

BET - Case Study



Overview

BET Design Goals

- *An integrated and cost-effective solution provided by one vendor that would include the archive digital tape library and cache storage and also interfaces to existing Grass Valley Profile video servers and Harris ADC automation to achieve a tapeless workflow as much as possible.*
- *An archive system to increase operational efficiencies by not having to keep re-ingesting the same material when it's needed for air at a later date.*
- *To ingest material once and then have it available for use whenever it's needed.*
- *To provide a means of preserving the rich heritage of programming built up over BET's 25-plus year history.*
- *A proxy system that would allow producers, editors, and executives to easily search for and view low-resolution copies of content on the desktop, and to create preliminary edit decision lists.*

The Masstech Solution

- *The MassStore system-an end-to-end advanced nearline, archive and media life cycle management solution for professional broadcast environments, providing from 1,000 to 100,000+ hours of nearline and archive audio/video storage with full content management and tracking.*
- *MassProxy transcode engine, for the production of frame-accurate, low bit-rate MPEG-4 or Windows Media9 (WM9) audio/video files from original high resolution MPEG2 files, and making them accessible within the network environment. BET is using WM9.*

About BET

BET, a subsidiary of Viacom, Inc. is the nation's leading television network providing quality entertainment, music, news and public affairs programming for the African-American audience.

Launched in January 25, 1980, and based in Washington, DC, the BET Network now reaches more than 80 million households according to Nielsen media research, and can be seen in the United States, Canada and the Caribbean.

BET is a dominant consumer brand in the urban marketplace with a diverse group of branded businesses: BET Digital Networks-BET Jazz, BET Gospel and BET Hip Hop; BET.com, the number one Internet portal for African Americans; and BET Event Productions.



The Masstech Solution

- *MassBrowse* virtual media metadata preparation client for viewing video and audio assets on a networked computer, making cuts-only edits, and writing and saving edit decision lists (EDLs) in file formats suitable for other programs.
- *MassMediaBox*-an end to end satellite delivery processing solution to automatically deliver to the air server the products received by satellite distribution networks as Vyvx, DG Systems, and FastChannel.

The Benefits

- Seamless integration of MassStore with OmniBus Systems automation and Omneon video servers and existing StorageTek Powderhorn archive digital tape library.
- Users need only one user interface (OmniBus) for all of their normal day-to-day operations whether automation, video server, or content management related, an aid to a more efficient workflow.
- Users can easily search and find needed files more quickly and accurately.
- When needed for engineering or administration functions, the MassStore user interface allows easy monitoring of all aspects of the archive system, down to the details of what's on each data tape, a feature that Scripps Networks didn't have before.
- The location of content in the Omneon servers and cache can also be easily tracked.
- With the new system, Scripps Networks was able to advance to industry standard MPEG-2 digital file format, ultimately replacing a more outdated file structure.

The Need for a Content Management and Archive System

In its over 25-year history, BET has built up a large repository of programming in a wide variety of formats. But with most of it warehoused in a specialty storage facility, access was anything but immediate. Two-day delays or longer were not uncommon for the material to be dubbed and delivered. The limitations of this system became glaringly apparent during the production of the 25 year anniversary show. As Milton Branch, Vice-President Broadcast Operations, recalled, "it was taxing to get material."

There were limitations on the playout side as well. The playout server held only 100 hours of material. It wasn't large enough to hold onto material that was needed in the future. Once a show aired, it got erased from the server to make room for more immediate programs. If that same show was scheduled to air, say two weeks later, it had to be re-ingested.

Needless to say, ingesting was an all-consuming task, for the tape library staff as well as those responsible for ingesting material.

It was quite obvious BET needed a better way, one that would help it become more efficient and

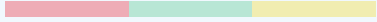
at the same time preserve its rich heritage. To that end, BET chose Masstech Group to provide a complete end-to-end nearline, archive, and content management system. As Branch said, "our goal was to get to a tapeless environment as much as possible."

One-Stop Shopping with Masstech

BET wanted an integrated solution. The company didn't want to buy portions of the system from a number of individual vendors and deal with separate license and service agreements. BET only wanted one point of contact, a company that was responsible for the entire system as a whole. BET also required a system that was cost-effective and Masstech fit the bill. The system went on-line April 2006.

