



NetApp®

## Success Story

# Evergreen Films Employs a NetApp Solution for Real-Time 3D Playback While Reducing Costs by 70%



Another NetApp solution delivered by:



### KEY HIGHLIGHTS

#### Industry

Media and entertainment

#### The Challenge

Reduce costs and eliminate production storage as a bottleneck.

#### The Solution

Deploy NetApp® tiered storage: Three E-Series storage systems and a NetApp FAS system used as a mobile “flight case” to help process on-set dailies.

#### Benefits

- Achieves 25% more capacity while significantly reducing costs
- High-performance throughput fuels fast, smooth real-time video playback
- Builds in future cost savings with modular storage that can be added or changed incrementally

### Customer Profile

Evergreen Films is an award-winning production company that covers all aspects of film production. From story development to postproduction and final delivery, Evergreen delivers high-quality projects balancing unique budget and deadline constraints. The studio operates from two offices located in Culver City, California, and Anchorage, Alaska.

### The Challenge

#### Burgeoning Data Growth, Bottlenecked Storage, and Slowed Studio Workflows

Most film studios struggle to achieve the right balance of time between developing a high-quality film and the money required to produce it. This is especially true for CGI-rich stereoscopic 3D films, which promise the ultimate immersive experience, but whose costs and time delays can often spiral. The prize for achieving the right balance is box office gold and the ability to quickly commoditize such rich digital assets into various media delivery models.

It's the rare studio whose underlying IT infrastructure is agile enough to achieve this balance—providing playback at all necessary resolutions at a

cost significantly less than that of competing studios. Yet that's what Evergreen Films—one of the masterminds, along with BBC Earth, behind 20th Century Fox's 2013 release of *Walking with Dinosaurs 3D*—consistently delivers.

According to Evergreen Post-Production Supervisor Pat Devlin, fulfilling this promise has not been without its challenges. The studio continues to push the technological envelope in 3D production. “Our IT needs, especially on the data storage side, have grown exponentially,” admits Devlin. “This has been especially true as we attempt to break new 3D ground with photo-real backdrops and true-to-life animation.”

Rapid, organic growth in Evergreen's IT infrastructure at both its Anchorage and Culver City studios required constant vigilance to eliminate bottlenecks and accelerate the studio's growing HD, 2K, and 4K production workflows. As the studio's projects grew exponentially, so did its data storage requirements. The enterprise system that was acquired in 2009 was struggling to keep up with the studio's dual need for greater disk capacity and, more importantly, greater bandwidth to support the formats used in various workflows—from ingest to

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**Pat Devlin**

Post-Production Supervisor, Evergreen Films

rendering and real-time, stereoscopic video playback. For help, the studio turned to Integrated Media Technologies (IMT), a NetApp Gold Partner and an expert advisor and a leading systems integrator for digital media and information technology. IMT implemented a Quantum StorNext shared file system to simplify the studio’s workflows and manage its growing digital repository using logical storage tiers.

File formats mushroomed first with SD, then HD, then 2K frames, and a now-emerging 4K frame size. 2K files expanded to over 150% of their HD counterparts, while 4K files became over 200% bigger than 2K. For storage throughput such as real-time video playback from the studio’s large screening room, storage also had to scale. Instead of fueling playback of uncompressed HD files (which needed 200MB/sec of storage throughput), the storage had to help play back uncompressed 4K files (which needed over 1,000MB/sec throughput). With stereoscopic 3D added to the mix, storage throughput rates had to be doubled again in order to process two concurrent streams of 2K or 4K files.

Unfortunately, real-time playback of 2D and 3D footage had begun to stretch the limits of the current infrastructure. At its 4K peak, this placed an unforgiving over 2GB/sec bandwidth (for a

single stream) demand on the several-hundred-terabyte storage system. The storage system struggled under the studio’s demanding load. Strained capacity, management headaches, and ongoing issues with reliability and performance began to take their toll on the studio and IMT. The studio’s extreme video playback needs, periodic disk failures, flutters, occasional dropped frames, and playback lag times had begun to cause time-intensive delays as well.

#### **The Solution** **Stability, Reliability, and Agility for Better Workflows**

The emerging screening room issues prompted the studio to start looking for a better storage “engine” for its growing 2D/3D pipeline. It soon found what it needed with NetApp. “We knew we needed something faster and more reliable, but were worried we’d have to pay a lot more to get what we wanted out of another storage system,” says Devlin.

IMT began looking closely at NetApp E-Series storage as a viable, very attractive option for Evergreen’s big data requirements. A closer assessment soon checked off all of IMT’s “must-have” boxes for the studio:

