



## SCALABLE SUN AND STORAGETEK SOLUTIONS

# TURNER ENTERTAINMENT NETWORK

## Entertainment Giant Secures its Future by Utilizing Sun StorageTek™ Management and Digital Content Archiving Solutions

### The Customer

Turner Entertainment Network is the world's largest all-digital broadcast facility, supplying 18 channels to several different time zones in the North and South American continents. Through its Network Operations Center in Atlanta, Georgia, Turner Entertainment Network originates more than 20 networks, including Turner Broadcasting System, Inc. (TBS), TNT, Boomerang and the Cartoon Network. TBS is a major producer of news and entertainment products around the world, and it is a leading provider of programming for the basic cable industry.

### Tuning in to the big picture

Turner Entertainment Network faced high labor costs, inefficient use of infrastructure, and lack of automated, centralized digital content control. Turner's high-density videotape library equaled the space of two football fields, which caused labor-intensive, time-consuming videotape retrieval and re-filing. In addition, content assets on older videotape media were in jeopardy due to deterioration. Approximately 80,000 tapes were nearing the end of their D2 format life, and the engineering staff was tasked with finding a way to protect these valuable assets. Turner executives also considered the impact of HDTV, and other enhancements, which require at least four to five times more storage than standard format content.

Furthermore, with its existing infrastructure and processes, Turner was not equipped to pursue expansive new market opportunities. Emerging technologies have created digital content distribution opportunities in broadcast, cable, fibre to home, satellite, web feeds, and cell phones. To position itself for growth in these areas, and to adapt quickly to market and customer demands, the Turner Entertainment Network realized that its content must be easily accessible and repurposeable.



## Key Highlights

### Company:

Turner Entertainment Network

### Industry:

Broadcast

### Customer Environment:

- StorageTek™ StreamLine™ SL8500 modular library systems
- StorageTek PowderHorn® 9310 tape library
- StorageTek ACSLS™ Manager software
- StorageTek T9840C and T9940B tape drives
- Pro-Bel Asset Management
- Avalon Archive Manager
- EMC CLARiiON disk subsystems
- ADIC StorNext Filesystem
- Pinnacle Systems servers
- Pathfire Digital Media Gateway™

### Business Challenges:

- High labor costs
- Inefficient use of infrastructure
- Protection of content assets stored on aging media
- Ability to capitalize on emerging market opportunities
- Adequate storage capacity for long-term requirements

### Business Solutions:

- Automated workflow that streamlines content archival and retrieval
- Highly scalable, tiered, storage strategy using existing disk assets and StorageTek automated tape libraries and tape drives
- Preservation of at-risk content in digital format

### Business Benefits:

- Improved staff productivity
- Accelerated access to content
- Scalable growth to accommodate existing and new content
- Cost savings due to automation of manual processes
- Ability to pursue new market and growth opportunities

“There were several dedicated groups independently ingesting programming for each distribution chain,” said Clyde Smith, Senior VP of Broadcast Engineering Technology. “For each hour of programming we were putting on the air, we were spending up to 13 hours of separate ingest and quality control time. So, our choice was to move to an ingest-once, use-everywhere environment.

“We started sharing among broadcast chains, looking at commercial and promotional inventory. We found that commercial and promotional material ingested for TBS, for example, was 70 percent of what TNT used, so having a central repository massively reduced ingest time across the broadcast networks.

“By increasing the amount of storage, we were able to hold all promotional and commercial content for its entire life, so we could ingest once and use it as many times as we wanted across all the networks. Then, we did the same for programming, repurposing it for other distribution outlets. For example, the Cartoon Network tape library is used for on-air, video-on-demand, and Verizon™ wireless cell phone distribution.”

### Creating the new workflow

“If you can’t measure it, you can’t manage it,” Smith said. “Plan to have the resources you need to do the analysis of the work flow and media usage. Apply metrics to your current workflow and to the changed workflow in the new environment. Study those metrics for changes in the media usage patterns so you can better manage the environment to suit the needs.”

To solve infrastructure challenges and position the company to boost revenues, Turner Entertainment Network engineering managers decided to create a new origination workflow — the broadcast inventory management (BIM) architecture. A BIM would allow Turner Entertainment Network to streamline the archival and retrieval process for getting content to air, protect its content assets, enable it to originate new networks quickly, and achieve significant cost savings.

A fundamental building block of this solution was a robotic tape library system for efficient long-term archiving of content. After a stringent request-for-proposal process, Turner Entertainment Network selected StorageTek to deliver its state-of-the-art automated modular library system.

### Proving the concept

The implementation focused on the conversion of Turner’s Boomerang and Cartoon Network animation program libraries, made up of approximately 5000 hours of videotape-based material. Following the successful completion of this project, Turner Entertainment Network deployed a full-scale content library system.

StorageTek StreamLine SL8500 modular library systems are used to store new content in addition to the company’s existing 225,000 hours of video content, which require conversion to digital tape format. For the Atlanta site, the company purchased two libraries to meet objectives for redundancy and content protection.

“We just took delivery on our 7th SL8500 in Buenos Aires,” said Smith. “We’re using it as a working program library, and for long-term retention of the operating program library.”

