

Turner Broadcasting - London



The Challenge

Turner Entertainment Networks International Ltd, a Time Warner Company, delivers some of the world's most successful and well-known entertainment brands, providing channels including Cartoon Network, TCM (Turner Classic Movies), Toonami and Boomerang across almost 100 countries in Europe, Africa and the Middle East. Working with UK-based systems integrator dB Broadcast Ltd, Turner sought to establish a complete automation/payout system for these channels – in a variety of configurations and feeds – at a new playout center in London's West End.

In addition to enabling internal playout and transmission of services, the new facility would enable Turner to move away from conventional tape-and-server operations and toward a completely server-based environment. As engineers focused their efforts on creating this environment, they realized that archiving capability also would be critical to the success of their tapeless workflows.

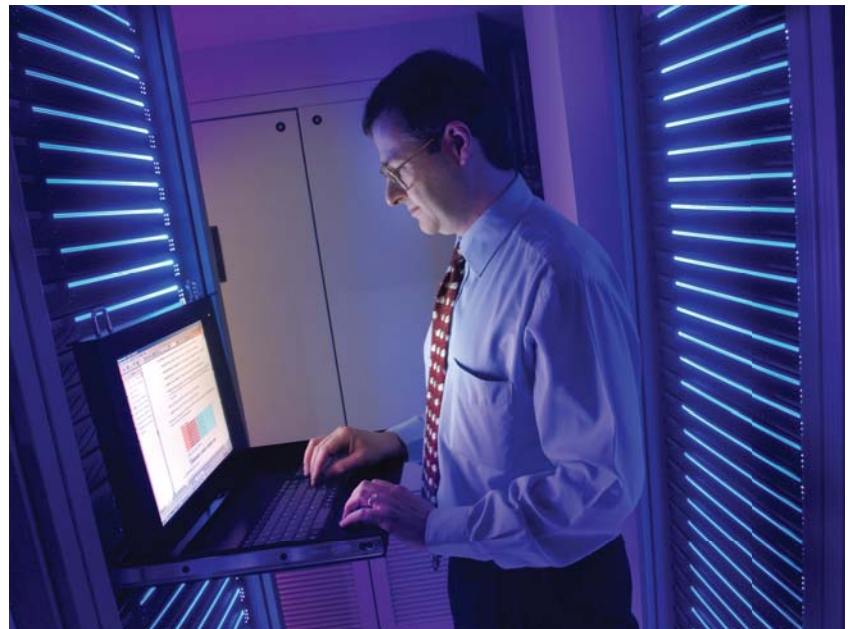
To maintain its 19 playout channels, the Turner facility moves about 300 hours of content each day. Thus, the company's challenge was to partner with leading broadcast technology providers in establishing a smooth, tightly integrated workflow, from ingest through to transmission, built around a comprehensive video storage solution that could provide easy access to media, along with scalable bandwidth and capacity, at an attractive price point.

The Solution Implemented

The shift to tapeless operations offered Turner the opportunity to explore and implement new technologies that facilitate more advanced media-handling workflows and more efficient, streamlined end-to-end operations. In this sense, the installation would be a pilot and possibly a model for Turner facilities in the rest of the world.

Within Turner's London ingest and playout facility, Omneon Spectrum MediaPort I/O modules provide high-quality MPEG-2 (long GOP and I-frame) encoding, operating in conjunction with the TransMedia Dynamics (TMD) Mediaflex management system to manage and execute the ingest and digitization. Additional MediaPorts allow operators to manually check the look and sound of video as and when required

The TMD Mediaflex system also provides metadata management for the information associated with media content. All three systems make use of the open file wrapper and metadata format as recorded on Omneon Spectrum media servers, to ensure smooth passage of digital content throughout its lifecycle – from the physical domain through to the file-based domain, without losing key associations – and across the wider digital workflow. The Omneon Spectrum media server system supports open industry standards and formats, allowing third-party applications to easily control playout, transfer files, monitor system health and modify metadata.



