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

Lulu.com Improves Storage and Vendor Management with F5 ARX

Lulu.com is the premiere do-it-yourself marketplace for new digital content on the Internet. The site has more than 660,000 published titles created by authors in 80 different countries, and more than 5,000 new titles added each week. Storing and managing such large amounts of data, however, became complicated and time-consuming. To streamline storage and management, Lulu chose the F5® ARX® file virtualization solution.

With ARX, Lulu saves time previously spent on manually migrating data, simplifies data management, and improves system performance with a tiering strategy for better load balancing. Plus, because the ARX solution works with many storage vendors, Lulu is not dependent on any one vendor.

Business Challenges

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. Lulu’s success, however, had created a serious IT management challenge for the company.

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 more than

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.

Overview

Industry

Media

Challenges

- Reduce complexity
- Decrease time staff spends on data migration
- Improve resource utilization
- Create solution that works with different vendors

Solution

- Clustered F5 ARX1000 devices

Benefits

- Simplified data management by eliminating hundreds of mounting points
- Saved 250 work-hours per year
- Improved performance of existing NAS resources
- Increased vendor flexibility

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.

Solution

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 department evaluated several other solutions but ultimately selected 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. "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.

Benefits

The ARX file virtualization solution helped Lulu streamline data storage and management, saving the company time and money. In addition, Lulu was able to optimize performance of its existing NAS devices, which simplified operations and maintenance tasks for IT staff. ARX also gives Lulu the freedom to work with different storage vendors and environments.

Montgomery explained, "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."

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.

Improved storage and data management

Lulu simplified its overall data management by virtualizing its file storage, which dramatically reduced the number of mount points IT staff need to manage and streamlined data movement.

Saved time

By implementing the F5 solution, Lulu saves 250 hours a year that staff previously spent on manually migrating data.

Improved system performance

By automatically balancing capacity across all its storage devices, Lulu improved performance of its existing NAS systems.

Increased vendor flexibility

Because the F5 solution can work within a multi-vendor, heterogeneous environment, Lulu has significantly enhanced its vendor management position. Lulu is able to introduce new storage technologies irrespective of vendor, file system, platform, or protocol.

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