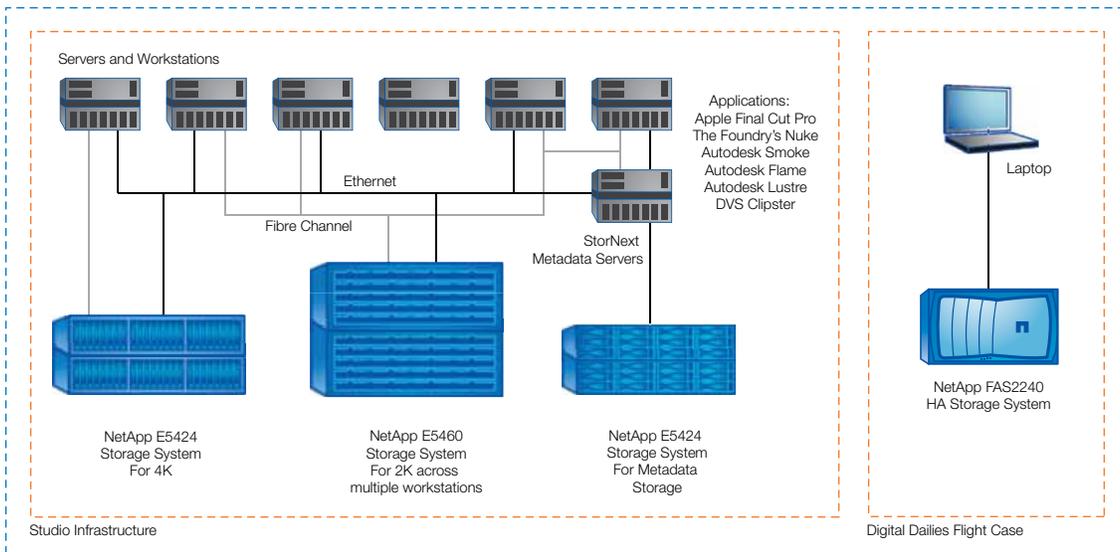
- Extreme bandwidth and throughput performance that could meet Evergreen’s real-time playback needs (even to support playback of its unformatted 4K files).

- Excellent system stability, reliability, and agility, especially for sustained or varied workflows. The system performed well on random and sequential data I/O requests.
- Economical pricing for an enterprise-class storage system of its type. The compact, lower cost enclosures of NetApp E-Series meant Evergreen could start with smaller, dense 4RU systems, then scale to nearly 2PB of storage in a standard rack.

“When we analyzed the market, NetApp clearly had the best bandwidth/dollar and the best density in an enterprise-grade storage platform. This met all of Evergreen’s tier 1 (ultrafast) and tier 2 (fast, but dense archival) requirements,” notes Jason Kranitz, vice president of Sales for IMT.

Substantial up-front cost savings for enterprise storage, combined with E-Series top-flight performance, soon prompted IMT to replace Evergreen’s current system in Culver City with the more compact NetApp E5424 system. The tier 1 storage system is purpose-built with 10K RPM SAS drives for Evergreen’s ultrafast, real-time video playback in the studio’s edit bay and screening room.

For tier 2 (near-line archival) storage, a denser, but still fast NetApp E5460 system offers 260TB of usable storage.



**Figure 1)** Evergreen Films relies on the NetApp E-Series storage systems to fuel their meteoric growth. These systems give them the ability to manage realtime stereoscopic 3D playback while reducing costs by 70%.

A second E5424 system fuels Quantum StorNext's metadata controllers, which direct file/storage requests between the production clients' workstations and the underlying storage tiers.

Another NetApp FAS2240 HA system offers general file rendering/storage and is used in a remote "flight case" to take on location, for postprocessing on-set dailies. Here, the FAS storage system works in conjunction with Evergreen's postprocessing tools.

**Business Benefits**  
**Seventy Percent Savings—with a Boost in Capacity and Performance**

Although cost is only one part of the equation in media storage, it's still a big factor. In this, Devlin's been pleased with NetApp's bottom-line savings. Now, instead of costing US\$5 per gigabyte, NetApp has set a new aggressive price bar: Enterprise storage suited for video playback for well under US\$1 per gigabyte.

"NetApp has been a huge money saver for us," Devlin notes. In the end, Evergreen was able to save 70% with NetApp storage, compared to what it cost for the prior system. Evergreen was also able to deliver 88% more storage using only 75% of the rack space. "The E-Series building blocks are much more flexible, more modular, and more financially viable than anything else we've

seen," Devlin says. "Plus, with NetApp, we have full confidence we can scale up or out, on demand, as needed."

**Competitive in a Tight Market with Faster, Higher Quality Output for Less**

Today, the studio experiences smooth postproduction playback and screening. It has come to rely on the fast throughput of its NetApp E-Series storage system for smooth 4K processing. In terms of playback, NetApp storage has since become the new standard to which Evergreen's other systems and client software must live up.

"In terms of performance, the NetApp E-Series is two generations ahead of what Evergreen had before," says Jose Palencia, director of Engineering at IMT. "With storage no longer a bottleneck, the studio can now focus more on producing excellent quality digital products. NetApp is also more reliable. The studio's prior storage needed several firmware revisions to get to stable code. Even then, it was not as stable as the NetApp E-Series.

"We've been impressed with NetApp's performance and versatility," adds Palencia. "The E-Series has been robust enough to handle 4K video playback as well as StorNext metadata (which has more random I/O patterns associated with structured data)."

**Achieving the Perfect Balance: Economics and Extreme Scalability**

Since deployment, IMT has had no regrets with its choice of NetApp for Evergreen. "Ultimately, it was about having the right tool for the right job," notes Kranitz.

Devlin concurs. "When we came to NetApp, we were already pushing a quarter petabyte of storage. Based on our growth, we knew we'd soon need over a petabyte of storage," he says. "With NetApp, we know we can incrementally scale the system as we grow to many petabytes."

NetApp has helped Evergreen reclaim significant time and money while still leaving the door wide open for Evergreen to scale its infrastructure efficiently and without restraint in the future.

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**Jose Palencia**

Director of Engineering, Integrated Media Technologies (IMT)

#### SOLUTION COMPONENTS

##### NetApp Products

NetApp E5424 and E5460 storage systems  
NetApp FAS2240 HA system

##### Protocols

NFS  
CIFS  
FC-SAN  
iSCSI

##### Third-Party Products

Quantum StorNext  
Apple® Final Cut Pro  
The Foundry's Nuke, Autodesk Smoke, Autodesk Flame, Autodesk Lustre, DVS Clipster

##### Partners

Integrated Media Technologies (IMT),  
<http://www.imtglobalinc.com/>



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