› SOLUTION AT A GLANCE

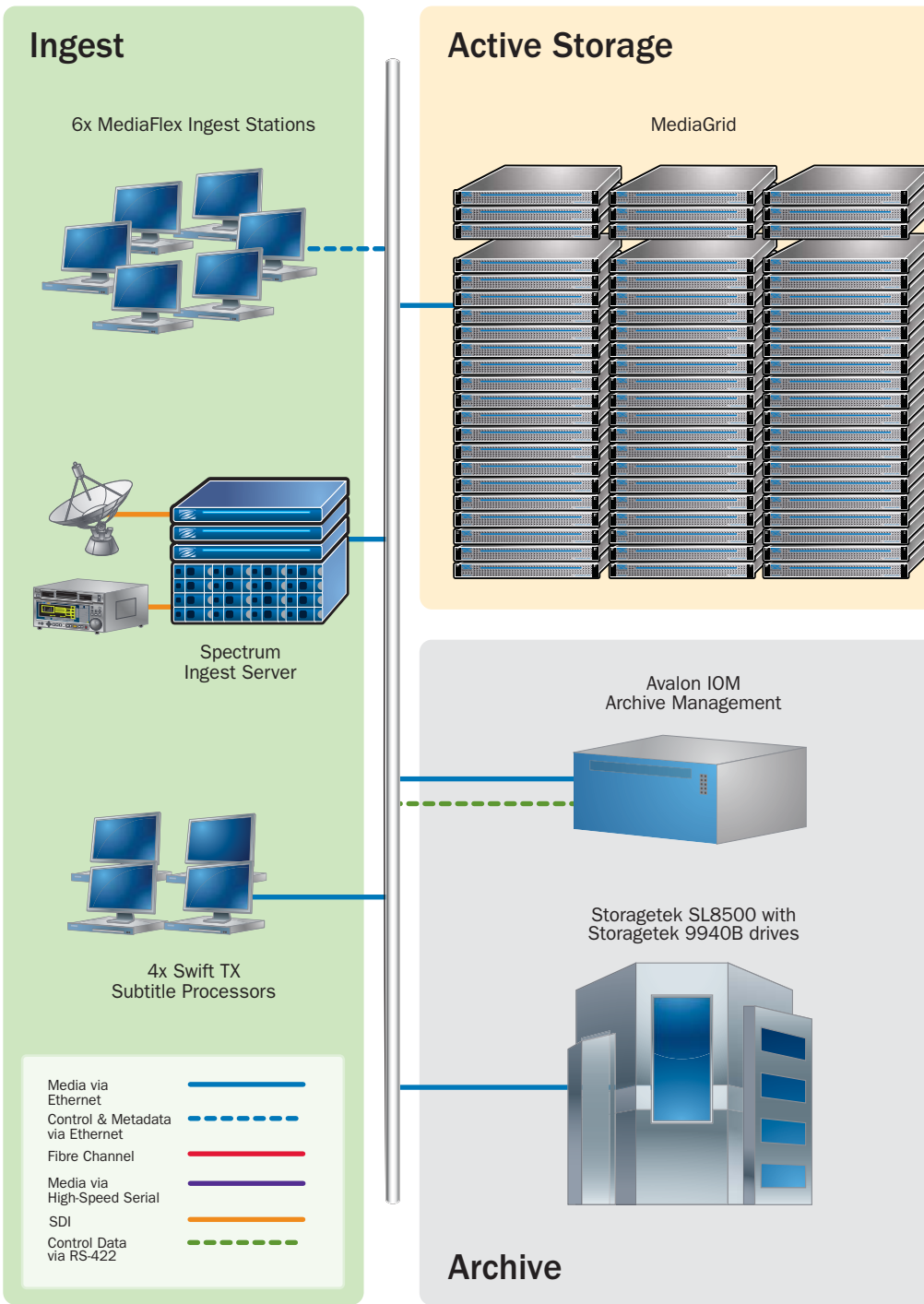
Turner Entertainment Network brands are delivered to audiences across the globe, and the company's new facility in London supports 19 transmission feeds serving Europe, Africa and the Middle East. Turner installed Omneon Spectrum media server systems and an Omneon MediaGrid active storage system to provide reliable, resilient storage, enhanced by close integration with technology from vendors such as TMD, Softel, Sun, EMC and Pro-Bel. The innovative combination of these best-of-breed solutions allows Turner to realize an intelligent and highly efficient transmission workflow.

