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Case Study

dynamicgraphics GROUP

The Challenge

- Consolidate multiple e-commerce websites onto a single storage backbone serviced by a shared data cluster
- Migrate from legacy UNIX and Windows platforms to Linux
- Improve availability and performance
- Manage the cluster cost-effectively

The Solution

- Four-node file serving cluster running NFS, Samba, FTP, and HTTP services
- PolyServe Matrix Server
- Red Hat Enterprise Linux
- Dell PowerEdge 2650 servers
- Brocade 3200 Fibre Channel switches
- StorageTek Disk Subsystem

Results

- Saved 50% of the CAPEX costs compared to a traditional clustered NAS solution
- Achieved zero downtime backup of digital media
- Delivered 24x7x365 access to digital media
- Gained operational flexibility by executing backups, file serving, web, and scripting tasks from the cluster
- Reduced cost of on-going systems management by creating single repository of digital content for all multiple web sites

Dynamic Graphics Consolidates its Data onto a Highly Scalable, Available PolyServe File Serving Cluster

The Dynamic Graphics Group (DG), a global media company offering vibrant solutions for the graphic design community, operates in four segments: subscription royalty-free art services, stock image content, trade publications and creative services training. The company has been a premier provider of custom-quality images for 40 years as the graphics pioneer of the popular monthly subscription art services: Liquidlibrary and Print Media Service.

DG is also the force behind the Creatas brand (www.creatas.com) that provides innovative and creative royalty-free content (photography, footage, illustration, typography and other design tools). DG also operates www.picturequest.com, the largest independent resource of its kind. The site provides single images and CD collections from 50 of the world's leading photo agencies. More than 500,000 superior-quality royalty-free and rights-managed images are available at this pre-eminent web site.

In addition, the company is a well-known resource for inspiration through its widely distributed publications: the award-winning STEP inside design, Dynamic Graphics Magazine and SBS Digital Design newsletter.

Headquartered in Peoria, the heart of Illinois, the Dynamic Graphics Group maintains offices in New York, Washington D.C., London, Sydney and Munich. The company is also represented through an extensive worldwide distribution network that extends across North, South and Central America, Europe, Asia, Australia and other global locations.

THE CHALLENGE

Dynamic Graphic's crown jewel is its collection of digital photography, art, movies, and other licensed media. It must safeguard, but yet ensure continual, authorized access to these assets. Therefore, the prime directive of its Information Technology (IT) department is to not only protect this digital content in a cost-effective manner, but also guarantee access to this content on a 24 by 7 by 365 basis. DG conducts a significant portion of its business via the Internet. As a consequence, the temporary loss of access to its content is an unacceptable outcome.

"Protecting our digital media is critical to our business. We wouldn't entrust our data to anybody without significant due diligence. PolyServe helped us meet our demanding business objectives and position our infrastructure to grow the business internationally."

David Moffly
CEO, Dynamic Graphics Group

Through growth and acquisition, DG's storage infrastructure had become fractured over time. In fact, DG's Picturequest site used UNIX file servers connected to a leading storage vendor's storage area network to serve in excess of 7 terabytes (TB) of content. Further complicating matters, DG's Creatas and Liquidlibrary sites used Windows servers connected to storage from a leading Intel server vendor to serve content to the Creatas and Liquidlibrary sites. In addition, DG had 2TB of legacy data that needed to be managed. The DG IT department had to support and manage four different storage topologies and at least four distinct copies of DG's digital media.

This disparate storage infrastructure presented four challenges to DG. DG's IT department could not:

- Guarantee 24x7 service levels for access to the digital content
- Manage the proliferation of digital content and its duplicates cost-effectively
- Provision and scale servers and storage easily without service interruption
- Backup the digital media within the required backup window

In order to realize operational efficiencies, DG decided to consolidate its multiple e-commerce sites, such as www.creatas.com, www.picturequest.com, and www.liquidlibrary.com, onto a single storage backbone. Each of these sites share much of the same digital content. Therefore, it made sense from a management perspective to store and maintain the content in one, centralized place. DG wanted to be able to load, backup, and remove content once.

DG needed to create a new highly available, scalable, and redundant storage and delivery platform to support these large e-commerce sites. Initially, the storage platform would host in excess of 10 TB of content (photography, footage, illustrations, typography and other design tools) that is sold online.

DG's storage capacity requirements grow dramatically over time. Because of the nature of their business, DG constantly augments its library of content with new media. They needed to deploy a storage platform that could grow as their business and content archive grew.

Furthermore, due to the mission-critical nature of their data, DG needed to backup up their data, but they could not afford to suffer performance degradation, while the e-commerce websites were being backed up. Therefore, a primary goal of DG's storage consolidation was to eliminate the need for a backup window entirely.

THE SOLUTION

After rigorous evaluation of traditional and multi-headed Network Attached Storage (NAS) offerings and Storage Area Network (SAN) solutions, DG chose to deploy a PolyServe-enabled cluster of price-performant Linux servers where each server in the cluster can simultaneously read and write to volumes of shared data on a SAN. PolyServe Matrix Server provided not only the high availability services to ensure system uptime for the NFS, CIFS, FTP, and HTTP services running on the cluster, but also enabled DG to horizontally scale these services to meet their growing processing requirements.

