

HP BladeSystem and the *Sesame Street* Characters Help Educate Children Online

HP ProLiant server blades with SUSE Linux Enterprise Server reduce total cost of ownership by 85% compared to previous *Sesame Street* website infrastructure of Sun and IBM servers



“We’re in every single country around the world with our website. HP ProLiant server blades and SUSE Linux Enterprise Server help us educate children because we can be nimble and develop content quickly on a solid, scalable backbone.”

—Noah Broadwater, chief information officer, Sesame Workshop

sesameworkshop.

Objective

Unify and streamline the *Sesame Street* Web infrastructure to reduce costs and distribute media content

Approach

Migrate the mixed server and operating-system environment to the HP BladeSystem and SUSE Linux Enterprise Server

Business technology improvements:

- 70% consolidation of web servers (approximately 60 servers eliminated)
- 25 times the performance per watt compared to older RISC-based servers
- Greater scalability and better manageability with a user-friendly graphical user interface (GUI)
- Improved resource planning, backup, and disaster recovery via virtualization
- Enhanced power management capabilities

Business outcomes

- 30% reduction in hardware costs with Xen virtualization on the HP BladeSystem
- Lower software licensing costs, contributing to an overall IT budget reduction of 18%
- 77% savings in total cost of ownership (TCO) over three years compared to Sun Fire servers
- 50% savings in operating system licensing based on enclosure subscription pricing compared to per-physical-blade subscription

HP customer case study: HP BladeSystem, SUSE Linux Enterprise Server, and HP StorageWorks 60 Modular Smart Array help kids explore the world around them

Industry: education/ media/entertainment



HP BladeSystem provides a visual adventure online

Toddlers and tykes alike think the longest-running television series on U.S. airwaves is the coolest “street” in town. Tuning into *Sesame Street*, young children can prepare for school while learning language, math, social, and other developmental skills. The show’s zany characters and engaging music entice children to count and learn, as celebrity guests enhance their overall entertainment experience.

Sesame Workshop (sesameworkshop.org), the nonprofit educational institution that produces *Sesame Street*, is all about making education sizzle on screen and educating children wherever they are using the power of media. And Sesame Workshop, which marked a 40-year milestone in November 2009, is making headway. From its home base in New York City, *Sesame Street*’s appeal has reached into 120

“Virtualization on the HP BladeSystem is great for us because it allows us to consolidate, plan resources, implement disaster recovery processes, and back up data.”

—Noah Broadwater, chief information officer, Sesame Workshop

countries, where parents and their children can enjoy an interactive experience similar to the television show in their regional language. This is possible on Sesame Workshop’s constituent website, sesamestreet.org, which is supported by HP ProLiant BL460c G6 server blades, SUSE Linux Enterprise Server, and an HP StorageWorks 60 Modular Smart Array (MSA60).

The site features roughly 5,000 *Sesame Street* video clips, 100 interactive games, and more than 1,000 Sesame Playlists that mimic the show’s game and video format. About 50,000 visitors a day go the website, which triggers a typical bandwidth ratio of 300 MB of inbound/outbound traffic per day.

The normal traffic volume is impressive; however, spikes ensued during the 40th anniversary celebration when Sesame Workshop collaborated with Google on its Doodles. The search engine’s logo displayed special artwork paying homage to favorite *Sesame Street* characters. Additionally, Google coordinated and displayed international versions of its *Sesame Street* themed Doodles. Internet users who clicked on the Google Doodle logo landed at Google’s search page where the *Sesame Street* website appeared in the first three search results.

“This quintupled our website traffic for seven straight days. During the Google Doodle we were pushing in the terabytes of traffic per day, and our HP ProLiant server blades performed remarkably,” says Noah Broadwater, Sesame Workshop’s chief information officer who heads a 13-person IT staff.

