



Data Center Migration Helps Simplify IT Infrastructure

Gap Inc. migrates from a RISC environment to industry-standard servers with Intel® Xeon® processors, reducing operating costs and accelerating application deployment



Gap Inc.

“The Intel® Xeon® processors offer a balance of processing power, large-scale memory, and I/O throughput—a combination that helps to conserve floor space while maximizing both energy savings and performance. We expect to gain even greater footprint efficiencies as we move further along in our infrastructure streamlining process.”

– Naveen Zutshi,
Vice President,
Enterprise Infrastructure,
Gap Inc.

Gap Inc. is an apparel retailing firm with more than 3,400 retail and outlet stores in the United States and internationally. The company relies on an extensive IT infrastructure to support its vast retail operations, from business, financial, and database systems to inventory, merchandising, and accounting applications needed to drive its in-store and online sales. The company's IT group has undertaken an infrastructure project to simplify and standardize its application platform while migrating applications to a tier 4 data center. By moving from a RISC environment to industry-standard servers equipped with the Intel® Xeon® processor 5600 series, the company has reduced its operating and support costs, improved service delivery and application deployment speed, and reduced its data center footprint to one-fifth of its original size.

Challenges

- **Simplify IT infrastructure.** With a diverse mix of technologies in its data centers, Gap wanted to use data center migration and technology standardization to simplify its IT infrastructure and reduce long-term operating costs.
- **Speed application deployment.** Gap wanted to create an automated and scalable private cloud that can provide the flexibility and agility for rapid deployment of new applications.

Solution

- **Industry-standard servers with Intel Xeon processors.** The Gap IT team migrated its databases and applications to the Red Hat Enterprise Linux* operating system running on servers equipped with the Intel Xeon processor 5600 series.

Technology Results

- **Fast throughput, high availability.** The Intel Xeon processors help provide Gap with the intensive I/O throughput and high availability it needs for online transaction processing (OLTP) and other applications. The company will also simplify deployment and enhance IT availability for stores and distribution centers by moving to a more centralized, automated, and standardized infrastructure.
- **Consistent technology.** Gap achieved cost savings by moving from a RISC platform onto a Linux environment with Intel® processor-based architecture.

Business Value

- **Improved agility and responsiveness.** Building an automated high-availability environment based on Intel processors has helped reduce application deployment time from approximately 60 days to less than one week. Gap can quickly roll out new cloud services and applications to improve the product mix, enhance the customer experience, streamline the supply chain, and help Gap thrive in the highly competitive apparel industry.
- **Reduced costs.** The company has reduced IT operating and administrative costs, with the savings used to fund additional standardization efforts.

After decades of business growth and technology upgrades, the Gap's data centers had become a heterogeneous mix of technology that included multiple types of servers, operating systems, and computing environments. This technology diversity was leading to higher management and support costs and hampering the IT group's speed and responsiveness to business groups. For Naveen Zutshi, vice president of enterprise infrastructure, the solution to these issues was clear: use data center migration as a way to

drive platform simplification, reduce operating costs, and improve IT agility.

“We knew we couldn't continue on our current path of customization and complexity,” says Zutshi. “The amount of manpower and specialized skills required to manage this level of technology diversity was beginning to stretch the limits of our capabilities and affecting our future ability to respond quickly and cost-efficiently.”



Standardizing on Intel Xeon processors pays off for Gap

The Gap's simplification strategy involved migrating its data center operations into a single primary facility consisting of two core environments: a high-availability virtualized (HAV) environment for critical commercial off-the-shelf (COTS) applications and an OpenStack-based private cloud environment for newer Gap-developed applications that facilitates easy provisioning and scaling. "Moving to industry-standard servers based on Intel processors provides us with the ability to achieve operational cost savings along with greater flexibility in our choice of technology vendors," Zutshi says.

Migrating Data Centers Provides the Foundation to Simplify IT

As a first step in its simplification strategy, the IT group moved several of its databases and applications to the Red Hat Enterprise Linux operating system. After an extensive hardware selection process, the IT group chose servers equipped with Intel Xeon processors and virtualized with either Kernel-based Virtual Machine (KVM) or VMware hypervisors. Gap deployed blade servers for its HAV environment and rack servers for its OpenStack cloud environment, coupled with a tiered storage model and modern top-of-rack/end-of-row 10GbE switches.

"Moving to industry-standard servers with Intel Xeon processors provides a powerful infrastructure for our Oracle* database systems and financial applications at a significant cost savings compared with our mainframe platform," Zutshi says. "We gain the robust I/O throughput we need for processing our online transactions and the infrastructure density that's essential in helping to minimize our data center footprint."

Reducing Operating Costs with Industry-Standard Technology

The migration plan is helping the IT team achieve one of its core goals: reducing operating costs. A key area of cost savings has been in reducing the administrative and licensing costs associated with moving from mainframe and IBM AIX* platforms to a Linux environment with Intel processor-based technology. "We're already seeing some reductions in our operating expenses this year, which we're using to fund additional standardization efforts," says Zutshi. "As we continue to migrate applications to an industry-standard environment, we expect to see additional cost reductions resulting from better utilization of our IT resources."

Accelerating Application Deployment from Two Months to One Week

Standardizing on Intel technologies is also helping the Gap's IT team cut application deployment time. "With a standardized, commodity x86 architecture, open-source software, and Opscode Chef*-based automation and configuration management, we've been able to reduce our application deployment time from 60 days to less than a week," says Zutshi. "We have significantly reduced the need to customize systems to meet each request—our IT team can use standard tools, resources, and knowledge to deploy new applications. We can put the latest innovations into the hands of our users much faster, providing a potential edge that can prove crucial in the highly competitive retail environment."

The private cloud commodity hardware environment and open-source software also give the Gap IT team the flexibility it needs to quickly bring new capacity online, helping the retailer better accommodate seasonal peak demands. "We can automatically provision additional nodes and add more capacity as needed," Zutshi says. "This capacity can then be virtualized and delivered to our application teams significantly faster than before."

Lessons Learned

Making large-scale IT changes requires a comprehensive strategy and disciplined processes for change management. The results are clearly worth the effort, according to Naveen Zutshi, vice president of enterprise infrastructure. "Addressing legacy systems can be challenging," Zutshi says. "To succeed, you need strong executive sponsorship coupled with a strong enforcement plan that keeps your standards in line and helps ensure that you don't deviate from your overall strategy."

Reducing the Data Center Footprint by 80 Percent

The improved hardware density of the new environment should help Gap to reduce its data center footprint to about one-fifth of its original size. "The Intel Xeon processors offer a balance of processing power, large-scale memory, and I/O throughput—a combination that helps conserve floor space while maximizing both energy savings and performance," Zutshi says. "We expect to gain even greater footprint efficiencies as we move further along in our infrastructure streamlining process."

The three-year migration project continues to progress smoothly as it nears the end of its second year. "As we move more applications from the RISC environment to the new infrastructure, the cost savings continue to multiply," says Zutshi. "At the same time, we're evaluating additional performance capabilities of the Intel-based server technology, deploying industry-standard servers with the Intel Xeon processor E5 family for platform testing, development, and quality assurance."

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