Booking vacations faster with HP Converged Infrastructure

Priceline.com avoids a major data center expansion and cuts time to deliver new services in half

"We're always looking for ways to simplify operational decisions at priceline.com. With HP 3PAR Adaptive Optimization, we can implement new environments and services knowing we'll have the performance we need. It has really given IT the ability to be proactive instead of reactive."

—Ken Kirchoff, Storage and UNIX® Systems Director, priceline.com

HP customer case study
For priceline.com, HP Converged Infrastructure cuts time to deliver new services in half.

Industry
Travel

Objective

Accommodate significant year-over-year data growth while speeding time to offer new services, boosting storage utilization, and maintaining constant availability

Approach

Identify storage optimization as a key to delivering superior performance, enabling business agility, and driving down cost

IT improvements

- Doubles compute density while shrinking infrastructure footprint by 65%
- Doubles storage utilization by eliminating stranded capacity
- Increases development environments to engineers by two-fold, boosting innovation
- Enables IT to move to a proactive (vs. reactive) services model

Business benefits

- Avoids massive data center construction project
- Accommodates significant year-over-year data growth without adding IT headcount
- Speeds delivery of new services to customers by two-fold
- Delivers consistent availability for seven years

Leaders of the pack

In the head-rush of the dot-com boom, just about everything seemed possible. The idea of propelling business through the power of the Internet was contagious, but only a few technology leaders emerged from the era with a truly transformative business model.

One of the Internet's big winners is priceline.com—a company that ended up redefining how people book travel reservations. Priceline.com has evolved into one of the world's largest online hotel reservation and travel services.

Throughout the past decade, priceline.com has relied on various technologies to drive its online business, but in 2005, the scale and scope of the business began to create challenges. In order to provide services for development, quality assurance, and stress testing, the IT team was faced with deploying more servers than they had power or room for. "We had reached a point where we were basically out of room in our Norwalk data center and our UPS and air conditioning were already running at full capacity," recalls Michael Diliberto, CIO at priceline.com. "So we began the process of expanding our data center."

Avoiding technology missteps

Priceline.com had a choice: build out a brand new data center with hundreds of single-application servers and dedicated storage arrays, or look at new emerging data center management technologies. The team at priceline.com chose the latter.

"Virtualizing our server infrastructure with VMware, HP 3PAR Utility Storage and HP BladeSystem has allowed us to avoid undertaking a costly data center expansion while doubling the number of development environments we give our engineers."
—Ken Jones, Senior Vice President of IT Operations, priceline.com

Diliberto and team focused on server and storage virtualization and never looked back. Choosing the right platform on which to base their virtualization strategy was the next step. Over the course of a year, the priceline.com team auditioned offerings from the world's top vendors with a key thought in mind: "We knew we didn't want to invest in technology that was similar to what we already had—we were looking for the next paradigm," Diliberto explains.

"We were just about to begin expansion of our data center when we made the decision to virtualize our Solaris, Microsoft® Windows® and Linux environments on HP 3PAR technology," Diliberto explains. To refresh its data center, the team chose HP BladeSystem c7000 Enclosures, HP ProLiant BL460c server blades, HP 3PAR InServ storage arrays, and virtualization software from VMware.

"Virtualizing our server infrastructure with VMware, HP 3PAR storage and HP BladeSystem servers allowed us to avoid undertaking a costly data center expansion while multiplying the number of development environments we give our engineers," says Ken Jones, senior vice president of IT operations at priceline.com.

The shift to smarter and more efficient data center management has also made priceline.com more scalable and agile. "We can provision virtual servers and storage in the same day, while performing hardware upgrades that are nearly transparent for our users," explains Ken Kirchoff, storage and UNIX systems director at priceline. com. "The short lead time really increases the flexibility of our business."

Large-scale growth, 65% reduction in rack space

Since redefining its data center strategy, priceline.com has been keen to keep its growth on the path of innovation—data is growing by a significant percentage each year; engineers still need test and development environments; and its website still needs to deliver services to customers with zero downtime.

The team has continued its virtualization journey with HP 3PAR and VMware technologies. Recently, priceline.com reduced its hardware footprint in one data center by 65%, significantly reducing power costs. During this time, the team has multiplied the size of its development environment and delivered both increased uptime for its virtual storage and faster provisioning for its development and quality assurance databases.

Optimizing the future

As priceline.com looked for a model of sustainable growth for the future, it sought ways to optimize the most significant piece of its infrastructure: its SAN. Priceline.com had been incrementally growing its HP 3PAR Utility Storage environment since its original purchase. And after six years with no unplanned outages or downtime, it looked for a way to further boost performance to virtualized application servers and databases while meeting data growth challenges economically and enabling faster time to new services.

In 2011, the team deployed HP 3PAR Adaptive Optimization Software, a storage tiering solution that allows priceline.com to tailor storage performance to its actual business needs.

