



## Success Story

# NetApp Multimedia Group Employs Central Shared Storage to Meet the Company's Video Production Demands



### KEY HIGHLIGHTS

#### Industry

Media and entertainment

#### The Challenge

Meet the rapidly growing demands of the corporate multimedia group; significantly reduce project turnaround time; better manage the media library.

#### The Solution

NetApp® E-Series storage for production, Primestream FORK asset management and workflow automation, Qumu streaming video platform for transcoding management and video delivery services, NetApp FAS storage for enterprise-level media distribution and backup.

#### Benefits

- Cross-platform automated capture of multiple real-time HD streams
- Immediate editing of acquired content, even while it is being ingested, across the entire workflow
- Improved content discovery through better metadata management
- Produce more content in less time for more devices

Founded in 1992, NetApp has become one of the fastest-growing storage and data management companies in the world. Listed on NASDAQ and employing more than 12,000 people in 131 offices around the world, the company provides products that support shared IT environments across all industries and in the cloud. Increasingly, the company's offerings are used in dedicated media workflows, from animation rendering and news production to Internet media services and TV anywhere, anytime applications.

In a constantly changing technical landscape and dynamic business environment, communicating the company's message to existing and potential customers can be challenging. Like many high-tech companies, NetApp increasingly relies on video as its communication medium of choice for new product launches, sales and technical training, and even corporate all-hands meetings.

#### Wired for Production

At NetApp's corporate headquarters in Sunnyvale, California, a number of venues around the campus are used for capturing video content, including a large auditorium for corporate

all-hands meetings that can accommodate an audience of 1,200, a 300-seat theater for tech talks and product introductions, and a green-screen sound stage for compositing presentations and interviews into virtual environments. In addition, NetAppU, the company's training group, operates classroom environments in which video can be captured and shared either via live video streaming or recorded for on-demand training programs. The various recording venues are all connected to the corporate video production department via fiber optic cable, providing real-time HD SDI feeds to ingest stations in the central control room.

#### More Content, Less Time

The NetApp Multimedia Group is responsible for producing the vast majority of the company's video productions. Annually, the team produces over 350 live events and nearly double that number of video productions for their internal clients. Programming covers a wide range of topics, from product launches and corporate alliances to celebrations, community support, and corporate all-hands meetings.



Figure 1) The green-screen studio, the control room, and the finished product.

“Demand is growing, with little or no end in sight. We are producing more and more content every year and everyone wants it yesterday,” explains Ed Cho, Manager of Video Streaming Services at NetApp.

The team operates an on-site studio adjacent to their postproduction environment. The studio is configured with three Sony HXC-D70 cameras and has a permanent green-screen hard-cyc to accommodate the throughput at the studio. Many of the productions are cut live using a Grass Valley Kayak switcher along with a three-channel Ultimatte 11 system. The switched and keyed program output is recorded in addition to the output of three camera ISOs.

“To accommodate the large volume of productions and keep the cost of sets low, as well as accommodate the need to keep physical storage to a minimum, all of our studio productions are shot over green screen with the speakers chroma-keyed via the Ultimattes into a virtual environment,” explains Mike Tyler, video studio manager at NetApp.

The group also has six identically configured edit bays so that team members can move from one seat to another without missing a beat.

Relying on Adobe Creative Suite as their workhorse production tool set, the group also employs Red Giant software for specific creative treatments.

#### Shared Storage Increases Production Throughput

Prior to installing a NetApp E-Series storage system with 73TB of capacity and roughly 2 gigabytes of video throughput, the group captured its programming content in the studio on XDCam disks. Content then had to be manually transferred into an individual edit station one disc at a time—one each for the three camera ISOs and the switched program output. This could tie up an edit station for three to four hours and required all the content to be ingested and transferred before any postproduction work could start. Plus, once the footage was transferred into an edit station, access to the recorded media was limited to that one particular station.

With the E-Series in place, up to eight streams of HD SDI content can be captured and made accessible to the entire workgroup simultaneously from across the NetApp campus. This ingest process is a fully automated and integrated part of the Primestream FORK

Production Suite for media asset management and workflow automation. In the NetApp environment, the FORK system runs on six Windows® servers. Four of these servers, equipped with AJA KONA 3G HD-SDI dual-channel capture cards, provide the ingest functionality. Two additional servers—the FORK production server and FORK render manager server—complete the Primestream FORK production asset management system.

For NetApp, the key role of Primestream FORK is managing the ingest process and providing a centralized media management system across the six-edit-station production environment. FORK synchronizes the multiple-ingest-channel starts and stops, which keeps in sync the video files ingested from a multiple-camera production, greatly simplifying the editing of these events. These ingests can originate from multiple locations including studio and control rooms in other buildings. Production notes can be made as metadata attached to clips while the recordings take place. All of this helps to reduce overall production turnaround time.

