

DATA DRIVEN GLOBAL VISION CLOUD PLATFORM STRATEG
ON POWERFUL RELEVANT PERFORMANCE SOLUTION CLO
VIRTUAL BIG DATA SOLUTION ROI FLEXIBLE DATA DRIVEN

SOLUTION PROFILE

Power the Creation of Great Work

Take Advantage of the Industry's Best to Power the Creation of Great Work

In the production of film, videos, games and commercials, quality and speed are critical. Hitachi Data Systems works with you to solve your storage and data management bottlenecks, delivering cost-effective solutions that are highly scalable for post-production tasks. Whether for CGI animation, rendering, or transcoding, Hitachi Data Systems powers your digital workflows, enabling extraordinary creative and business achievements.

The dynamic world of visual effects animation and design requires innovations in storage solutions that keep pace with the creative process. By carefully applying new technology, studios have been able to improve artistic quality, shave time off production schedules, and create more scenes. The many benefits include higher-quality work, faster time to market, more simultaneous projects, and greater revenue.

In the production of films, games and commercials worldwide, Hitachi Data Systems network storage platforms are the very core of our customers' computer graphics networks. These systems' industry-leading performance is driving stunning improvements in rendering speeds and dramatically reducing artist wait times. Hitachi Data Systems storage systems remove the bottlenecks from even the most powerful render farms, resulting in faster renders, fewer dropped frames, and far less rework. With storage systems, faster data access enables artists and producers to focus on delivering their creative vision, rather than worrying about storage capacity.

Large concurrent projects, whether for ingest, post-production or delivery, often require fast deployment for storage upgrades. These projects also present studios with unpredictable data requirements. Our networked storage has a unique modular architecture that

SOLUTION PROFILE

makes it easy and affordable to support this dynamic environment, with features to adapt to spiraling market and creative demands (see Figure 1).

- **Intelligent Tiered Storage:** Allows the consolidation and deployment of different types of storage within the same network attached storage (NAS) system, based on the profile of post-production applications, and optimizes active-file disk drives with lower cost archival disk drives.
- **Massive scaling:** Up to 16PB useable in a single namespace.
- **Extreme throughput:** Industry-leading I/O rate of up to 283,000 IOPS (spec SFS) and an industry-leading throughput of up to 1,500MB/sec.

“ HNAS storage systems drive our creative workflow. Their incredibly reliable performance has accelerated our current work — and our company’s ability to take on bigger and more varied projects. ”

David Algar
Principal Systems Administrator
Rainmaker

- **Dynamic Read Caching:** Scales NFS read-based workload profiles, accelerating read-intensive application performance.
- **Easy upgrades:** No expensive disruptive replacements.

By partnering with Hitachi Data Systems you can remove storage constraints.

These systems reduce artist idle times, while opening and closing source files, by providing smooth, simultaneous access to shared data sets. This access removes the need for duplicate data sets, reducing versioning errors and greatly simplifying data management.

Unmatched Performance and Lower Production Costs

Built on patented hardware-accelerated architecture, all Hitachi NAS Platform systems deliver flexible, highly scalable, high-performance storage solutions.

By improving data access and user loads with extremely low latency, these systems simplify collaboration among teams of artists. Their enterprise-class management tools provide ongoing access to each creative project’s critical files, which leads to increased productivity in the digital pipeline through improved performance and capacity.

Storage Systems That Scale With Your Digital Workflow

Studios with heavy renders require maximum throughput, while others might require lower throughput, at a reduced cost. To scale capacity and performance, most storage systems require an expensive and potentially disruptive “forklift” upgrade.

Hitachi Unified Storage and Hitachi NAS Platform eliminate these issues by delivering modular, cost-effective scalability for a variety of storage needs and budgets (see

SOLUTION ELEMENTS AND CAPABILITIES

- Reduced artist idle time, allowing for more revisions with higher quality.
- Maximized throughput and I/O operations to handle increasing data and media iterations.
- Accelerated rendering and compositing, reducing failed renders and dropped frames.
- Optimized use of tiered storage assets in a single, global namespace.
- Faster time to revenue allowing you to take on larger, more complex projects.
- Improved profitability with reduced administration and energy costs.
- The industry’s fastest IOPS for studios that create file content.
- The industry’s best performance for post-production and digital asset management.

