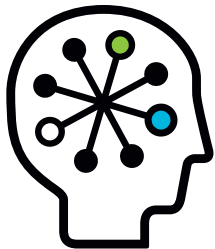


HP StorageWorks X9000 Network Storage Systems

Next-generation storage architecture for today's animation environments

HP Solution Block solution brief



Evolving artistic vision, greater storage demands

Advanced technology makes all the difference

The HP StorageWorks X9000 Network Storage Systems offer advanced technology for boosting your competitive advantage:

- Non-disruptive scalability
 - Fully distributed metadata provides breakthrough performance for scaling bandwidth and application performance
 - Modular storage infrastructure accommodates tens of terabytes to multi-petabyte storage growth
 - Single namespace eases management
 - Avoid expensive and complicated forklift upgrades
- Extreme flexibility
 - Superior performance for all I/O workloads
 - Support for all major file protocols concurrently
 - Respond to rapidly changing business needs with on-the-fly storage rebalancing
- Breakthrough cost savings
 - Delivered as a complete scale-out NAS appliance
 - Fully configured with a single namespace, rebalancing, continuous remote replication, policy management and data tiering
- Total confidence
 - Productions remain on schedule, since hotspots are reduced and data is always available

Since the first feature-length computer graphics (CG) animated film was released in 1995, computing technology has greatly improved. Today's animated films are visually richer, with dynamic action and compelling special effects. Fun, exciting and innovative, CG films delight audiences and drive impressive box office receipts. In fact, four of the top 10 box office hits in 2008 were animated films.¹

As animated films become more profitable, competition grows increasingly fierce. Time-to-market is more important than ever, with large studios releasing a feature film every six to eight months, compared to every 12 months just a few years ago. Sophisticated animation techniques add complexity to the filmmaking process. Lengthy rendering times impose a significant burden on the computing infrastructure. Creative limitations are introduced when artists are forced to wait hours—often overnight—for a render job to process, only to start all over again if a scene requires changes.

Compared to traditional animation, generating life-like effects with advanced techniques such as stereoscopic 3-D requires a very large number of frames—roughly 30 frames per second. This high frame rate creates extremely large data sets. Together, these two factors place tremendous demand on system resources, which can slow rendering to a crawl, directly impacting production schedules.

Instead of adding complexity to the storage ecosystem, animation companies have a choice—high-capacity, high-performance HP StorageWorks X9000 Network Storage Systems. Available in three configurations—the HP X9320 high-performance systems for rendering and visual effects, the HP X9720 high-capacity systems for archiving, and the HP X9300 gateway—these enterprise-class storage solutions are designed to accommodate the unique requirements of animation rendering with just-in-time

performance and capacity scalability at a low upfront investment. HP X9000 systems:

- Control the costs associated with explosive data growth
- Improve the performance of file-based applications
- Manage multiple storage elements and file systems as a single entity
- Grow capacity within a single namespace
- Provide safe, cost-effective archival of digital assets

HP X9320 – performance storage system for animation rendering

Adding to the challenge of long render times is file access. During development, teams of artists often need to access the same files at the same time, creating I/O hotspots and seriously impacting performance. To speed rendering and boost performance, studios compensate by adding network attached storage (NAS) filers. In fact, some studios purchase a new storage device every 90 days. While continually adding expensive filers to meet growing performance and capacity demands seems like the logical choice, it actually lowers productivity by introducing manageability and scalability issues. In addition, a more complex storage ecosystem increases overall production costs, including energy for power and cooling, licensing, floor space and much more.

With each CG film being broadly advertised and costing many millions of dollars to produce, today's animation companies cannot afford production inefficiencies. They must ensure timely delivery of very high quality film.

To help meet these business objectives, the HP X9320 system efficiently manages the random access, small-file workloads characterized by rendering, as well as parallelizes the data flow. Instead of processing all requests through one central server, the data flows

¹ Source: <http://boxofficemojo.com/yearly/chart/?yr=2008>

HP – your trusted partner

As one of the world's largest technology companies, HP offers the products, services and support you need to achieve better business outcomes today and tomorrow. When you choose HP as your trusted business partner, you can take full advantage of the HP vision, experience, single-vendor solutions and volume economics.

Vision – HP offers a change-ready approach that helps bridge the gap between the ongoing data explosion and your increasing storage infrastructure requirements. We've been closely involved with setting the standards that are driving the digital content industry forward. Standards-based HP storage solutions offer a future-proof path to network evolution.

Experience – HP has designed, delivered, implemented and supported an extensive array of large and complex storage solutions for media and entertainment companies worldwide. HP experts are on the ground in 170 countries worldwide, combining deep industry experience with detailed knowledge of the local environment. This experience mitigates risks and helps drive a smooth implementation from conception through integration.

Comprehensive, single vendor solutions – No other technology vendor can offer a complete, end-to-end storage system, including storage, servers, software and support. This breadth of expertise helps keep costs in line. And HP Financial Services can help you improve the impact of your IT investments.

Volume economics – HP ships more disk drives and servers than any other company, which helps keep solution costs low. As a major IT manufacturer with long and strong partnerships with today's leading technology innovators, HP can deliver a storage system comprised of the modular components your company needs to compete and win in today's competitive marketplace.

through multiple servers. Renderings that used to take hours to complete can now be finished in minutes. Using a massively scalable storage architecture, the high-performance HP X9320 system virtually eliminates creative limitations and keeps the creative process flowing quickly and efficiently.

In addition, the HP X9320 system unifies all storage elements under a single namespace. Rather than traditional storage systems that contain multiple files and require extensive management, the HP X9320 system manages all elements as a single entity—resulting in streamlined management processes that require less time and resources.

HP X9720 – high-density, cost-effective storage for the archive tier

Coupled with rendering complications, newer technologies also place greater demands on storage capacity. For example, in a stereoscopic 3-D film, images must be rendered for each eye. This complex rendering process can virtually double the storage requirements for a production.

Another factor to consider is how best to store finished projects. After allotting 12–15 months of time and \$125M or more on a feature-length film, animation companies want to leverage their digital assets as much as possible.

The HP X9720 system can help resolve these problems while lowering costs by providing just-in-time scalability in a consolidated storage environment:

- Buy only the storage you need, when you need it
- Quickly and easily add storage capacity, without taking your production offline
- Create a cost-optimized “content depot” that serves as a reference library for archived projects, helping artists quickly search and retrieve the content they need
- Effectively monetize content for multimedia distribution channels and re-releases
- Reduce costs by consuming less energy for power and cooling, using less floor space, reducing licensing fees

X9300 Gateway configuration

HP StorageWorks X9300 Network Storage Systems support non-disruptive storage scaling to address changing application and business requirements. Performance scaling is accomplished by adding additional X9300 file serving nodes (“gateways”) to the environment. For maximum flexibility, all file-serving nodes and storage devices can be scaled independently.

The gateway configuration supports bonded 1GbE, 10GbE or InfiniBand network connectivity. This configuration is best suited for leveraging existing Fibre Channel or iSCSI SAN infrastructure.

Ready to roll film?

Call your HP sales representative today for an assessment of your storage environment. Discover how implementing a next-generation storage infrastructure built on HP StorageWorks X9000 Network Storage Systems can satisfy your organization's requirements for faster rendering times, reduced operating costs and secure data archiving to meet evolving needs.

There's no better time to consider alternatives to your legacy storage environment. And there's no better time to benefit from the advanced capabilities of HP StorageWorks X9000 Network Storage Systems.

Technology for better business outcomes

For more information, visit www.hp.com/go/x9000

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