



Customer Success Story

"The F5 ARX virtualization layer lets us be independent of any one vendor. I firmly believe we got a very good deal on our last major disk purchase because of that."

—Bill Montgomery, Manager of Information Systems, Lulu.com.

Highlights

Industry

- Media

Challenges

- Annual storage growth rates of 180% had created a complex infrastructure that was difficult to manage
- Time-consuming manual data migration processes required engineering attention each day, creating a drain on resources
- Storage utilization rates varied significantly between systems and required daily manual interaction to maintain performance

Solution

- Clustered F5 ARX 1000 devices
- F5 data migration, storage load balancing, and tiered storage policies

Benefits

- Saved 250 man-hours a year by simplifying management and automating data migration and load balancing
- Improved vendor management and enhanced negotiating leverage for new purchases
- Improved utilization rates and performance of existing NAS resources

Lulu.com Takes Control of Storage Environment and Improves Vendor Management with File Virtualization

Lulu.com is the premiere "do-it-yourself" marketplace for new digital content on the Internet, with over 660,000 recently published titles, and more than 5,000 new titles added each week, created by people in 80 different countries. With nearly two million registered members, Lulu is changing the world of publishing by enabling the creators of books, periodicals, and other written word content to publish their work themselves with complete editorial and copyright control.

The Challenges

Reduce the complexity and improve resource utilization in a rapidly expanding storage environment

Lulu's success had created a serious IT management challenge. With more than 50 terabytes (TB) of data and an annual storage growth rate of 180 percent, the company found itself adding terabytes of data each month. Its 40 plus application servers had over 900 mount points, an unwieldy number that was proliferating rapidly and making daily storage management tasks difficult and time-consuming.

In addition, with new content being published every 1.75 minutes, Lulu's Network Attached Storage (NAS) devices were under constant pressure.

"We were spending a couple of hours a day running scripts to manually migrate data from one file to another. If we got behind and a file system filled up, it could easily spell disaster," recalled Bill Montgomery, Manager of Information Systems.

Another challenge facing the organization was finding a way to augment its expensive, high-performance storage with cost-effective serial ATA (SATA) without affecting performance.

The Solution

Intelligent File Virtualization with F5

File virtualization offered Lulu the relief it needed. By eliminating the static mapping between clients and physical file locations, file virtualization significantly reduces management complexity and boosts data mobility.

Lulu's IT evaluated several other solutions but ultimately selected F5® ARX® because it delivered the rich functionality and vendor independence the company required.

"We don't want to be locked in to any storage vendor," Montgomery said. "The ARX is multi-vendor, which was important to us."

Lulu used ARX to virtualize its file storage and create a global namespace, which is essentially a logical representation of the file systems being virtualized. This dramatically reduces the number of mount points the IT staff needs to manage, streamlines data movement, and enables simple, logical access to physical file systems. Equally important, the global namespace hides storage changes from Lulu's customers.

The company optimized the file system layout on its NAS systems. Working with one system at a time, Lulu used ARX to non-disruptively migrate data off of the targeted device, perform the restructuring, and bring the device back online—all without downtime.





"Scheduled downtime is a big deal for us and we avoid it whenever we can," Montgomery said. "Without ARX we would have been stuck with the file system layout as it was. With ARX, we were able to do the restructuring we wanted and take care of some maintenance work, without ever interrupting our users."

Lulu also used the file virtualization solution to implement an age-based tiering strategy that addressed its load balancing problem. The company created a Tier 1 share farm with high availability Fibre Channel storage and a Tier 2 share farm comprised of low-cost SATA devices. Lulu then established policies for automatically spreading data between shares within each tier, based on access time, modification time, file size, file name, or path pattern matching.

"When new files are created, or existing files are modified, they get placed on whichever file system has the best space available. It is all completely integrated and seamless. Best of all, it is automated. If a system gets loaded, we just add another filer to the share farm and it rebalances itself based on the policies without any manual interaction," Montgomery said.

The Results

Streamlined, cost-effective administration and management, plus improved system performance

By implementing the F5 solution Lulu was able to:

- Save 250 hours a year previously spent manually migrating data.
- Simplify overall data management by eliminating hundreds of mount points.
- Improve performance of its existing NAS systems by automatically balancing capacity across all its storage devices.
- Significantly enhance its vendor management position because the F5 solution can work within a multi-vendor, heterogeneous environment, enabling Lulu to introduce new storage technologies irrespective of vendor, file system, platform, or protocol.

Summary

Full steam ahead

Confident that the management issues surrounding its growth have been contained, Lulu plans to expand its use of file virtualization to data replication, taking advantage of the F5 device's ability to replicate between heterogeneous filers without proprietary storage vendor tools. A technology refresh is also in the works, which Lulu's IT team will be able to complete with zero downtime or user disruption.

"One of the biggest benefits for Lulu is that we have commoditized enterprise NAS. With the F5 solution, underlying NAS storage is suddenly much less important in terms of vendor. In addition to helping improve day-to-day operations and maintenance, we really like the vendor flexibility ARX has introduced."

—Bill Montgomery, Manager of Information Systems, Lulu.com



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