We’re doing twice as many channels and 10 times the video output every month—with fewer employees in the network ops center, fewer in the VOD media group, and the same number in IT. The reasons: innovation and Hitachi Data Systems.

"Manager of Information Technology and Broadcast Engineering"

One company opted to rely on Hitachi technologies to support its burgeoning storage infrastructure. Innovating an automated production environment, Hitachi helped to increase output 10-fold without increasing staff or compromising performance or reliability. This media and entertainment company now runs a Hitachi-only storage shop, including several petabytes of very active data, longer-term storage, and support for Web traffic, VMware, Microsoft SQL Server and file server environments.

Television has become very customizable these days, especially with cable programming and video and event purchase transaction options. Two common routes are pay-per-view and video-on-demand (VOD). Pay-per-view provides a service by which television audiences can purchase events or videos that can be watched via private telecast. Video-on-demand systems allow viewers to see recorded broadcasts or movies at any time.

One of the leading providers of transactional television is a media and entertainment company that is headquartered in Boulder, Colorado. The company delivers transactional pay-per-view networks and provides content to video-on-demand platforms to cable and satellite operators across the U.S., including Time Warner and DISH Network. Additionally, the company produces original motion pictures and event programming for premium movie channels, such as Cinemax and Showtime, and internationally on similar services. The company also has a direct-to-consumer division that derives revenue mostly through subscriptions to its consumer websites.

With the ubiquity of high-definition digital content comes the expectation for remarkable media quality. The company employs state-of-the-art digital broadcast infrastructure to supply unparalleled video quality as well as reliable delivery and access of its content. The company does not air or stream the video-on-demand media itself, but...
rather packages and ships media to its business customers. The company owns thousands of hours of digital content and works with movie studio partners to provide the most exciting variety of transactional VOD entertainment available today.

**State-of-the-Art IT Infrastructure Requirement**

Behind the scenes and always in demand at the company is the IT guy responsible for managing infrastructure efficacy and ensuring that digital media is available and safeguarded. “I’ve been with the company over a decade and integrally involved in spearheading a cost-efficient and innovative digital workflow. Long gone are the days when we had 2 staffers who spent all day shuttling around beta video tapes to different departments. In 2004, we managed 7 channels and about 300 video-on-demand titles a month. Now, we’re doing twice as many channels and 10 times the video output every month—with fewer employees in the network ops center, fewer in the VOD media group, and the same number in IT. The reasons: innovation and Hitachi Data Systems,” says the manager of information technology and broadcast engineering.

The company was not always a Hitachi-only storage shop, and early SAN solutions led to system crashes and outages. Then, as Hitachi storage made its way into several priority configurations of the company’s IT infrastructure, the direction became clear. “Our 1st engagement was in 2007 with Hitachi Adaptable Modular Storage (AMS) 1000 with 35TB to handle heavy throughput of really large media files that needed to be stored behind our StorNext servers. We needed about 20TB for StorNext with plenty of room to grow so we could partition for VMware, SQL Server and file servers. We also began using Hitachi to support our website traffic with a Hitachi NAS Platform (HNAS) and an AMS 500 behind it. Then, with all the transcoding work happening, we ended up needing dedicated storage and went back to Hitachi for a BlueArc Titan NAS (now called Hitachi NAS Platform 3090) cluster and modular storage arrays,” the manager of information technology and broadcast engineering furthers.

Transcoding is the process of converting media files from one format to another or to adhere to graphic or protocol constraints. A transcoding proxy server receives the files and enables them to be adapted to output specifications. The company was soon digitizing most of its media and experiencing huge growth on the high-performance Hitachi NAS Platform, to the tune of 700TB. In 2009, with HNAS handling all the transcoding nearly 90% full, New Frontier Media looked into solutions by other vendors. Unfortunately, those systems later crashed, leaving IT with a data loss of 120TB and an imperative to back up the 700TB to tape while searching for a different solution.

“We could not afford reliability issues or performance issues. We’d always been happy with our Hitachi gear, never having any outages or drive failures. The Hitachi storage had been so reliable and actually let me sleep at night. I went to our top execs and pitched to stick with what we know will work, to become a Hitachi-only shop,” he continues.