Ingested content can be browsed and accessed via a lightweight client from virtually any machine that has been

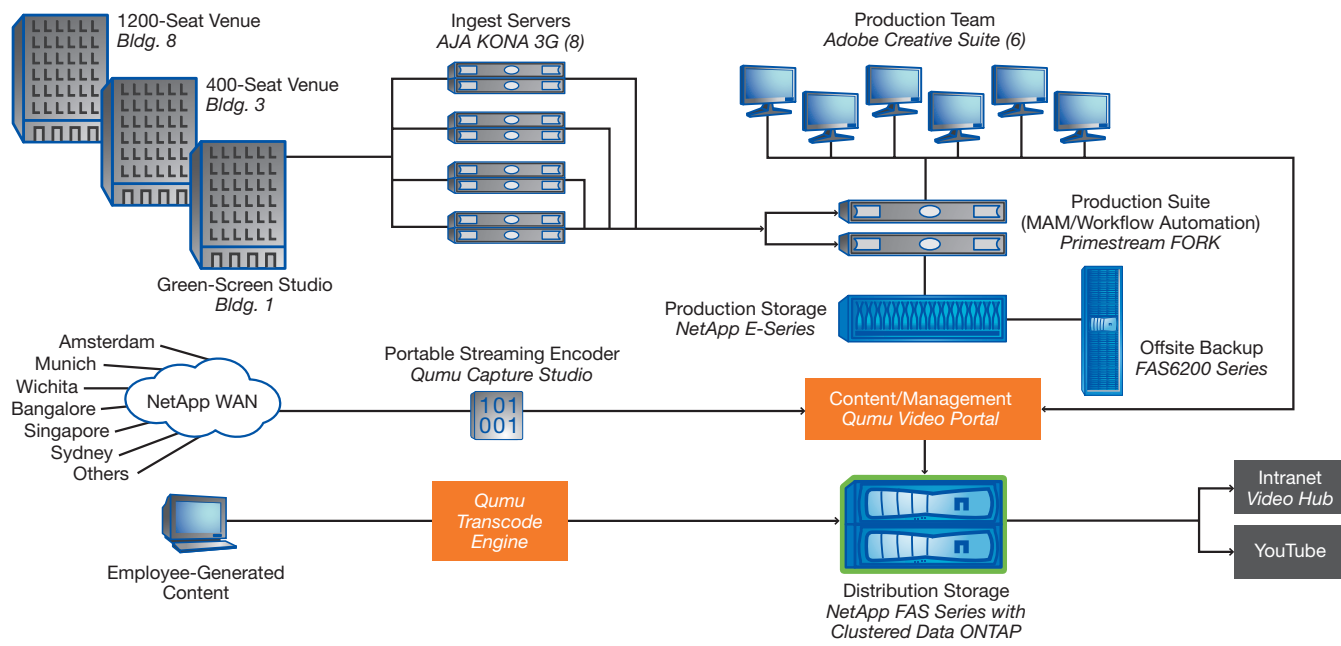


Figure 2) NetApp Multimedia Group's local and remote ingest, production, and delivery operation.

granted access. This allows easy discovery of any media that is in the system. Each media element is accompanied by a proxy file, so any editing or marking that is done within the system is non-destructive to the original full-resolution media. This proxy workflow also allows users to preview, log, and create rough cuts with reduced impact on the network. The group can grant customers they are working with limited access to the content so they can make basic edits, mark good takes, and so on.

The six Adobe Creative Suite 6 (CS6) edit stations are connected to the NetApp E-Series storage arrays via Fibre Channel, guaranteeing quality of service and no dropped frames when editing at any bitrate. This enables the editors to start editing video almost immediately, even while the content is still being ingested.

The workhorse application within CS6 for the NetApp Multimedia Group is Adobe Premiere Pro, which they use for everything from quick topping and tailing of one-camera shoots to multilayer editing of higher-end productions. But the Multimedia Group makes full use of other CS6 applications, especially After Effects, Photoshop, and Media

Encoder. They find that having this core set of applications in use not only at corporate headquarters in Sunnyvale but also throughout the many branch offices where video contributions are occasionally produced enables uncomplicated file exchange and a more collaborative environment. Novices can more easily learn from the experts.

All the stations in the production group have access to the same content concurrently, which facilitates collaborative postproduction work. One editor might produce graphics while another completes the nonlinear edit. The shared storage workflow has shaved anywhere from 50% to 70% off the project turnaround times, allowing the staff to dramatically increase content output while reducing employee project overtime.

