MySpace Case Study

MySpace Uses Fusion Powered I/O to Drive Greener and Better Data Centers

The Challenge

Social networking site, MySpace, knows better than anyone the high demands that consumers can make on application and web servers. With over 125 million monthly global active users hitting its servers with high-volume transactions, MySpace has become a pioneer in performance architecture.

Part of its infrastructure includes a middle-tier caching farm of two thousand 2U servers, with each server providing high performance RAM that spills onto a 10-12-disk performance-striped disk array when the RAM fills up.

It maintains two sets of servers depending on application transaction load. Heavy load servers host applications that get over ten thousand transactions per second and MySpace loads fewer applications on these servers to improve performance. Even so, continued transaction growth on these servers was resulting in poor performance.

Its innovative architecture had solved performance problems on its standard load servers. Its highly redundant and scalable architecture supported simply dropping more servers into the farm to handle excess load. But while this architecture scaled performance, it carried additional costs. More real estate was needed to house the servers; racks, cables, and other hardware were a staple purchase; power and cooling costs grew linearly; and the additional servers increased the number of failure points it had to maintain.

myspace™

SUMMARY OF BENEFITS

- *Improved application performance and user experience*
- *Significantly reduced carbon footprint by lowering power and cooling requirements*
- *Cut hardware needs by 60%*
- *Recovered 280U of rack space*
- *Improved system reliability with non-volatile memory and elimination of 2300 failure points*
- *Much lower cost than competitive solutions*

"The ioDrives did more than just match the performance of our disk array servers, they screamed past them. In fact, applications on the servers with ioDrives performed nearly as well as those that ran purely in RAM."

Shawn Mercer, Director Systems Engineering

FUSION-IO®

As a pioneer in web technologies, MySpace was determined to proactively find a solution to scale performance without scaling costs. As a socially conscious company, it also wanted to find a way to reduce its data center's carbon footprint.

Shawn Mercer, MySpace director of systems engineering, began evaluating solutions and, on the recommendation of MySpace's Hewlett Packard representative, decided to give Fusion-io a try.

The Solution

Because MySpace's architecture was so redundant, instead of running extensive performance tests in a lab, it gave the ioDrives the best true test of its capability—it threw some servers with ioDrives into its production environment. The results were more than Shawn had hoped for.

PERFORMANCE

The ioDrives completely eliminated the I/O bottleneck for the servers they were installed on, making the applications much more responsive and improving the overall user experience.

Shawn told us, "The ioDrives did more than just match the performance of our disk array servers, they screamed past them. In fact, applications on the servers with ioDrives performed nearly as well as those that ran purely in RAM."

The ioDrive also outperformed competitive solutions. "We had serious concerns about [competitors'] wear leveling." Shawn told us, "When we tested them, we tried all kinds of different RAID configurations, but they just couldn't handle the traffic load."

RECOVERING RACK SPACE

The ioDrives performed much better than the disk arrays, but more importantly for MySpace, they did it with much less hardware. A single ioDrive allowed MySpace to replace a 2U HP DL380 server with 1U HP DL160 server.

In all, MySpace replaced 150 of their standard load servers, recovering 150U of rack space. Additionally, the ioDrives' phenomenal performance reduced its need for heavy load servers, allowing it to permanently end-of-life 50 of 80 heavy load servers. This allowed it to recover another 65U of rack space.

CUTTING THE CARBON FOOTPRINT

Fusion-io also allowed MySpace to significantly reduce its carbon footprint. First, it could now use fewer servers to meet its performance demands. Second, each server consumed nearly 50% less power[1] and needed at least 80% less of its power costs to cool.[2] With over 40% of the data center's operating budget going to power and cooling, and growing,[3] these savings alone could easily pay for the ioDrives over their lifetime.

CUTTING OPERATING COSTS

In addition to reclaiming valuable real estate and slashing its power costs, MySpace also reduced its maintenance overhead. The ioDrive's underlying NAND Flash memory is non-volatile, making it immune to power outages, and is protected by 11-bit Error Correcting Code, making it much less prone to failure than hard disks. Additionally, replacing a 10-12-disk array in each server with an ioDrive eliminated at least 2300 failure nodes from the data center. Finally, it gained the assurance that if an ioDrive ever did fail, it would do so gracefully and preserve the data, rather than failing catastrophically, with head crashes that might lose data and require recovery work.