**Data Growth Is Harnessed With Hitachi Technologies**

Today, the company is enjoying continued successful business growth. Of course, consequently, there is data growth to manage for both short-term and longer retention. More Hitachi storage has been added to the infrastructure to accommodate the company’s growth needs and a perpetual need for flexibility. The company’s websites are now run on HNAS 3080 systems and AMS 2500 with SAS drives.

The older HNAS and Hitachi storage systems were repurposed as secondary storage in order to eliminate any tape backup. In their place is now a group of more powerful Hitachi NAS Platform 3090s and AMS 2500 systems, which are supplying about 3PB raw (2.2PB usage) primary storage with SATA drives.

The previous StorNext environment has also been upgraded to AMS 2500 with 110TB using SAS drives. “We are now pumping out 3,000 movies a month, and we keep 3 months’ worth of movies on the AMS 2500. We have automation that deletes the oldest month’s videos, which means the system is always churning, always reading, always writing. And it’s always solidly reliable,” the manager of information technology and broadcast engineering mentions.

Also in the storage environment is a Hitachi Unified Storage 110 with SAS drives for high-performance support of VMware. The company runs 100 virtual machines with Linux and Microsoft Windows® servers handling automation of some very large drives for the workspace and an FTP server. The company uses Aspera software as the shipping interface for customers. The
software distributes the file-based assets out to customers around the world without compromising performance or security at high-speed transfer rates.

Software also plays a vital role throughout the storage infrastructure. The HNAS systems allow for concurrent support for multiple protocols, including CIFS and NFS, to eliminate storage silos. “The software lets us attach all our Linux, Windows and Apple Mac servers to the NAS so everyone can access the same data, and we don’t have to deal with permission issues. Other solutions could simply not do this,” he says.

The company is taking advantage of Hitachi Data Migrator, powered by CommVault, to efficiently move data within the NAS. “There is a 250TB limit on file systems. We’ve created multiple file systems, and when one gets full, the Data Migrator takes care of moving data to another file system transparently, with no impact to users. This feature is hugely important to us,” he points out.

Continued Innovation for Future Success

The cumulative benefits of a well-run storage infrastructure can be seen throughout the enterprise. For example, the company has created a highly automated work environment to reduce lengthy manual processes and speed time to market.

“I think we’ve done something very innovative here. We’ve been able to automate 90% of our workflow using the HNAS and an internal media asset management system we’ve built over the years. We use Hitachi NAS Platform as long-term storage while the SAN and StorNext operate as the work area. Users no longer have to download and copy a video from the HNAS to an editing station to work on it, and then copy it back. Now that entire process is fully automated. We created drop folders on all of our systems so when people are done editing movie files, they just put the files in the drop folder and the automation picks up the files and moves them to the HNAS. This saves everyone so much time and worry about where things are at any given time,” details the manager of information technology and broadcast engineering.

Another significant improvement is the company’s ability to effectively manage data growth over time.

“The main challenge is that we’re always growing, that there’s always more data to manage. Being able to get in front of the growth is critical. The flexibility, performance and scalability of our storage infrastructure have helped us to continue taking advantage of new technologies and keep things upgraded,” he goes on to say.

Looking ahead, the manager plans to upgrade some older HNAS systems in order to take advantage of BlueArc Jet Mirror software, which handles high-speed object-based replication and rapid failover of production data. He is also looking at a proof of concept to test how the Hitachi Content Platform would facilitate active archiving of older content from the HNAS environments.

“The 2PB on our AMS 2500s with the SATA drives is almost 90% full. With the immense increases in new content growth, it would be great to have the HCP in here with about 200TB, to allow us to have older content still on disk, still accessible. We know it will be reliable and is something that can work really well,” he imparts.

At the end of the day, the storage infrastructure continues to support the vast and fluctuating data needs according to the manager of information technology and broadcast engineering. “I’m the SAN and NAS administrator, the IT director, and I haven’t had to hire a staffer who works part time on storage yet. With all the storage we have, it is truly amazing how little time I’ve had to spend over the years managing storage. It really runs itself,” he closes.