How HP ProLiant blades got to *Sesame Street*

The Sesame Workshop IT staff previously managed 90 or so servers, encompassing HP ProLiant DL-series, Sun Fire v240 and 480 E25K, and IBM x86 servers. They also dealt with two database environments—Oracle and DB2—and various underlying technologies, such as the .NET Framework, Java™, and J2E. Additionally, the staff managed five operating systems, including Sun Solaris, Microsoft® Windows®, Debian GNU/Linux, Ubuntu, and Red Hat Linux. Some of the Sun and IBM servers were six years and older. Without a unified architecture, it was complicated to build and expand the consumer websites, prompting extensive work, integration snafus, and delays in launching new websites. Additionally, patch management across five operating systems was time-consuming.

To decide on a single hardware platform and operating system, Sesame Workshop worked with Novell’s IT Account Management Services. “We ultimately decided to go with HP and swap everything out for the HP BladeSystem and SUSE Linux Enterprise Server because of the TCO and performance benefits,” Broadwater says. For example, the company will achieve 77% savings in TCO over three years compared to its previous Sun Fire servers.

Towering performance in a compact, eco-smart unit

As the show’s theme song imparts: “Sunny day/Sweepin’ the clouds away...,” gone are the days when marginal performance, high costs, and complexities clouded the *Sesame Street* website. With ProLiant server blades, the production company is enjoying 25 times the performance per watt at less cost compared to its older Sun RISC-based servers. The website’s home page load time has decreased, which fosters a better user experience. Moreover, ProLiant c-Class G6 blades with HP Thermal Logic—featuring intelligent zone cooling, right-sized power supplies, and dynamic power capping—bring power savings to the data center.

“We absolutely love the performance of our ProLiant BL460c G6 server blades,” Broadwater acknowledges. “They have allowed us to create a more flexible, easy-to-manage Web platform.”

Attribute some of the flexibility to SUSE Linux Enterprise Server, with built-in Xen virtualization, and the ProLiant server’s support for the open-source Xen hypervisor. This combination enabled the Sesame Workshop to increase hardware utilization, consolidate 70% of its web servers, and reduce hardware and maintenance costs by 30%. Previously the staff ran 75 heterogeneous production servers and 15 test servers. Today, they only need 25 ProLiant blades for production and five for testing and development.

Educating children online becomes more economical for Sesame Workshop

HP analyzed the TCO of the HP ProLiant BL460c G6 server blade environment running Oracle and SUSE Linux Enterprise Server and evaluated the risk-adjusted cost benefit of the proposed solution's impact. The study revealed that the new environment would yield a \$3,818,087 TCO advantage over a three-year period.

In addition, Sesame Workshop can obtain \$5,237,365 of cumulative benefits over a three-year period, \$5,025,877 of which relate to direct (hard) benefits or IT cost reductions. Approximately \$211,488 of the cumulative benefits represent indirect (soft) benefits, such as business operating efficiency improvements and strategic advantage benefits.

Compared to retaining the previous heterogeneous servers for production and testing, Sesame can realize most of the cumulative benefits, 69.2% in savings, from IT operations and administration staffing, followed by 12.2% in savings from hardware and software support and maintenance.

HP's server TCO analysis for Sesame Workshop projected a 422% return on investment (ROI) and a payback period of five months. Total IT cost savings of 70.2% over three years were based on conservative assumptions.

These results originated from a profile of Sesame Workshop's previous and current environments, opportunity metrics (specifically provided by the team), and industry research metrics and financial calculations contained in the Alinean ROI Analyst software, an independent financial modeling tool and model developed by worldwide leading and independent analyst firm IDC (www.idc.com) and ROI consultancy Alinean, The IT Value Experts (www.alinean.com). To take the Sun TCO Challenge and learn how much money you can save, go to www.hp.com/go/suntcchallenge.

"ProLiant blades are phenomenal, because we can embed virtualization onto the server and use either full hardware virtualization or the software hypervisor in Xen," Broadwater explains. "Virtualization also helps with disaster recovery and backup. We create a complete copy of our website so if anything happens, we have virtual copies of all of our servers." The staff easily accomplishes onsite and remote server management tasks using HP Insight Manager and HP Integrated Lights-Out (iLO).