“The success of the project is due in large part to close partnering throughout the planning, implementation and ongoing support of the system with all of the vendors required to put the solution together.”

### Clyde Smith

Sr. VP of Broadcast Engineering Technology  
Turner Entertainment Network

SL8500 library systems reside in Turner’s three global broadcast facilities in Atlanta, Georgia; London, England; and Buenos Aires, Argentina. The Atlanta and London facilities use T9940B high-capacity tape drives, and the Buenos Aires facility uses T9840C fast-access tape drives in addition to T9940B tape drives. The Sun StorageTek library systems and drives deliver the reliability, speed, and capacity required by Turner’s demanding operational pace.

### Speeding content to air

“We worked in an environment where the log for programming came out the night before and we’d work all night long to create and queue programs for the next day,” explained Smith. “To work farther ahead, we created tiered layers of data storage architecture, with different performance characteristics for the specific media types we’re storing.

“With content condensed in a tiered architecture and ultimately housed in automated tape library systems, we reduced the overall footprint, increased the speed of getting content to air, and provided a centralized, automated location from which all network control rooms could draw content.”

Previously, each Turner network staged its content to air separately. For example, if a commercial came in to the facility and had to be aired on multiple networks, it would have to be dubbed for each network and ingested separately into each network’s on-air servers. Centralized storage of content allowed Turner’s new “pods” of control rooms to draw from the same pool of content, reducing the overall ingest and retrieval process, and greatly streamlining the process of getting content to multiple networks. Because of the redundant nature of the systems, every network feed would always have access to the

content it needed, even in the event of failures along the ingest, storage, and distribution chain.

### Ingesting and storing content efficiently

Content is ingested into the broadcast inventory management architecture from videotape, satellite feeds, or Pathfire, a digital media distribution and management system. Commercials and interstitials are housed on redundant, high-performance disk arrays. DVD robotic systems serve as additional backup devices. The upcoming 96 hours of on-air content is also housed in the disk systems. Longer form material, such as selections from the Turner Classic Movie collection, is archived in redundant SL8500 library systems.

After content is ingested into the BIM, Avalon Archive Manager software automatically duplicates the content between the tape library systems or disk subsystems. When long form content is requested for air, the automation system makes a request to the Archive Manager, which pulls content from the StorageTek libraries. The content is transferred to the redundant online disk systems, then transferred by the Archive Manager, as necessary, to on-air, or other servers for play-out or editing.

Turner Entertainment Network also implemented policies to direct the content to the appropriate storage tier. At each step of the storage hierarchy, redundant systems are in place, and content is automatically duplicated to assure continued operations.

Smith explains, “The most difficult challenge you will face is creating, implementing and managing the policies related to the data and the storage environment. That’s where the greatest percentage of time was spent, the most computing power, and it’s probably the most resource-intensive for ongoing support.”

### Realizing high-definition results

The digital content broadcasting archive allows the company to operate more efficiently, preserve assets, save money, and add storage capacity seamlessly.

“The automation of broadcast inventory management has saved multiple redundant programming ingest and quality control processes that were associated with parallel encoding for 31 different network distribution channels, not counting video on demand,” Smith said.

With a digital infrastructure, the company can better meet its around-the-clock requirements for content availability and integrity. At-risk content that had been stored on deteriorating media can be preserved redundantly on digital tape. National treasures, such as Bugs Bunny cartoons and other American cartoon icons, will be preserved forever. At the same time, Turner Entertainment Network protects future revenue derived from the reuse and re-licensing of content.

With 225,000 hours of archived content and with new content being created daily, Turner Entertainment Network’s appetite for storage space is voracious. Given the scalability of the six SL8500 library systems, the company’s digital content capacity is up to 500,000+ hours at 50Mb utilizing T9940B tape drives. With the “go digital” decision, the Turner team feels much more confident about its future.

“The broadcast inventory management system has positioned Turner for a multi-media multi-channel distribution future,” said Smith. “It will also make it easier to replicate the operating program libraries to a remote disaster recovery site, or business continuation facility.”

### About Turner Broadcasting System, Inc.

Turner Broadcasting System, Inc. (TBS, Inc.), a Time Warner company, is a major producer of news and entertainment product around the world and the leading provider of programming for the basic cable industry.

TBS, Inc. also has interests in professional sports and real estate and employs more than 8,000 people worldwide. Philip I. Kent oversees TBS, Inc. as chairman and CEO.

Many are familiar with TBS, Inc.’s groundbreaking network, CNN, one of the world’s most respected and trusted sources for news and information. Since its launch more than 20 years ago, CNN’s reach has extended to 15 cable and satellite television networks; two private, place-based networks; two radio networks; 12 Web sites; CNN Mobile; and CNN Newsource, the world’s most extensively syndicated news service.

TBS, Inc. is also home to familiar entertainment networks such as TBS, TNT, Cartoon Network, and Turner Classic Movies as well as specialized networks such as Turner South and Boomerang.

TBS, Inc. is also home to The Atlanta Braves, nascar.com and pga.com.