**Hewlett Packard Enterprise**

# HPE data center goes Cisco free

The technology giant demonstrates transformation in the reliability of its own networking products

**Industry**
Information technology

**Objective**
To build a feature-rich data center infrastructure that is energy- and cost- efficient, delivers high performance throughput, and offers unparalleled security

**Approach**
Review proposals from top networking vendors and conduct proof-of-concept tests to determine the best supplier. Assemble a cross-departmental installation and implementation team, implement staff training, and develop a meticulous transition plan to avoid downtime during upgrades

**IT matters**
Transitioned thousands of servers with live applications to the infrastructure with no application service interruption

- Installed 1300+ routers in 170 countries

- Increased support for 10 Gbps attached servers to allow for higher levels of network traffic

- Reduced time to deploy new applications by 50 percent on average, saving IT staff time

- Removed proprietary protocols in favor of open standards, to avoid vendor lock-in

- Increased scalability of network capacity and security, a key enabler for growth

- Built networks to support greater than 35000+ virtual machines enabling greater flexibility and faster innovation

**Business matters**
- Supports more than 80 Gbps of Internet traffic, which offers faster internal communications and a better user experience for customers of HPE at hpe.com

- Significantly reduces infrastructure investment, maintenance, support, and overall total cost of ownership



"Every dollar of the Hewlett Packard Enterprise multibillion dollar revenue stream and all core applications supporting over 100,000 employees run through HPE company equipment. Our experience shows that HPE meets best-in-class performance, scalability, and reliability requirements of the largest enterprises."

– John Lino, distinguished technologist and HPE IT Chief Network Architect

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## Driven by innovation

Given its scale, HPE places high-level importance on its infrastructure, which is kept up to date with regular upgrades and continuous improvement. HPE consolidated 85 data centers to 4 and hundreds of small server sites into six new global facilities located in the United States. The HPE Global IT department built out the network, using products from HPE and other vendors.

As HPE consolidated its data centers, there were newer pressures on the network with advances in mobility, virtualization, high- definition video, rich-media collaboration tools, and cloud computing. These aspects were reinventing the way global businesses and people worked. Green technology had matured, offering potential cost savings; and the increase of targeted attacks dictated a need for additional layers of security. In order to meet these new challenges, Global IT launched a network transformation initiative.

Every aspect of HPE drives innovation; and HPE IT is no exception to the rule. Taking a portfolio of technologies focused around HPE assets, HPE IT's Network Architecture and Engineering team developed a purpose- built and industry- leading architecture and technology strategy that enabled seamless transformation to new, efficient, and feature rich infrastructure and services—without compromising production uptime in the next- generation IT data centers.

## Finding the best supplier

HPE-owned Cisco-based legacy infrastructure couldn't offer the flexibility or scalability the design team was looking for. The first key step in the transformation was selecting a new vendor for routers, switches, and other network components. To meet the goals of the transformation, the team chose products that relied on open standards and increased flexibility—and could easily be replaced as

technology evolves and could support an increasingly converged infrastructure with no vendor lock-in. Other factors taken into consideration included energy efficiency and intrusion detection and prevention.

The HPE IT team had complete flexibility to choose the best vendor to fit the business needs.

"The existing Cisco-based network couldn't meet our requirements without a massive re-architecture, major rip-and-replace operation, and further digression into proprietary platforms and protocols."

– John Lino, distinguished technologist and HPE IT Chief Network Architect

"There were many factors that influenced our decision," says John Lino, distinguished technologist and Chief Network Architect, HPE IT. "But open standards ranked near the top, because it allowed us to build solutions based on the products and services that best met our requirements, instead of being locked into a proprietary technology."

HPE IT considered proposals from top networking companies such as Juniper and Brocade, as well as HPE. The team researched specifications, ran extensive proof-of-concept tests, and met with other IT professionals before selecting HPE.

HPE is committed to open standards and builds products that are simple to adopt into existing architectures, while also providing benefits within those architectures. The group also offers a streamlined and consistent portfolio of technologies which, combined with a single source for maintenance and support, helped to bring efficiencies to network operations.