To support the website's data storage needs, Sesame Workshop wanted an efficient system in a small footprint that would not cause a huge investment in time and energy to manage. The staff desired simple connections to and interoperability with the HP BladeSystem. They found these qualities in the HP StorageWorks MSA60.

"We didn't need a lot of complexity, but we needed an array that could provide 4TB worth of storage capacity and integrate well with the HP blades and fibre connections we have. The MSA60 is reliable, stable, and absolutely the right storage system for our needs," Broadwater says.

Sweeter software pricing

Leveraging open source MySQL software on SUSE Linux enabled consolidations of the former Oracle and DB2 database environments, which contribute dramatically to lower software costs. The staff created five "virtual" servers for the MySQL environment, which all run on a single ProLiant BL460c server blade with Intel® Xeon® processors 5500 series.

"We were spending around \$60,000 a year on Oracle licenses and support alone. Now we run MySQL and have close to 100,000 users. There are no licenses because it's all free," Broadwater says.

Novell's software license pricing sweetens the TCO benefits, providing 50% savings in the enclosure subscription compared to a per-blade subscription. Novell sells SUSE Linux Enterprise subscriptions on a per-physical-server basis, with no additional cost to support unlimited virtual guests. Sesame Workshop only requires 25 SUSE Linux Enterprise production licenses—compared to 90 for the previous server environment. The test and development environment is running on open source without any license costs. Overall, open source software on the HP BladeSystem lets Sesame Workshop reduce its overall IT budget by 18%.

Customer solution at a glance

Economical, transformative website infrastructure for children's education and entertainment

Primary applications

Web serving and media streaming applications, including MySQL database, Apache Tomcat Web Server/Servlet, Alfresco, Joomla, and Liferay

Primary hardware

- HP BladeSystem: 30 ProLiant BL460c G6 server blades with Intel Xeon processors 5500 series
- 2 HP BladeSystem c3000 Enclosures
- HP StorageWorks 60 Modular Smart Array

Primary software

- Novell SUSE Linux Enterprise Server 10, Support Pack 2
- Novell SUSE Linux Enterprise Server 11
- HP Systems Insight Manager
- MySQL open source database
- HP Integrated Lights-Out (iLO)

Services from HP

- Care Pack services
 - 3 years support with next business day response time (HP StorageWorks MSA60)
 - 3 years parts and onsite labor with next business day response time (HP BladeSystem)

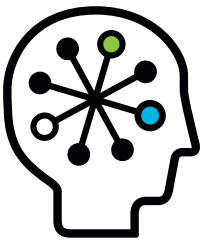
Easy, economical migration

Sesame Workshop had used a number of Novell products over the years, and the staff was familiar with the SUSE Linux Enterprise operating environment. Therefore, they handled most of the migration internally, with some assistance from partners HP and Novell. The staff ported the Sun Solaris operating system to Linux by obtaining the new Linux-based website software versions, backing up the data, and then restoring it onto the HP BladeSystem. "We have been ecstatic with the migration. Everything works and runs properly," Broadwater says.

HP and Novell make migrations easy because they work in tandem to engineer a single joint solution. HP hardware is certified for Novell software, and Novell software is certified for many of the open source applications that Sesame Workshop uses.

"Novell working with HP has been phenomenal. We've often had problems in the past with finger-pointing, where the operating system and hardware vendors don't work together to figure out the actual problem. We haven't had that once with HP and Novell. Both teams jump in and happily resolve the problem," Broadwater says.

Responsive partners and a cost-effective platform are ideal for this nonprofit to innovate and launch its material quickly and enable the zany puppets to continue engaging kids online. "There are very few walls with the Internet so we are able to use our media, video, games, and educational techniques to help children anywhere in the world where there is a computer. Our HP infrastructure is helping us do our job, which is to educate children," Broadwater concludes.



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