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The TMD Mediaflex system sits at the heart of Turner's multi-channel playout facility providing a single point of metadata entry associated with all transmission and production content. Mediaflex was chosen for its advanced metadata management, workflow scheduling and integration capabilities. In addition the modular architecture was seen to provide the ability to deploy the system in a phased manner to enable sustainable and controlled expansion.

The ingest system went live in May 2005 (the transmission system went live in January 2006) with 6 ingest and QC positions feeding 13 on-air channels. Mediaflex uses the Omneon Spectrum to ingest two streams in parallel. A 50Mb I-frame for production work and a 16Mb Long GOP for transmission. In the first 8 months of operation Turner operators ingested and QC'd 13,000 hours of content. Once ingested, QC'd and segmented, Mediaflex passes the associated metadata to the Pro-Bel automation system and the Turner in-house corporate systems. Pro-Bel also manages the archiving and restoring of the content under the command of the Mediaflex Workflow module. The integration of Mediaflex with all other systems is done through the Mediaflex Service Manager and Transaction Server. This is an SOA layer providing standards-based interfaces to third-party systems.



The Turner Entertainment Network Server Based Workflow in London's

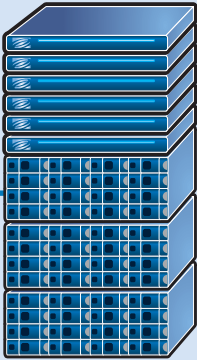
Within Turner's workflow, Mediaflex takes advantage of robust Omneon application programming interfaces (APIs), rather than use RS422 control, to achieve powerful functionality between the two systems. The Mediaflex system provides management tools for integrating digital media resources into Turner's carefully defined workflows and then tracks those workflows, reporting real-time intelligence about the content lifecycle

and, in turn, how well media assets are being leveraged. Following ingest and digitization of Turner assets through Mediaflex, media and metadata can be transferred seamlessly among Omneon storage systems.

Under Mediaflex control, content is ingested into an Omneon Spectrum server system with 10.2 terabytes of storage, 24 real-time channels, and robust Gigabit ethernet

Playout

Spectrum: Transmission A



Morpheus Playout Automation



Spectrum: Transmission B



program and then that VBI content is paired with the matching video file on the Omneon server - all under the control of Mediaflex. This high level of independent control over the ingest of video and subtitle data, again enabled by the Omneon system's open architecture, adds to the overall flexibility of Turner's transmission system while simplifying the ingest process.

The sophistication of Turner's highly automated ingest process yields assured content that can be used immediately for any number of production operations. If content is needed to create a promo, for example, users accessing the file know that the content has already passed an integrity check and has been enriched with valuable metadata such as language tags, etc.

Avalon pulls the media files from the Omneon Spectrum ingest server and transfers them to the Sun Storagetek SL8500 modular library system running Sun Storagetek 9940B tape drives. The Omneon MediaGrid is in the final stages of implementation and will go live shortly,* at which point media will then be transferred in turn into the 270 terabyte Omneon MediaGrid active storage system. Movement of media between the Sun Storagetek systems and MediaGrid online storage will be managed by an Avalon archive management system.