1. Back of the envelope savings calculations: The DL380's draw 120W under peak load, while the DL160's draw 80W. According to the Information Business Technology Network, at least 40% of the power for a server with a performance disk array is consumed by the disks.

2. Cooling costs for servers double a server's power consumption. See Estimating Total Power Consumption by Servers in the U.S. and the World. ioDrives have much lower cooling requirements than disks and also allow organizations to remove the hard drives, opening air flow within the chassis, significantly increasing cooling efficiency.

3. Kenneth G. Brill, "Data Center Energy Efficiency and Productivity," The Uptime Institute, March, 2007.

FUSION-IO®

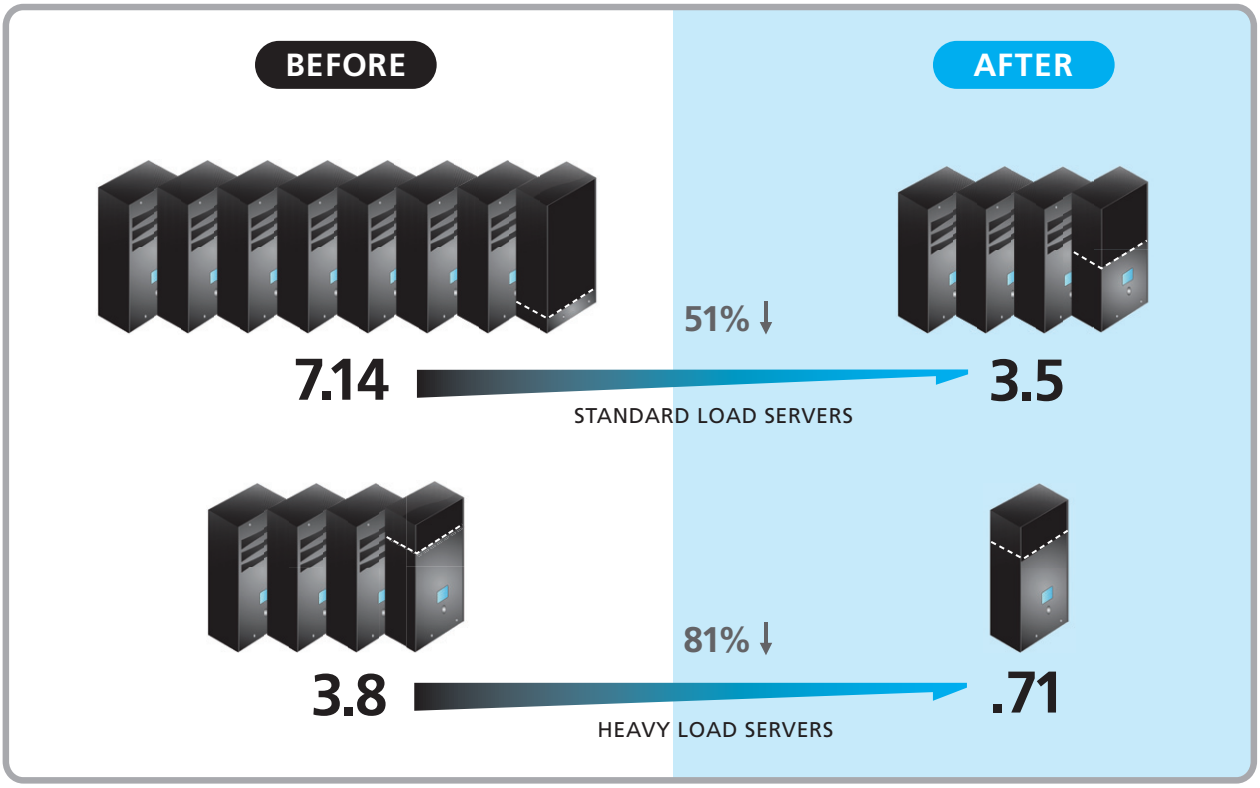
Server Footprint Changes

SERVER FOOTPRINT

- 460U or nearly 11 racks
- 150 Standard Load Servers (2U)
- 80 Heavy Load Servers (2U)

CHANGES TO SERVER FOOTPRINT

- Reduced by 51% to 180U or 3.5 racks
- 150 Standard Load Servers (1U)
- 30 Heavy Load Servers (1U)