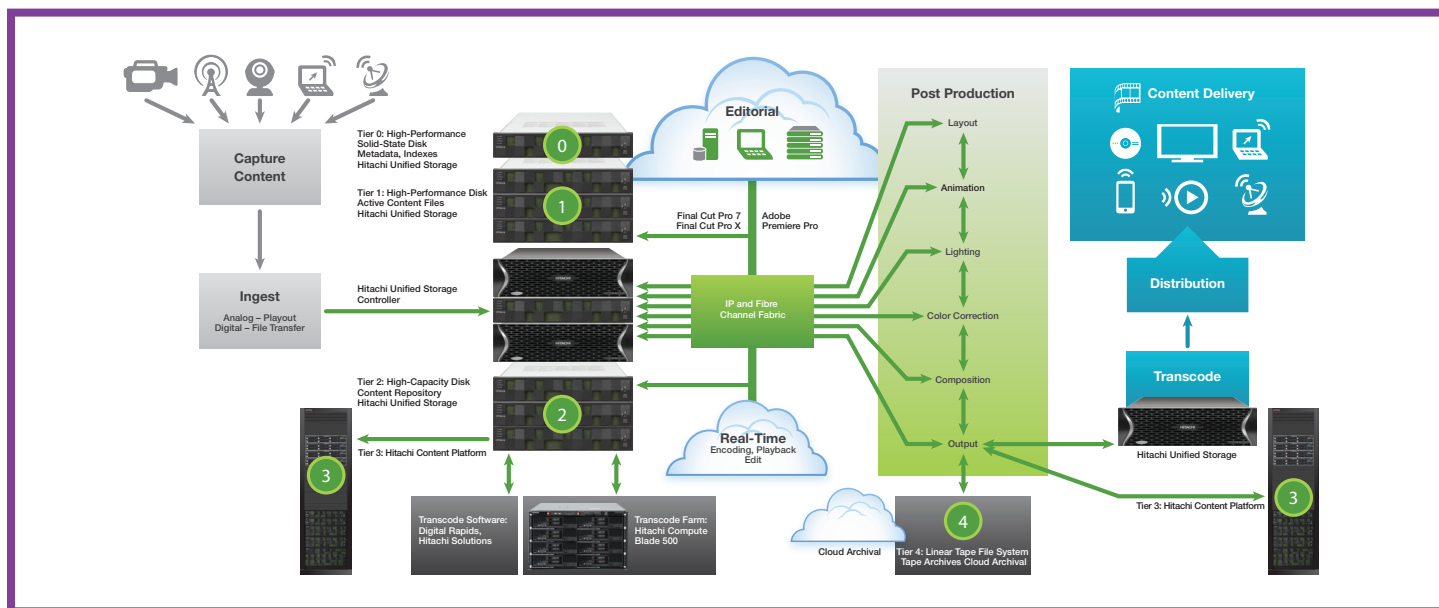


Figure 1. High-Performance Solutions for Media Workflows

Figure 2). For midrange requirements up to 8PB, and extreme requirements reaching 16PB, this product line delivers remarkable performance, regardless of capacity. This approach enables creative teams to lower their TCO while also ramping up to take on new projects, hire more artists, or assume higher-resolution engagements. In addition, these systems are designed to support even higher capacities, ensuring that today's storage investment will scale seamlessly with your changing needs.

Intelligent Tiered Storage for Ultimate Flexibility

Unlike traditional solutions that require a separate storage server to address each need, Hitachi Data Systems intelligent tiered storage supports any combination of disk drives behind a single Hitachi NAS Platform system. Storage administrators can

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automatically migrate lower-priority data to less-costly storage tiers. The storage architecture enables administrators to manage throughput, storage capacity and budgets, depending on digital workflow requirements. This architecture provides the ultimate in flexibility and helps drive down costs.

