulder for best practices. I need that expertise."

Ready for the Future

MLB Network launched its new infrastructure in record time — reaching approximately 50 million homes when it debuted on January 1st, 2009. It was the largest network launch in cable television history.

MLB Network and MLB Productions new HD-format infrastructure went live on January 1, 2009. MLB Network now airs live games, original programming, highlights, classic games and coverage of baseball events — and is easily meeting the real-time content demand, while MLB leverages the same infrastructure to seamlessly chip away at the 5-year video archiving project.

In addition, the data monitoring and validation capabilities realized through the Fujifilm solutions offer visibility across the entire tape environment. The combined applications enable Scott and Butler to analyze the systems and make plans to accommodate peak demand periods (such as the World Series), ensure the content being captured is readable and ready for archiving and — as an added bonus — plan for future expansion.

"I can use the solution to assess our growth potential and requirements, and generate reports that support our requests for the capital needed to meet future demands," says Butler. Most importantly, the Fujifilm solutions offer Scott and Butler the assurance that their data is recoverable and the system is operating as efficiently as possible, while achieving maximum performance.

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