



# CASE STUDIES

## HIGHLIGHTS

**Goal:** For Snapfish to build a cost-effective, scalable, high-performing storage architecture with a multi-petabyte capacity to support a fast-growing online photo site and hosting business.

**Solution:** A comprehensive HP StorageWorks solution consisting of an HP StorageWorks Enterprise File Services Clustered Gateway, HP BladeSystem servers, and multiple HP StorageWorks Enterprise Virtual Arrays and HP StorageWorks Modular Smart Array Enclosures.

**Results:** With the HP StorageWorks solution, Snapfish has been able to build and maintain a highly scalable, affordable, high-performance storage architecture that has kept up with customer demand, with more than seven petabytes of total storage.

## CUSTOMER PROFILE

### Snapfish

www.snapfish.com

Snapfish is the world's No. 1 online photo service, with than 60 million members in 20 countries and more than 5 billion unique photos stored online.

**Headquarters:** San Francisco

**Industry:** Web services

**Employees:** 200

## Snapfish Builds a Massive, High-Performing, Scalable Storage Infrastructure with HP Scalable NAS and EVA and MSA Storage Arrays

Snapfish is the world's No. 1 online photo service, with more than 60 million members in 20 countries and more than 5 billion unique photos stored online. Users of the site store and share their photos online for free, and can order prints and personalized photo gifts. In addition to providing services directly to consumers, Snapfish has a sizable business-to-business presence, hosting web photo sites for its partners, which brand the sites as their own.

Its previous storage infrastructure was not able to meet Snapfish's existing and future needs. Snapfish was looking for a storage solution that would offer extreme scalability, improve performance, improve storage management and flexibility, balance performance and capacity with affordability, be extremely reliable, and meet its business needs for partnering.

To solve the problem, it chose a comprehensive HP StorageWorks solution consisting of an HP StorageWorks Enterprise File Services Clustered Gateway, HP BladeSystem servers, and multiple HP StorageWorks Enterprise Virtual Array and HP StorageWorks Modular Smart Array Enclosures.

With the HP StorageWorks solution, Snapfish has been able to build and maintain a highly scalable, affordable, high-performance storage architecture that has kept up with customer demand, and now has more than seven petabytes of total storage. The storage infrastructure can support growth well into the future. Snapfish expects that within a year, it will have 25 petabytes of storage.

The solution offers higher performance at a lower price per terabyte compared to the previous infrastructure. Reliability has improved, even though storage has grown several hundred percent. Because of the solution's open architecture, Snapfish has been able to easily manage, maintain, and configure storage.

### Benefits

Objective	Benefits Achieved
Build a scalable storage architecture	Snapfish has been able to increase its storage from one half a petabyte to more than seven petabytes, and can scale as much as it needs.
Easily manage storage	Because of the simplicity of managing the HP StorageWorks solution, Snapfish can manage more than seven petabytes of data with only five system administrators.
Create an affordable infrastructure	By using high-performing EVAs as tier 1, customer-facing storage, and more affordable MSAs for less frequently accessed storage, Snapfish has been able to build a high-performing storage infrastructure at a reasonable cost.



### The Challenge: Deploy a Highly Scalable, High-Performing Storage Infrastructure at Reasonable Cost

Snapfish is the world's No. 1 online photo service, with more than 60 million members in 20 countries and more than 5 billion unique photos stored online. Users of the site store and share their photos online for free, and can order prints and personalized photo gifts. The company powers 50% of US web photo print output and handles 10 million prints on peak days.

In addition to providing services directly to consumers, Snapfish has a sizable business-to-business presence, hosting web photo sites for its partners, which brand the sites as their own. Among its partners are Wal-Mart and the Walgreens pharmacy chain.

The market for online photo services is fiercely competitive, including not only photo sites, but social networking sites as well. To maintain its market leadership, Snapfish needs to continually upgrade its existing services and add new ones.

At the core of Snapfish's strategy for retaining a lead over its competitors is its storage technology. Snapfish must continually add high-performing storage for its customers, while at the same time keeping its costs as low as possible.