Versatile, Easy-to-Manage Storage Systems

HNAS storage platforms are ideal for a range of uses, but they are particularly well suited

to consolidating multiple, disparate storage systems into a single easy-to-manage storage solution. HNAS (gateway) and HUS (unified) systems support multiple applications and a large number of concurrent users, while requiring fewer storage devices than traditional storage systems. Their concurrent use of multiple protocols enables the consolidation of Microsoft® Windows® clients, UNIX and Linux clients, and clients requiring block data access, all with a single network storage solution.

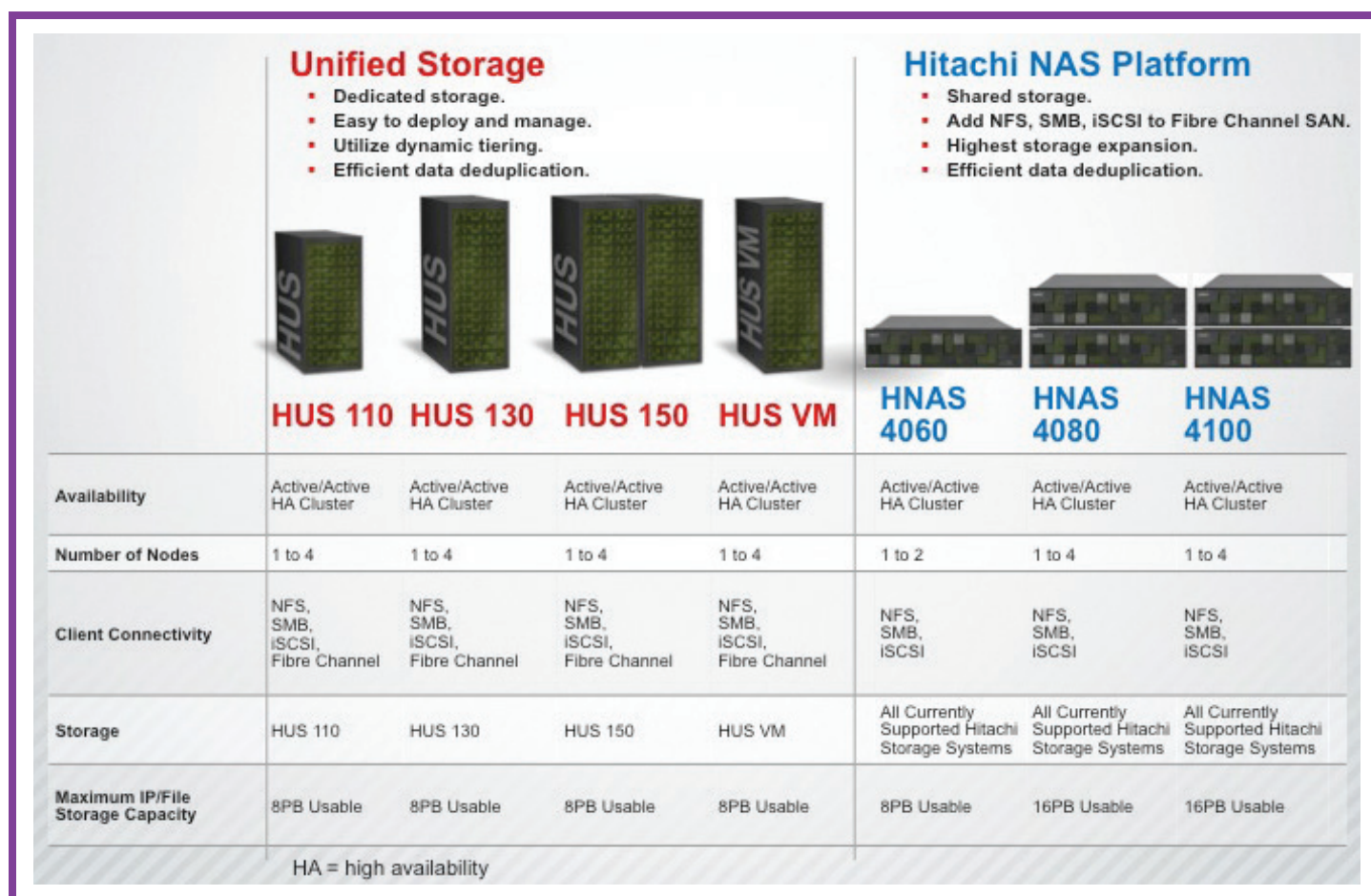


Figure 2. Comparison of Hitachi Unified Storage and Hitachi NAS Platform Models

SOLUTIONS THAT ENABLE EXTRAORDINARY WORK: 2 SUCCESS STORIES

CUSTOMER: Geliang Media

- Based in Beijing; visual effects company.
- Created artistic rendering for ***Million Dollar Crocodile***.

THE CHALLENGE

- Running multiple complex projects at once.
- VFX artists accessing thousands of random files, placing huge demands on throughput and I/O performance.
- Complex production processes requiring multiple special effects terminals to process many on-screen images; demand for high performance.

THE SOLUTION

- Hitachi NAS Platform 3090 with intelligent tiered storage.
- Tier 1 (SAS disk) handled output image data and 3-D movie files.
- Tier 2 (SATA disk) provided high-bandwidth access to raw scans.

THE RESULTS

- Extra artist creation time due to higher data throughput and faster image rendering than previous system.
- Seamless scaling, enabling efficiencies in media workflow management.

CUSTOMER: Tippet Studio

- Based in Berkley, Calif.; visual effects company that creates imagery for feature films
- Created visual effects for numerous feature films, including ***The Twilight Saga***, ***Harry Potter and the Deathly Hallows***, ***Ted***, ***Ghostbusters 2***, and ***Starship Troopers***.

