

## FOX Broadcasting: Making room for HD with an IBM digital archive solution

### Overview

#### ■ The Need

To meet the increased data handling demands of high definition television (HDTV), FOX Broadcasting Company (FOX) needed to increase storage dramatically and improve its archive and retrieval capabilities while lowering costs.

#### ■ The Solution

FOX teamed with IBM to create a first-of-its-kind, direct-to-digital storage solution for HD video that eliminates the need for costly videotape recorders and media. The solution not only saves FOX considerable amounts of money and physical space, it also offers a much more efficient way to handle video. This makes it possible to locate and retrieve clips quickly and also enhances FOX's ability to distribute programming.

#### ■ Key Benefits

- More than 70 percent reduction in cost of storage media
- Makes archived HD content available on demand
- Positions FOX for HD industry leadership



#### The coming needs of digital broadcasting

The global broadcast industry is in a state of dramatic transformation. With the adoption of HDTV, technology is undergoing significant changes and consumers and broadcasters alike are facing the need to invest in new equipment.

A key challenge in the industry is the archiving of HD content, which can be very expensive. Existing archive solutions often rely on physical storage and retrieval of videotape, an inefficient manual process. In addition, the storage demands of HD digital content are significantly greater than those of existing video formats. Current systems will soon be overwhelmed by the volume of data as the world goes HD.

*“IBM appealed to us because of its unique ability to take systems that aren’t necessarily intended for a particular, specialized application – broadcasting in this case – and work with us to develop them so that they meet all of our needs.”*

– Andrew G. Setos, President of Engineering, FOX Group

## Handling the demands of HDTV with a first-of-a-kind digital archive solution

### Business Benefits

- Reduces cost of storage media by over 70 percent and eliminates the need for HD videotape recorders, which cost between US\$50,000-\$75,000 each
- Achieves ROI in only six months
- Positions FOX for HD industry leadership by anticipating future expansion and growth in demand for HDTV
- Incorporates metadata and a “dashboard” view of system status to facilitate management and retrieval of video clips
- Makes archived, standards-compliant HD content available on demand for repurposing and further distribution
- Enables copying of video to any form of media – hard drive, digital data tape, DVD, videotape
- Provides dramatic reduction in the need for physical space

*“Not only can we access any particular program file quickly, but also, once we’ve located the file, it can be spooled out over a network to another functional area such as an editing room very rapidly.”*

– Andrew G. Setos

The way forward is to move beyond traditional, proprietary technologies.

The focus is on digital solutions and automated archive and retrieval processes that leverage standard IT technology, while maintaining backwards compatibility with existing systems. These solutions help speed production (critical for time-sensitive and on-location, footage-intensive programming such as news and sports), vastly increase storage capacity and dramatically reduce costs.

### Charting a course

Leading industry player FOX Broadcasting Company recognized the coming challenges, and turned to IBM and IBM Business Partner Sirius Computer Solutions for a state-of-the-art digital storage and archive system to handle HD programming such as NFL football and *American Idol*.

“A key issue was storage capacity and scalability,” says Andrew G. Setos, President of Engineering, FOX Group. “High Definition takes a tremendously increased amount of space, whether you count that in bits, or volumetrically, in cubic feet. Anytime you use up more space, you’re spending real, hard dollars. The challenge for us was to make HD a sustainable operation. The problem we were trying to solve was, ‘How do we make HD fit into the space of standard definition at similar cost?’”

With HDTV’s increasing dominance, the solution was designed to handle anticipated future growth. IBM Global Business Services and IBM Software Group provided experts in video application development, storage, and Web services integration, who worked with FOX and Sirius to design the first-of-its-kind solution.

### Performance is key

Critical to the viability of the system is its performance in the face of vast quantities of data. For example, a typical NFL game requires around 115GB of storage. The solution, built around IBM TotalStorage® Ultrium digital tape technology and IBM System x® servers running Linux®, allows for denser storage and faster transfer of large volumes of information than traditional broadcast systems. The system is so fast that once recorded, a football game in HD can be archived in only 30 minutes.