#### Metadata Entry—the Key to Content Discovery

NetApp corporate marketing recently adopted a new standard for cataloging and tagging all content produced for the web site, including videos. This not only improves corporate intranet and Internet content discovery, but it increases the company's search engine visibility.

After the Primestream production MAM creates proxy files of the ingested content, NetApp editors enter predefined fields of data describing the production. This allows employees around the world to quickly search and play back low-res content prior to downloading high-res files for integration into presentations or for localization.

Once the production is complete, the editors produce a Sub-Rip Track file, a textual representation of the voice track married to time-code numbers. This makes all the text in the video searchable and significantly shortens the time required for multilanguage versioning and closed captioning.

“Defining and faithfully maintaining a comprehensive and logical structure to metadata is the key to content discovery,” explains Bart Saunders, Engineering Manager for the NetApp Multimedia Group.

#### Content Delivery Flexibility

The Multimedia Group's increased production rate is matched by a growing audience for the content on an ever-increasing array of devices. Maintaining an agile transcoding and encoding solution is critical to meeting the demands of these growing distribution channels.

Video Hub, NetApp's internal video repository and distribution solution, is built on the Qumu platform, which integrates Telestream's AnyStream product to facilitate content transcoding and delivery to a wide range of desktop and, increasingly, mobile devices. User-generated content can be encoded and posted without even going through the Multimedia Group's production workflow through the use of the Qumu web interface.

Not surprisingly, a 10TB portion of a NetApp FAS6000 series storage solution supports the group's delivery workflow. The Qumu online video streaming and content management platform provides centralized security, search and playback of the library of corporate videos, and it also encodes and posts NetApp's corporate live and on-demand webcasts.

The NetApp Multimedia Group chose Qumu because it seamlessly integrates with existing IT infrastructure and external Riverbed-powered CDN. The VideoNet Edge software runs on existing Riverbed Steelhead appliances and creates a specialized delivery network for video that is extremely effective.

#### Video Analytics

Qumu also provides additional social media capabilities like commenting, rating, and surveys; and can accept, through approval processes, "unofficial" content generated by NetApp user groups.

Qumu's detailed metrics and analytics are important for executives to view and analyze trends. Marketing uses metrics that show video program popularity to help plan and develop new programs. NetApp U and HR need video training completion records

### SOLUTION COMPONENTS

#### NetApp Products

**E-Series:** Four E2600As; 2GB controllers; 2 disk drives, 12 x 3TB, 7.2k, DE1600

**FAS6210 nodes with 15x DS4243 shelves (24 x 600GB SAS disks)—shared with other IT data**

**FAS3240 with 6x DS4243 shelves (24 x 2TB SATA disks)—shared with other IT data**

#### Partner Products

**Quantum:** Two M330 StorNext metadata appliances in high availability mode

**ATTO Technology:** Six 2-channel 4Gb HBA Fibre Channel cards

**AJA:** Dual-ingest KONA 3G HD-SDI capture cards

**QLogic:** Two 20-port Fibre Channel switches

#### Partner Products (Continued)

**Primestream:** FORK, Production Server, Render Farm, Multi-Ingest, Content Navigator, Craft Editor Integration

**Adobe Systems:** Creative Suite 6 licenses including: Photoshop, Illustrator, InDesign, Acrobat X Pro, Flash Professional, Flash Builder Premium Edition, Dreamweaver, Fireworks, Adobe Premiere Pro, After Effects, Adobe Audition, Speedgrade, Prelude, Encore, Bridge, Media Encoder

**Qumu:** Capture Studio, Video Control Center, VideoNet, VideoNet Edge (running as a VM image on NetApp's installed Riverbed Steelhead platform), Signal Online Publishing, Quick Capture

**Telestream:** Transcoding products

for corporate compliance. And of course metrics are now crucial for the Multimedia Group itself to reflect ROI and justify future expenditures.

#### Streaming Video

With a very distributed workforce, it's important to make sure that every employee is able to easily view live video webcasts.

The Qumu VideoNet Edge solution creates a highly secure, fault tolerant video delivery network with advanced streaming and caching features. By ensuring that only one stream crosses the WAN on its way to viewers in remote locations, VideoNet minimizes the strain placed on the network by live webcasting.

#### The Future of Corporate Video Communications Is Built on Shared Storage

Advancements in camera technology; graphics acceleration; and ever-more-capable editing, compositing, and graphics software all make the finished production more polished. But it is the storage and network infrastructure behind the scenes that allows corporate video communications departments to produce more content, in less time, and make it available on more devices. Storage systems that are flexible, reliable, and fast are becoming crucial requirements in managing and protecting large video libraries.



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