"Storage is one of our top cost drivers," says Chris Klingebiel, Vice President of Partner Solutions for Snapfish. "We offer free, unlimited storage, and each of our customers accumulates a growing collection of photos that we store and render upon request. Our need for storage grows exponentially over time."

Snapfish faces a typical Web 2.0 technical storage challenge—it stores billions of files that are infrequently accessed, but when the files are accessed, they need to be retrieved and displayed as quickly as possible.

Its previous storage infrastructure was not able to meet Snapfish's existing and future needs. Snapfish was looking for a storage solution that would accomplish the following:

- **Offer extreme scalability.** Snapfish had approximately a half a petabyte of photos stored, but the company knew that storage requirements would continually grow for existing customers, not to mention its expanding new customer population. Snapfish signs up millions of new customers every year. Snapfish also had begun allowing customers to store videos online, which significantly increases storage requirements. Its storage requirements more than double every year.
- **Improve performance.** Users expect photos to be displayed without delay when they view the pictures online. If there are delays, users would get discouraged and consider switching to a competing photo service. Snapfish needed to deploy a very responsive, high-performance storage infrastructure.
- **Improve storage management and flexibility.** Prior to implementing HP Scalable NAS, Snapfish's storage solution used proprietary technology, which made it difficult for its staff to manage, troubleshoot, and reconfigure storage. Snapfish was looking for a solution that would be easier to manage, maintain, and configure over time.



- **Balance performance and capacity with affordability.** Any new storage solution would have to be affordable as well as high-performing and scalable. Snapfish offers its storage and sharing services to customers for free, and so must hold its costs at a reasonable level to ensure profitability and longevity.
- **Be extremely reliable.** Snapfish could not afford downtime, because that could result in user dissatisfaction and ultimately drive customers to competitors. It required a storage solution that was absolutely reliable and provided for high availability.
- **Meet its business needs for partnering.** Snapfish has a unique set of storage needs for its web site partnering, according to Klingebiel. "We had to come up with a formula that allowed us to offer very competitive pricing for our partner sites, but still cover our costs and have a little left to keep investing and improve the platform over time," he recalls.

### Snapfish Chooses a Comprehensive HP StorageWorks Solution

When considering a solution, Snapfish had to take into account its primary web application. The company uses one very large application broken up into different pieces to run its web site. The application is written in Java and runs on Tomcat application servers on a Linux platform. Snapfish recognized that it needed a storage gateway architecture because it was becoming unwieldy to have the application layer deal with the complexity of the storage hardware. For the storage itself, and for storage hardware, the company searched for the best mix of high-performance, scalability, reliability, and affordability.

Snapfish considered several alternatives, and chose a comprehensive HP StorageWorks solution consisting of HP StorageWorks Enterprise File Services (EFS) Clustered Gateway, HP BladeSystem servers, and multiple HP StorageWorks Enterprise Virtual Array (EVA) and HP StorageWorks Modular Smart Array disk systems (MSA). Snapfish's HP BladeSystem c7000 enclosures with HP ProLiant BL465c blade servers are used for the cluster nodes running EFS Clustered Gateway. Snapfish also uses HP ProLiant DL385 and DL585 rack mount servers in some of its older EFS Clustered Gateway implementations. Snapfish also uses F5 BIG-IP load balancers for balancing the load on its web servers.

"We chose HP because the solution offered the ideal balance between performance, capacity, reliability, scalability, and cost," Klingebiel says. "The Enterprise File Services Clustered Gateway gave us a NAS gateway system that could abstract the complexity of the storage layer, allowing the application to deal with it in a more simplified way. The EVA systems are extremely fast and flexible, and have a very good performance profile, and the MSA systems are attractive from a low-cost point of view."

The solution is configured as a "storage grid," sometimes called a "file area network." It has a single namespace for shared file access, and virtualizes many NAS appliances into one large pool of storage. It has the ability to load balance incoming write requests on the fly.