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> "The training, which was very effective, enabled our engineers to successfully transition from Cisco to HPE and meet aggressive timelines."

– John Lino, distinguished technologist and HPE IT Chief Network Architect

## No margin for error

The next stage of the network transformation focused on implementation, with one major caveat: no downtime. Any network interruption would hurt the HPE business and reputation; so the transition had to occur while the network was fully operational. "Swapping out core components in a production network of a Fortune 50 company is like changing the engine of an airplane in flight," says Lino. "Thorough planning and close coordination were essential; we had to ensure that HPE maintained its always-on infrastructure and continued to run over the entire period."

HPE IT assembled an implementation team led by architects and engineers in collaboration with subject matter experts from HPE and HPE Technology Services, who provided central build and configuration staging, as well as resident engineering support services.

The migration approach was to install new HPE routers and switches beside the existing components, running in a mirrored configuration, and then switch traffic completely over to the new equipment—all in a carefully choreographed sequence. However, the most challenging aspect of the plan was the time frame. "Under normal circumstances, migrating the core of our network takes many months of planning, risk assessment, and execution. We executed this migration in just two

months. To compound this challenge, we were tasked with upgrading all of our backbone circuits to enable four times the capacity in the core," says Lino.

This combined capacity and circuit refresh, in addition to a technology transformation, required precise planning, orchestration of many teams, and change coordination for implementation.

When the time came to implement the plan, everything worked as expected. The team completed the switchover in less than 48 hours per data center—without affecting the network.

Lino credits great teamwork for the success of the switchover: "Everybody came together. Support engineers from HPE and HPE Technology Services support technicians collaborated with us during every change. This close coordination between IT and the support organizations enabled a more efficient migration and a better level of support through the entire migration period."

Once the core and WAN of the network was complete, the transformation of the server Point of Distribution (POD) within the data centers was initiated. The HPE IT team developed an innovative transformation architecture that allowed for the interim convergence of the legacy Cisco networking equipment and new HPE technology at the server level.

The result: A total of 3,485 Cisco devices were removed and replaced with HPE infrastructure. In the course of the project the scope changed to include a further 1,966 blade switches. With increased demand for accelerated delivery, the team delivered the project in record time. The project transitioned thousands of servers with live applications to the infrastructure—with no application service interruption.

Clearly, HPE IT had entered a new paradigm of 24/7 network infrastructure on a scale not seen before.

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## Customer at a glance

**Hardware**
- HPE FlexFabric 12900 Switches Series
- HPE FlexFabric 5900 Switches Series
- HPE FlexNetwork 12508 Switches Series
- HPE FlexNetwork 6604 Hybrid Services Routers

**HPE services**
- HPE IT Infrastructure Consulting

## Four times the capacity, better security

Today, the internal IT core and WAN run entirely on HPE technology. Unlike the previous Cisco-based network, open standards are used everywhere. The data center distribution layer is composed of HPE 5900 switches and 5930 switches. HPE 12508 switches are deployed at the data center core. The WAN backbone consists of HPE 8812 routers, while HPE 6604 routers are used for MPLS access.

These changes have paid off significantly in terms of performance and throughput. The Internet and WAN—both vital to internal communications as well as online transactions—support more than 80 Gbps of Internet capacity. Introducing new services is much faster, thanks to end- to- end virtualization in the data center.

## Enabling complete collaboration

With the network being completely refreshed, HPE is in a strong position to tackle the challenges of UC&C with Microsoft® Skype for Business, enabling employees to bridge geographies and ensure better collaboration and faster decision-making.

The new network also gave a boost to BYOD management by giving users the ability to use their own personal devices on the HPE network seamlessly, without needing to worry about security, governance, and network management issues.

## HPE—proven, top-tier supplier

The HPE network drives the HPE platform for business activities that include sales, customer support, call center operations and internal communications.

Every dollar of the HPE multi-billion dollar revenue stream passes through a core and WAN infrastructure that now runs exclusively on equipment from HPE. The open standards-based network eliminates vendor lock-in and accelerates performance and reliability.

## Learn more at
**hpe.com/networking**

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