Optimizing its HP 3PAR arrays has enabled priceline.com to grow its SATA disk environment to accommodate annual data growth, and using SSD and Fibre Channel drives supports faster performance to its most I/O-intensive workloads.

"About 60% to 70% percent of our total storage is on SATA drives, yet most of the IOPS are happening on Fibre Channel and SSD drives, so HP 3PAR Adaptive Optimization really lets us to grow our environment on a more economical scale while still giving us improved performance," Kirchoff says.

The flexible architecture allows priceline.com to adapt to changing business needs and eliminates the expenses and delays associated with standard provisioning practices. Now priceline.com can deliver new services and applications with increased agility. "We're always looking for ways to simplify operational decisions at priceline.com. With HP 3PAR Adaptive Optimization, we can implement new environments and services knowing we'll have the performance we need," Kirchoff explains. "It has really given IT the ability to be proactive instead of reactive."

Nimble deployments

Today, priceline.com can plan for new services with far less lead time. "We're able to have people plan much more quickly now, instead of asking them for capacity commitments months in advance," explains Kirchoff.

Kirchoff and team recently provisioned storage for an enterprise resource planning project that quickly became more complex as it neared deployment. "The requirements for the project changed as it developed, but with HP 3PAR architecture, we were able to make changes on the fly with absolutely no lead time."

The flexible architecture of HP 3PAR solutions allows the priceline.com team to do things they could never have accomplished with dedicated arrays. "We didn't have to lay out volumes or insist on final specifications until the same week we actually delivered the storage. The final environment was probably double what they thought it was going to be at the outset, but we were able to accommodate the project and get it into production about twice as fast. We're now able to be more nimble."

"Continuous availability is a fundamental requirement for us at priceline.com. We believe that the HP 3PAR storage, HP ProLiant server blades and virtualized applications give us the flexibility and reliability to meet ever-changing workload requirements."
—Michael Diliberto, CIO, priceline.com

Doubling storage utilization

Not only is priceline.com responding to challenges faster and deploying new services with less lead time, it is making better use of the storage it owns. "From a planning perspective, HP 3PAR gives us the ability to provision the storage we need without over-buying," Kirchoff explains. "It's hard to plan very far into the future. In our previous environment when we were buying dedicated arrays, we tended to over-provision because we wouldn't know what we needed."

Because those arrays were dedicated to specific hosts, the unused capacity would remain stranded. "You would end up with disk space that would get trapped there and couldn't be used for anything else," Kirchoff adds. With the automatic and non-disruptive load-balancing features of HP 3PAR Utility Storage, stranded capacity is no longer an issue. "Since moving to HP 3PAR Utility Storage, we've doubled our storage utilization," Kirchoff says.

70% reduction in cabling

Another part of its data center project has been the addition of the HP Virtual Connect 8 Gb 24-Port Fibre Channel Module for HP BladeSystem, which helps priceline.com to simplify connections to the SAN. "I used to have 35 pairs of cables coming out of the blades connecting to our storage. And with Virtual Connect Fibre Channel Modules, now we have just five pairs," Kirchoff says. "So actually we were able to really minimize our physical SAN footprint."

Customer solution at a glance

Hardware

- HP ProLiant DL380 G7 servers
- HP ProLiant BL460c G1–G7 Server Blades
- HP BladeSystem c7000 Enclosures
- HP 3PAR F400, T400 Storage Systems
- HP Virtual Connect 8 Gb 24-Port Fibre Channel Modules

Software

- HP 3PAR Adaptive Optimization Software
- VMware vSphere 5

- Oracle Database 11*g*
- MySQL Enterprise Edition

Operating systems

- Red Hat Enterprise Linux
- Microsoft Windows Server 2003, 2008
- Oracle Solaris

Aligning technology with business strategy

With a clear way to manage expanding data volumes without sacrificing performance, priceline.com is handling data growth without adding headcount. "Previously, if we were running out of space, we would have deployed a dedicated array, and we would have incurred additional procurement time," Kirchoff says. "Now we can just add trays of drives when we need to, and we can manage the entire environment from one place. With HP 3PAR Utility Storage we're able to maintain operations without increasing staff despite the fact that our storage demand is increasing at a rapid pace."

Because HP Converged Infrastructure is an integral part of operations at priceline.com, the IT team now has a technology platform that enables it to stay on the cutting edge: right where it started. For a business that bases its success on adapting rapidly to changing trends and providing the best deals for its customers, IT at priceline.com is clearly aligned with its business strategy.

"Continuous availability is a fundamental requirement for us at priceline.com," CIO Diliberto sums up. "And we believe that the HP 3PAR storage, HP BladeSystem server blades and virtualized applications give us the flexibility and reliability to meet ever-changing workload requirements."

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