THE CHALLENGE

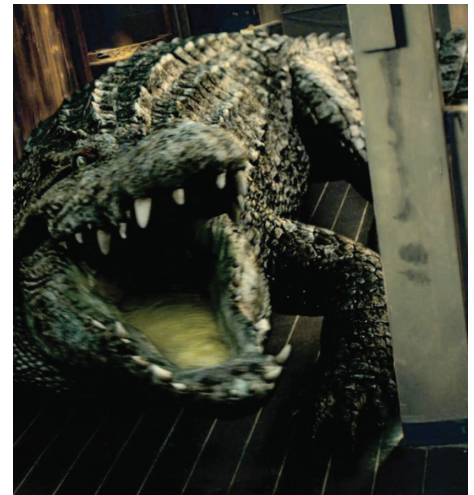
- 24/7 product workload managing massive amounts of data assets.
- Evolving creative technologies to stay ahead of industry with latest stop-motion animation techniques, and digital animation tools to bring digital creatures to life.
- Develop, deploy and manage a state-of-the-art data production pipeline to support Tippet's artists.

THE SOLUTION

- HNAS SiliconFS file system to drive the architectural platform.
- More than 200TB with a 2-node cluster supporting 2 tiers of storage.

THE RESULTS

- For ***Jimmy Kimmel Live*** work, Tippet tripled the amount of data stored, with a compressed production schedule.
- During the second installment of the ***Twilight*** saga series, grew the fur of the digitally created wolves from 2 million hairs to over 12 million hairs, creating more realistic and texturally opulent creatures.
- Moved the studio to the world of 3-D demands that forces transitions such as moving from 24 to 48 frames per second, which puts heavier demands on the storage infrastructure.
- Prepared the studio for upcoming production on key sequences in Will Smith's ***After Earth***, a science fiction thriller released in late May 2013.



Visual effects studio Geliang Media relied on 2 clustered HNAS storage systems in creating the special effects for a number of video projects, including *Million Dollar Crocodile* (featured above), the TV series *The Butterfly Murders*, the Japanese anti-war film *Yimeng*, and the family ethics film *War in Niu*.



Tippet Studio is one of the most innovative and heavily awarded visual effects houses in the industry after nearly 3 decades of filmmaking. They sought to create a flexible pipeline with an efficient render farm for supporting their creative movie-making process.

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