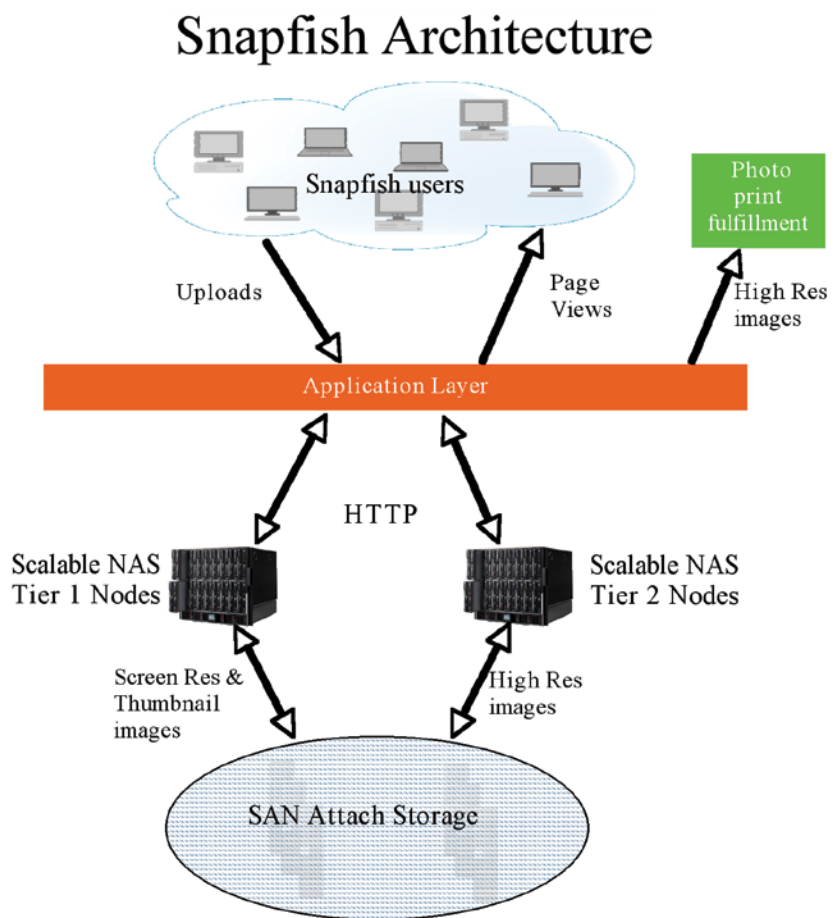
“The HP StorageWorks Enterprise File Services Clustered Gateway has improved our storage performance and reliability, and made it far easier to manage and scale our storage.”

Chris Klingebiel  
Vice President of Partner Solutions  
Snapfish

Snapfish uses the high-performing EVA systems as tier 1, customer-facing storage, and the more affordable MSA systems for less frequently accessed storage. When a customer uploads a photograph, a thumbnail and a lower-resolution version of the original are created and stored on the EVAs. The original, high-resolution photograph is stored on the MSAs. When the photograph is viewed on the web, it is delivered via the high-performance EVAs, so photographs are retrieved very quickly. Web resolutions are lower than resolutions required for prints and photo gifts, so viewing the photos at the reduced resolution causes no customer issues. When a customer orders a print or photo gift, it is delivered asynchronously from the lower-cost MSAs. By doing this, Snapfish has been able to hold down costs by using the MSAs for the bulk of storage, but provide the performance by using the EVAs to deliver photos over the web.

### An Inside Look at the HP Solution

The schematic below shows the HP StorageWorks infrastructure at Snapfish.





- With the HP StorageWorks solution, Snapfish has been able to build and maintain a highly scalable, affordable, high-performance storage architecture that has kept up with customer demand, and now approaches seven petabytes of total storage.

### Snapfish Reaps the Benefits of an HP StorageWorks Infrastructure

With the HP StorageWorks solution, Snapfish has been able to build and maintain a highly scalable, affordable, high-performance storage architecture that has kept up with customer demand, and now has more than seven petabytes of available storage capacity. The storage infrastructure can support the ramping capacity growth trend well into the future. Snapfish expects that within a year, it will have at least 25 petabytes of storage.

The solution offers higher performance at a lower price per terabyte compared to the previous infrastructure. Reliability has improved, even though storage has grown several hundred percent. Because of the solution's open architecture, Snapfish has been able to easily manage, maintain, configure, and optimize storage with the same staff.