MediaGrid Active Storage

Turner was an early adopter of Omneon's MediaGrid active storage solution, which offered the right combination of flexibility and functionality to support production at the transmission facility and serve as central storage for its channels. The MediaGrid system brings an unusually large online storage element to Turner's playout operations and gives facility staff quick access to material used regularly for transmission. It integrates easily with third-party systems and thus also will support editing as the facility continues to realize and refine new workflow possibilities.

The Omneon MediaGrid active storage system uses a network of distributed ContentServers to store a very large amount of content while presenting that content within a single file system. Managing content storage and access is the MediaGrid ContentDirector, which instructs clients on the network as to where they can locate a specific piece of content.

Content is stored in 8-MB slices, which

Pro-Bel has supplied a variety of systems to Turner's London facility, including routers and router control, master control equipment, and most significantly the Morpheus automation system. Morpheus manages the flow of content through the Turner transmission system, working closely with the TMD Mediaflex system to achieve ingest and mastering, and then automating the delivery of finished material via both conventional linear playout and non-linear multi-media and data delivery channels. To do this Morpheus is fully integrated with a number of production and playout systems, including the Omneon Spectrum transmission servers and the MediaGrid active storage system.



are distributed across the MediaGrid ContentServers. Each time a specific file is requested, those constituent slices are delivered, from different ContentServers, to the client. This ability to distribute the delivery workload among multiple ContentServers gives Turner personnel much faster, more immediate access to content.

The system can be configured to replicate and store any number of copies of each clip, so many clients can access the same content without experiencing a slow-down in access. Automatic replication of these clips, as dictated by the ContentDirector, also speeds restoration of lost or damaged file slices, as ContentServers re-replicate the remaining slices from each other rather than waiting for time-consuming RAID rebuilds.

* As of this printing, April 2007.

connectivity.

Another key technology partnership, formed between Omneon and Softel, integrates multi-language subtitling into the ingest process by enabling insertion of Teletext subtitle data directly into Omneon clips as they are processed. Four Softel Swift TX subtitle processors take EBU subtitle files in multiple languages, create a digital VBI file containing the Teletext subtitle data for a TV

Playout

The Omneon MediaGrid supplies content for playout to main and backup Omneon Spectrum servers, each featuring 33 ports. Playout is controlled by Pro-Bel Morpheus automation, and supported by the TMD Mediaflex system through the automation system's media management solution - a combination which provides great efficiencies throughout the transmission chain.

Among the reasons Turner was first attracted to Omneon server systems is their unique ability to handle multiple audio tracks. Omneon Spectrum media servers have the advanced ability to treat discrete elements separately, including different audio tracks, and yet manage them as a single clip within the system. Through "track tagging," made possible by Omneon TrackTool, different audio language files can be routed to different outputs on the transmission server as and when required. At the end of the transmission workflow, each of the facility's 19 feeds can be output in the format necessary for its destination and audience.

The Result

The complete transmission system at Turner UK breaks new ground in many ways, thanks largely to technology partnerships among industry-leading broadcast solutions providers and Turner's dedication to building an innovative and forward-looking transmission facility.

The new London facility streamlines transmission with an automated ingest process, which allows metadata to be used throughout the entire transmission flow for greater continuity and efficiency. Once ingested, media is immediately available for use or repurposing. Breakthrough functionality in subtitling effectively cuts a step out of that ingest process.

The Omneon MediaGrid sits at the heart of the facility's transmission system and will allow Turner to scale its storage, increasing capacity on the fly as needed. Even as the system supports a growing number of applications, it will continue to provide simultaneous media access for many users.

The system's modular architecture and active storage scheme ensure high reliability and rapid recovery in the rare event of data damage or loss.

Omneon's server systems are versatile enough to adapt to and grow with the specific needs of the facility, its business and workflows, and the architecture of the MediaGrid system eliminates the vulnerabilities typical of other storage solutions. As a result, Turner can be confident in the quality and accessibility of its media assets and potentially move forward to network the site with like infrastructures at the company's other facilities across the globe.

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