Compressed, digital storage is much more efficient than conventional videotape from both a space and cost standpoint. A single digital tape cartridge that costs about US\$30 can store as much HD video as 14 conventional, broadcast-quality HD videotapes that cost US\$100 each. The system also eliminates the need for costly (US\$50,000 - \$75,000 each) HD videotape recorders as it archives directly to the digital library without the need for videotape. The solution can support 12 concurrent data streams, which further increases efficiency.

Also important is a streamlined, automated workflow that gets the data where it needs to be quickly and efficiently. "In addition to the high density and fundamentally low cost, we're also looking forward to very fast random access. Not only can we access any particular program file quickly, but also, once we've located the file, it can be spooled out over a network to another functional area such as an editing room very rapidly," Setos says.

Helping FOX engineers manage the content is a Web-based management "dashboard," built using IBM QEDWiki software. The dashboard gives the engineers a holistic view of system status at a glance, and provides a way to manage the metadata associated with each broadcast easily, as well as a browse and search capability. This, in turn, enhances FOX's ability to locate and retrieve video clips quickly. For certain kinds of programming, the speed of retrieval is very important; in professional sports, for example, game footage is treated as news for 48 hours, after which it can become the copyrighted property of the sports league and must be paid for.

A key part of the solution is the management capability provided by the software suite that runs the operation, consisting of IBM DB2®, IBM WebSphere®, IBM Tivoli® Storage Manager and integration software. Together, these components make storage and retrieval highly efficient and simplify the task of repurposing and redistributing archived content by leveraging stored content and its associated metadata.

The solution also incorporates custom components, such as a "data mover" application that enables the copying and/or transfer of large files at nearly the speed of the tape drive. Based on open standards, it can put video in any format on any desired media, including digital tape cartridges, DVDs or even conventional videotape. This helps FOX leverage its HD programming by making it possible to distribute programming in new ways—for example, through efficient, high-speed asynchronous file transfer, as opposed to the traditional method of video streaming.

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## Solution components

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### *Software*

- IBM WebSphere®
- IBM DB2®
- IBM QEDWiki
- IBM Tivoli® Storage Manager
- Red Hat Linux®
- Apache HTTP Server

### *Hardware*

- IBM System x®
- IBM TotalStorage® Ultrium UltraScalable tape library
- IBM TS3100 LTO Autochanger

### *Services*

- IBM Global Business Services
- IBM Software Group ISSD

### *IBM Business Partner*

- Sirius Computer Solutions
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## Transformation at a glance

By implementing a first-of-its-kind digital storage solution for HDTV programming, FOX Broadcasting has positioned itself as a leader in HD broadcasting. The solution, which includes a powerful management "dashboard," makes the handling of the massive HD data files far more efficient. By eliminating the need for videotape and expensive HD tape machines, it helps reduce costs dramatically. The solution also fosters business flexibility by allowing FOX to quickly find and edit video clips and export them to any format or storage medium, which enhances its ability to distribute programming to affiliates around the world.

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## Looking to the future

FOX recognizes that the decisions it makes today will have a significant impact well into the future. According to Setos, open standards such as the LTO (Linear Tape Open) format standard used by the Ultrium tape library are critical for long-term viability. "Open standards are very important to us, because we want to get to a point where we can multi-source devices in our facility. Historically, television recording devices have trended towards being proprietary. So LTO is a big step forward."

The IBM solution was appealing for other reasons as well. "We're always on the lookout for things that record ones and zeroes, because that's our currency," Setos says. "We look at them for speed, density and, ultimately, cost of ownership. When we looked at the IBM LTO library, we found that it was very competitive with traditional digital video recorders."

While the LTO standard was a major factor, it wasn't the only one. "We actually chose two things: LTO, and IBM as a partner. IBM appealed to us because of its unique ability to take systems that aren't necessarily intended for a particular, specialized application—broadcasting in this case—and work with us to develop them so that they meet all of our needs," Setos says.

The IBM solution is an important starting point for FOX, says Setos. "We see the LTO solution as a beginning step into changing the entire fabric of our high-definition digital infrastructure to go from proprietary systems, which are perhaps not well-suited to our particular needs, to flexible, open systems where we can purchase appropriate tools for specific requirements as they arise. In the long run we hope that all of our HD content will be stored on this technology."

## For more information

To learn more about how IBM can help transform your business and help you innovate, please contact your IBM representative or IBM Business Partner.

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