Masstech provided the following:

- The MassStore system-an end-to-end advanced nearline, archive and media life cycle management solution for professional broadcast environments, providing from 1,000 to 100,000+ hours of nearline and archive audio/video storage with full content management and tracking. The MassStore system is centred on the Oracle 10g content management core.



"Before we installed the archive, it was taxing to get material. We sometimes had to dub from one-inch to digital Betacam, and some of our formats were even older. It was a process that could take a couple of days. Now with MassProxy and MassBrowse we get immediate access to material we want to re-purpose. We can see it on-line and determine if we can use it or not."

Milton Branch,
Vice-President Broadcast Operations

- StorageTek L700 digital tape library using 3 LTO3 drives for the archive, as well as interface and management.
- IBM TotalStorage DS4100 SAN with 3TB external disk storage (cache). This cache facilitates content movement between the archive storage and the on-air video servers.
- A separate IBM TotalStorage DS4100 SAN with 3TB for Proxy storage in Washington, DC. The MassStore system automatically maintains this storage so that no user intervention is required.
- Interface to the IBM TotalStorage DS4100 SAN storage arrays.
- Interface to the Harris ADC series broadcast automation system.
- Interface to three Grass Valley Profile broadcast servers (one each for ingest, on-air playout and spots/promos).
- MassProxy transcode engine, for the production of frame-accurate, low bit-rate MPEG-4 or Windows Media9 (WM9) audio/video files from original high resolution MPEG2 files, and making them accessible within the network environment. BET is using WM9.
- MassBrowse virtual media metadata preparation client for viewing video and audio assets on a networked computer, making cuts-only edits, and writing and saving edit decision lists (EDLs) in file formats suitable for other programs.

- MassMediaBox-an end to end satellite delivery processing solution to automatically deliver to the air server the products received by satellite distribution networks as Vyvx, DG Systems, and FastChannel.
- Redundant system in disaster recovery site.

Workflow

The starting point for material to be ingested depends on its origin.

BET has Avid editing facilities in its Washington, DC headquarters as well as in Los Angeles and New York. In each city's facilities is an Avid Unity.

After a piece is edited, it is dubbed to a digital Betacam and is also transcoded to MPEG-2 via Avid TransferManager. Once transcoded, Avid TransferManager is again invoked to send the file down a DS-3 fiber line to the ingest server, which is one of the Grass Valley Profiles. At that point the material is given its QC check.

Acquired programs arrive on tape to BET's Washington, DC facilities, and are QC'd and ingested via the Harris ADC ingest workstations. Content is ingested as MPEG-2 with separate AIFF audio.

In either case, upon direction from the Harris ADC VACP command to archive content, MassStore copies content from the source server to the MassStore archive system (data tape library and/or cache).

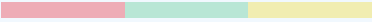
Once programs are scheduled to air, the content is then copied from the archive to the playout Profile server. To accomplish this task, the MassStore content management system and Harris ADC automation system maintain a communication dialogue through the Harris VACP interface.

Based on the traffic schedule that is sent to the Harris ADC automation system, the Harris system makes requests to access program content to MassStore, and MassStore automatically locates and moves content from library or cache storage to the playout video server as required. The Masstech cache storage is used to buffer content being moved from or toward the tape library.

At BET, the MassStore system is normally operated in an "active" mode where MassStore initiates content movements to archive and the Harris ADC automation initiates movement to the video server when required for playback.

The MassStore system monitors all content in the Profile servers, cache, and data tape library, and maintains an accurate inventory of everything on all those devices.

BET plans on archiving all BET shows, as well as some purchased programming, and also commercials and promos.



“We wanted an end-to-end solution, where we would only have to talk to one person. And we wanted a cost-effective solution. Masstech provided both.”

**Milton Branch,
Vice-President Broadcast Operations**

MassProxy and MassBrowse-Collaboration Tools

As content is copied to the cache, a low-resolution proxy is made via the MassProxy transcode engine and is stored in a separate IBM TotalStorage DS4100 SAN disk storage array. The proxy asset is created directly from the original MPEG-2 data stream ensuring the frame accurate synchronization between the two files.

Then with MassBrowse, an authorized user can search the database, see what material is in the archive, and call up clips for viewing on the desktop. No special client software is required, only a standard Internet browser. The MassBrowse client provides a user-friendly interface with full metadata support and an advanced hardware jog/shuttle panel for editor control.