In addition, the EFS Clustered Gateway offers unique benefits not available with other solutions, according to Klingebiel.

"Right out of the box, the EFS Clustered Gateway improved performance, and did an excellent job of load balancing and failover," he says. "We were also able to put some of our business logic on its servers so that we could push some intelligence out into the storage cloud. HP teams have been instrumental in helping us do that."

The solution makes it easier to scale storage because Snapfish can add new MSAs or EVAs on an as-needed basis without having to change the logic of its application layer. In addition, because the storage solution is based on industry-standard open architecture, Snapfish can more easily build hosted photo sites for its partners. Because of the open architecture, Snapfish has been able to add significant amounts of storage without adding proportionally to its staff.

"Thanks to the HP StorageWorks solution, we have become industry leaders in regards to how much staff it takes to run and maintain our sizable storage," Klingebiel says. "We have more than seven petabytes of live storage, and we only have five system administrators dealing with the storage infrastructure."

Klingebiel says that because the HP StorageWorks solution has helped keep costs down, Snapfish has been able to sign up additional photo hosting partners.

"Cost is often the number one consideration in the negotiations for hosting a photo site," he says. "Storage is probably the single biggest ingredient in our cost equation. Because we can hold down costs, we have been able to win deals with some of the largest photo retailers in the world."

In the future, Snapfish plans to deploy the HP StorageWorks 9100 Extreme Data Storage System (ExDS), which will deliver even more performance and storage capabilities, shorten deployment time, and reduce ongoing OPEX operational costs.

"The new systems will help us achieve even higher storage performance and capacity while further reducing costs," Klingebiel says. "ExDS will be a critical factor enabling us to deploy next-generation photo and video rendering functionality in our websites."



“The online photo service business is extremely competitive, with very small margins. Key to our success is our ability to deliver high-quality services and unlimited storage while holding down costs. The HP StorageWorks solution has allowed us to build a highly scalable architecture at a reasonable cost, and we expect it to help us stay the world’s number one online photo service.”

Chris Klingebiel  
Vice President of Partner Solutions  
Snapfish

“We’ve had a unique opportunity to work directly with the HP StorageWorks team and provide input into the requirements for ExDS,” he adds. “The StorageWorks team really took our feedback to heart, especially around our need for unified manageability and an open architecture that our engineers can maintain efficiently.”

“The bottom line is that we’ve been able to offer free unlimited storage of photos to our customers, even as the margin we make from traditional photo prints has gone down,” Klingebiel says. “The HP storage solution’s performance, reliability, affordability and scalability means that we will be able to continue to be the number one photo site in the world.”



**About Snapfish**

Snapfish ([www.snapfish.com](http://www.snapfish.com)), owned by HP, is the world's No. 1 online photo service, with more than 60 million members in 20 countries and more than 5 billion unique photos stored online. Users of the site store and share their photos online for free, and can order prints and personalized photo gifts. The company powers 50% of US Web photo print output and handles 10 million prints on peak days.

**About Hewlett-Packard Company, StorageWorks Division**

HP is a technology solutions provider to consumers, businesses, and institutions globally. The company's offerings span IT infrastructure, global services, business and home computing, and imaging and printing. HP StorageWorks solutions help enterprises optimize current resources, manage multivendor environments, and evolve to open architectures. For more HP StorageWorks customer stories, go to [www.hp.com/go/storage/casestudies](http://www.hp.com/go/storage/casestudies). For more information on how working with HP can benefit you, contact your local HP representative, or visit HP at [www.hp.com](http://www.hp.com).

**About Case Study Forum**

Case Study Forum is the leader in the writing and production of ROI-focused Case Studies. In addition to a customer success story, each ROI Case Study provides insight into the business impact—the revenue, productivity, and cost savings the customer achieved as a result of the investment made in the solution or service. For more information, please contact Case Study Forum at 508-380-8886, or visit [www.CaseStudyForum.com](http://www.CaseStudyForum.com).



4AA2-3146ENW © Copyright 2008 Hewlett-Packard Development Company, L.P.  
The information contained herein is subject to change without notice. The only warranties for products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Case Study Forum and HP shall not be liable for technical or editorial errors or omissions contained herein.

November 2008