> *"PolyServe Matrix Server is a revolutionary product for data center storage architectures. At first, I was skeptical of what PolyServe claimed it could provide. The reality is that it did what they claimed and more! There is nothing like it out there in the market"*
>
> ***Todd Moore***
> ***Director, Information Technology***
> ***Dynamic Graphics Group***

Dynamic Graphics reached this conclusion after conducting a rigorous Request For Proposal (RFP) process from a variety of SAN and NAS vendors. As part of this process, DG evaluated the following products:

- Two Windows Powered NAS offerings and their corresponding storage;
- A major storage provider who offered a multi-headed NAS gateway and their SAN storage; and
- A leading provider of traditional single headed clustered NAS solutions.

As part of its evaluation, DG discovered that the Windows Powered NAS offerings would not meet DG's availability service level requirements and represented a single point of failure for their storage architecture. In addition, neither of the offerings adequately allowed for the rapid growth of storage capacity and I/O throughput performance that DG forecasted.

Next, DG examined a multi-headed NAS gateway from a major storage vendor. DG concluded that the gateway's storage scalability and expansion was limited by an 8 TB architectural limit. Therefore, they chose to eliminate it from consideration.

Finally, DG evaluated a clustered single headed NAS solution. The NAS solution supported active-passive clustering of the NAS appliance. However, DG concluded that the NAS solution was double the cost of the PolyServe solution and delivered substantially less aggregate I/O throughput. In addition, the NAS solution was limited in terms of expansion capabilities and operational flexibility.

Ultimately, DG gravitated to the PolyServe solution because it combined the benefits of NAS with the advantages of SAN together into a single solution. DG needed the file serving heads to be very flexible in front of its SAN storage. The NAS alternatives only provided file access via HTTP, NFS and CIFS and required separate dedicated backup and FTP servers.

"PolyServe is one of the few technology companies that treats customers with respect and actually cares about the customer's needs and their particular environment. They provided world class pre-sales and post-sales support to ensure that we had no problems."

David Moffly
CEO, Dynamic Graphics Group

DG was not only impressed by the capabilities of the PolyServe Matrix Server software, but also by the knowledge of the pre-sales and post-sales support that PolyServe provided. DG's entire experience with PolyServe was far better than could have been expected. Not only did the product work as advertised, but it installed with no headaches. DG was impressed that given the complexity of today's mixed vendor environments, the PolyServe software could be installed and configured seamlessly.

"The icing on top of PolyServe's cake is their people. They are knowledgeable and industrious. We felt that we were not simply a sale, a number on a quota, or just another customer. They made sure that our implementation went smoothly."

Todd Moore
Director, Information Technology
Dynamic Graphics Group

DG discovered that Matrix Server offered seamless, highly scalable file system performance using standard Linux system calls. Matrix Server's fully symmetric architecture also eliminated single points of failure and provided high availability functionality and multi-path I/O capabilities.

RESULTS

Dynamic Graphics has consolidated its storage infrastructure for their multiple e-commerce websites, including www.liquidlibrary.com, www.creatas.com, and www.picturequest.com, onto a multi-headed file serving cluster powered by PolyServe Matrix Server. As a result of this deployment, DG has realized the following benefits in its IT infrastructure by deploying a PolyServe cluster:

- Saved over 50% on capital expenditures (CAPEX) costs compared to traditional NAS appliances
- Achieved a zero downtime backup window
- Realized the capability to horizontally scale servers and storage online to keep up with the growing storage capacity and I/O throughput requirements of the websites
- Gained operational flexibility to execute scripts, backup data, file serving, and web serving from any or all of the server heads in the cluster concurrently
- Acquired the ability to upgrade the hardware without system downtime
- Realized ease of management and administration through a central point

DG realized added operational flexibility and agility by migrating to a PolyServe cluster. Traditional NAS approaches prevent the file serving head in the appliance to be used for anything other than file serving. This proved limiting to DG because they would have been forced to use a separate server to backup their data and handle requests via FTP. DG dedicated one of the servers in the cluster to backup the content, while the other three continued to service file serving requests. DG would have been unable to realize this flexibility with a NAS alternative. Moreover, DG administrators wanted the ability to execute Perl scripts to catalog and sort the digital content from the file serving cluster.

Based on the success of this storage consolidation project, DG is planning to deploy PolyServe on the actual web servers of its e-commerce websites and is considering using PolyServe in conjunction with an Oracle9i Real Application Clusters (RAC) database deployment. DG believes that the general-purpose nature of the PolyServe Matrix Server product lends itself to a wide variety of use cases and future deployments in their IT infrastructure.

THE CONFIGURATION

Each of the four Dell PowerEdge 2650 server connected via the switched Fibre Channel SAN is capable of accessing data concurrently at high speeds and with full data integrity. PolyServe Matrix Server runs on each server to provide a highly manageable, highly available environment to serve files via NFS, CIFS, FTP, and HTTP protocols to the various web server farms.

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