Instead of a long drawn-out process to obtain tapes from the physical tape library or off-site storage, producers anywhere now have quick access to material that they may be able to re-purpose. No more looking for tapes in the library, no more dealing with missing or mis-filed tapes, no more looking through 20 tapes only to find segments of interest in two of them.

MassStore will also allow BET to streamline their entire tape library system that is now spread across three locations. Editors and producers in the three cities will now have faster access to material. Ultimately, tapes will no longer have to be couriered from one location to another, saving time and the expense of tape stock, duplicating, and express delivery. Furthermore with MassProxy, executive management can easily screen programming at their desktop. In the future BET.com is expected to take advantage of MassBrowse for selecting footage to put on the web site.

MassMediaBox (MMB) Simplifies Workflow for Satellite and Terrestrial File Delivery Systems

A major timesaver for BET is the acquisition of spots via content delivery services as Vyvx, DG Systems, and FastChannel.

However, there was a downside. Content is delivered in a proprietary digital format to a specialized server (one for each service), with each format different from the other and from house standard.

To use the content, BET would have to make baseband dubs (video/audio) from each content delivery box to a digital Betacam VTR, and then when required for air, ingest the material into a Profile video server. Performing all of these steps was a time consuming process, costing untold numbers of manhours that would have been more productive elsewhere, not to mention the cost of tape stock and library space to store them.

The installation of the MassMediaBox (MMB) changed all that, creating a more efficient workflow by bypassing the tape dub.

MMB is sent a dub list from BET's JDS traffic system of what assets are expected from each delivery service. MMB polls the individual servers used for content delivery for new content.

When new content comes in, the MMB compares the content ISCI code against the list of ISCI codes provided by traffic, to determine what to do with that content. (ISCI stands for Industry Standard Coding Identification, a system of coding television commercials, owned and operated by the American Association of Advertising Agencies.)

If MMB finds the listed content, it processes it according to pre-set rules. The processing steps can include:

- Applying the name or house number found in the traffic dub list.
- Copying the essence from the delivery server to cache.
- Retrieving the segment times from the delivery server and update the MMB database for use by automation or MassBrowse.
- Transcoding the content to the playout video server format.
- Copying the content to the playout delivery server.
- Creating a low resolution proxy version of the material.

From the storage location configuration, MMB "knows" what transcoder to use to convert the proprietary MPEG file format to the house MPEG-2 standard. The MMB software-based transcode engine is very efficient and very fast. It can transcode in real time or faster than real time to create a file that can be played to air or stored for later playout.

MassStore part of Disaster Recovery Solution

MassStore will play a major role in BET's disaster recovery solution when a system identical to that in Washington, DC is installed at a remote location.

Both facilities will be connected via a DS-3 line and the MassStore databases will keep track of content in both facilities.

Rules will be established for ingest so that copies of content is sent to both archives.

Disaster recovery is expected to work on a number of levels. As one example, a user in Washington will be able to search both systems for content. Should material be lost or damaged in Washington, it could be retrieved from the remote location. If a larger disaster occurs preventing transmission from the Washington facility, then the remote site can take over. Traffic logs are replicated in BET's office in Chicago, and they can be sent to the remote site from there, while editing facilities in Los Angeles and New York can continue to provide content, with the ingest at the remote site.

Benefits

Branch said that he was able to show benefits across multiple business units with the MassStore system.

With the system up and running, he was able to integrate what had been separate groups, QC, tape library and the technical operations center.

Material no longer has to be ingested each time it's scheduled to air. Material can now be ingested well in advance of air.

The archive will also hold BET's wealth of legacy programs.

Once content is in the archive, it becomes available not only for future air dates, but to producers and editors looking for content to re-purpose.

With the MassStore system, BET expects to streamline the entire production process, and to re-organize the tape libraries (now in three different cities).

The tape library will remain a repository for master tapes, but with less dubs required, it can greatly reduce time and effort spent in making and tracking dubs.

Through MassProxy, executive management can easily screen programs from the comfort of their office computer.

MassStore has made developing a disaster recovery plan easier since separate MassStore systems in two different cities can accept ingested material and keep track of all content on each of the systems.



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