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Sony Pictures Imageworks Case Study

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Sony Pictures Imageworks has provided award-winning visual effects and digital animation for live-action films, all-CG animated films, and combination live-action/animation productions including the Spider-Man films, The Chronicles of Narnia: the Lion, the Witch and the Wardrobe; Stuart Little; Superman Returns; 2012; the critically acclaimed box-office hit Cloudy with a Chance of Meatballs; and the spectacular 3D Alice in Wonderland starring Johnny Depp and Helena Bonham Carter. Imageworks has married art and technology in a way that allows the entertainment industry's top filmmakers to fulfill their creative vision of strongly realized characters and high production values. These collaborations have resulted in several Academy Awards for animated feature, animated short film, and visual effects.

SONY PICTURES imageworks

With headquarters in Culver City, in the heart of Los Angeles, and many remote sites, Sony Pictures Imageworks relies on the talents of as many as 800 people depending on the time of year and the workload. A whopping petabyte of capacity of total data includes a few hundred terabytes that are considered mission critical. Imageworks employs replication and backup to tape to protect its content.

The highly specialized work of creating "photo-real" CG characters and stunning special effects requires multiple people working on multiple projects concurrently, with no good way to know in advance which data people will need. Remote workers generally perform the interactive digital creation to set up the rendering, while the rendering itself is done at headquarters, so data is being exchanged routinely between worksites.

With so many employees contributing their artistic and technical skills, Imageworks was challenged to provide access to data to anyone in any of the remote facilities—whether it's five, 50 or 500 users—at local speeds. Nick Bali, Sr. Software Engineer, Systems R&D for the company, explained that each remote office maintains up to two terabytes of data on local storage. Twenty to 30 percent of that data is updated daily, and over the course of a week, the data set has changed radically.

"Looking at the workloads at remote sites, we found the major issue to be latency," said Bali. "Our goal was to solve this issue of edge data access, something that we struggled with for some time."

The company had tried WAN accelerators, Wide Area File Services (WAFS) and caching products to increase transport speed and availability of offsite data. Imageworks' capacity requirements were too great for memory-based approaches, and those using proprietary formats required a wholesale change to a single-vendor solution. Next they considered cloud storage, but due to the size of the data sets, it would have been cost prohibitive.

"Cloud storage just didn't make sense for us from a cost perspective," said Bali. "Price for capacity was very high, and with the permanent nature of remote locations, we didn't need to put data offsite to that extent. We also found protocol support issues with cloud storage."

Then Sony heard about Avere's tiered NAS appliances, which separate data delivery tasks from data retention and deliver both more efficiently. Avere's 'demand-driven' OS intelligently and automatically moves data to the optimal storage tier based on demand. Active data is available on the internal SSD and

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Nick Bali, Sr.
Software Engineer, Systems R&D

HDD media within a cluster of high-performance FXT appliances, while infrequently accessed, inactive data is stored on traditional NAS systems optimized for capacity and retention. Algorithms constantly monitor data access patterns and selfadjust to increase performance, distribute workload in the cluster, and minimize accesses to the mass storage system. System performance can be scaled up by adding appliances to the FXT cluster, and capacity can be increased by adding disk storage. The total equipment deployment cost of Avere's FXT series is typically one-fifth to one-third of traditional NAS, and it also delivers dramatic savings in rack space and power/cooling costs.

Imageworks first started using Avere's FXT Series in its data center to make sure it worked as promised, but quickly moved it to a remote office to test based on his results. Imageworks then created a three-node cluster in the remote office pointing back to data in Los Angeles. About three quarters of the data these remote workers access is being served through the Avere cluster.

Meeting the need for heterogeneity, Avere's FXT Series allows Imageworks to retain its existing investment in storage hardware, and take advantage of standards based interoperability.

"It was easy to set up and there was no worrying about replication of data—just drop in the FXT cluster, point it at the users, and that's it," said Bali. "Administration is very easy. It's done remotely from L.A., and management of the cluster is trivial."

Imageworks has been happy with the read/write speeds remote users are achieving, and looks forward to using Avere's built-in tools to fine-tune performance and recovery point objectives. Meeting the need for heterogeneity, Avere's FXT Series allows the company to retain its existing investment in storage hardware, and take advantage of standards-based interoperability.

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In another bit of special effects wizardry, Imageworks was able to move workers to the Avere tiered NAS system utterly behind the scenes, without any interruption in service. Bali added, "It's completely transparent to them. We can add new volumes and new users and they don't see it."

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