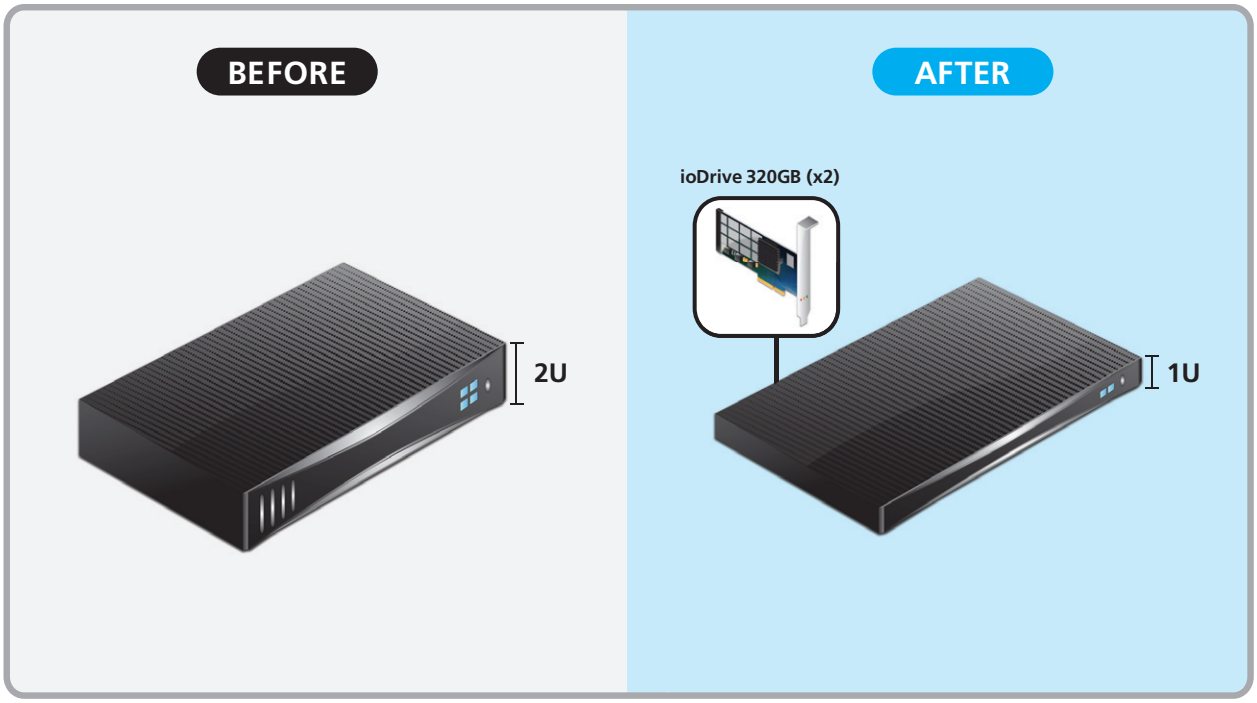
Individual Server Changes

INDIVIDUAL SERVERS

- 2U HP DL380 G5 Dual Quad Core 5420, 32GB RAM
- OS: Windows Server 2008
- Server Software: Proprietary
- Disks: 10-12 15,000 RPM SAS drives in a RAID10
- Storage controller: HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)

CHANGES TO INDIVIDUAL SERVERS

- From 2U HPDL380 to 1U HP DL160 G5 Dual Quad Core 5430, 32GB RAM
- Replaced SAS disk arrays with two 320GB ioDrives



The Results

Implementing Fusion-io gave MySpace the following benefits:

- Provided much higher performance, improving the user experience
- Cut hardware needs by 60%
- Significantly reduced its carbon footprint by lowering power and cooling requirements
- Recovered 280U of rack space
- Improved its data center's reliability with non-volatile, 11-bit error correcting memory, and elimination of 2300 failure points
- Paid a much lower upfront price than for competitive solutions

Shawn plans to replace all of the remaining 1770 2U servers with Fusion-io enabled servers as they reach their end-of-life. This will allow MySpace to recover at least 1770U of rack space in the future, eliminate at least 18,000 failure points in their system, and save millions of dollars in power and cooling costs, showing the world that you can make the smart business buy a green one too.

About the Company

MySpace is a technology company connecting people through personal expression, content, and culture. MySpace empowers its global community to experience the Internet through a social lens by integrating personal profiles, photos, videos, mobile, messaging, games, and the world's largest music community. MySpace is a division of News Corporation (NASDAQ: NWS, NWSA; ASX: NWS, NWSLV). For more information, visit our press room.