HP reinvents networking interoperability, readies enterprises for the future at May 2011 Interop in Las Vegas

HP proves reality of converged, multi-vendor networking in the cloud
Company will showcase solution at Interop New York in October 2011

UBM
TechWeb

"UBM TechWeb told us this is the first show in recent memory where they did not have a major issue with vendor equipment. That's a big deal since InteropNet started in mid 1980's."

— Tim Swiader, senior program manager, HP

Objective
Support the future of converged multi-vendor networking and data center architectures with a solution that's easy to use and manage with flexible deployment and administration.

Approach
Deliver 50% of wired connectivity for May 2011 InteropNet and showcase multi-vendor management across three collocated data centers.

Business technology improvements
- Showcases Interop as cutting-edge conference
- Proves "plug-and-play" interoperability between HP and Cisco gear
- Demonstrates a production IPv6 dual-stack and IPv6 only network
- Enables multi-vendor, "single pane of glass" network management via HP's Intelligent Management Center
- Provides a holistic view of entire InteropNet (monitoring and managing third-party equipment, including Cisco gear)
- Offers robust network security at perimeter and interior of show, including a cloud-based data center
- Deploys switches that consume far less power

Business benefits
- Helps to deliver the first show in recent memory with no major networking outages or issues with vendor equipment
- Saves costs for show organizer UBM TechWeb
- Showcases ways to accelerate creation of complex, multi-vendor networking architectures—three-week deployment
- Introduces new technologies and best practices for building business networks to show attendees
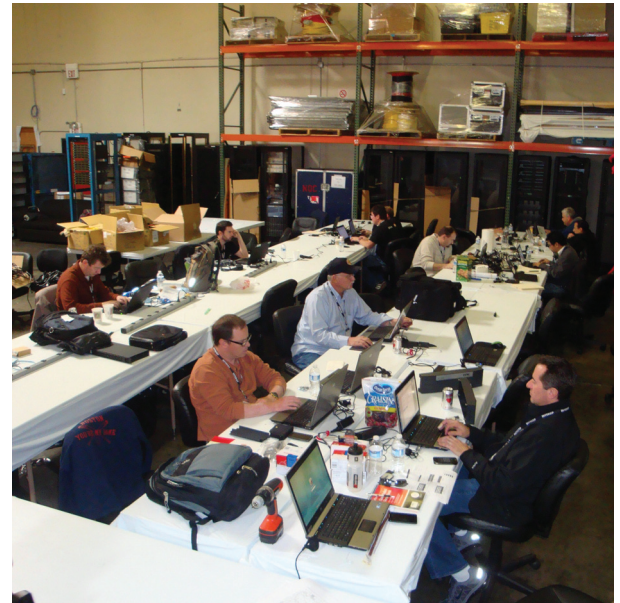
See the future of IT at Interop

The venerable networking tradeshow, Interop, showcases the latest technology innovations—cloud computing, virtualization, security, mobility, and data center advances to attendees. The show, organized by UBM TechWeb, draws over 13,000 attendees each year. More than just having vendors deliver product demos in booths, Interop was founded from day one based on real-world networking to support every operation on the show floor.

The centerpiece of the show is InteropNet, a completely interoperable IPv4/IPv6 data center and network using the industry's latest, cutting-edge technology. Built in collaboration with a select group of vendors and volunteer engineers each year, InteropNet provides a reliable, high-speed network that serves the exhibitors, conference rooms and attendees at the event. The network spans most of

Mandalay Bay Convention Center's 1.7 million square feet of space, supporting over 2500 concurrent IPv4 users and over 1000 concurrent IPv6 users. Parent company UBM TechWeb painstakingly selects the vendors that build this network through a rigorous request for proposal (RFP) process.

A demanding networking environment

InteropNet requires innovative, high-performance technologies, and the brightest IT professionals and engineers with the ability to work under aggressive timelines to meet the needs of Interop exhibitors. With just a few days to set up and showcase their wares, exhibitors need reliable wired and wireless Internet access, on and off the show floor. Many want to present media-rich content through presentations, while others need to stream video in real time—all running on InteropNet. Making things even more complicated, exhibitors have varying bandwidth requirements and may require different types of network connectivity. InteropNet must meet these fundamental demands, providing the flexibility exhibitors require.

At Interop Las Vegas in May 2011, HP and 18 other vendors created three collocated cloud-based data centers, networked virtually, and a network operations center (NOC) from the ground up in rapid deployment mode. This InteropNet solution caught the attention of industry players by showcasing a path to the future of converged, simpler and more manageable multi-vendor networking and data center architectures.

A multi-vendor network: Can HP and Cisco gear work seamlessly together?

InteropNet showcases how to design, deploy, and manage a multi-vendor, converged network, and is also a platform for the introduction of new technologies and "best practice" methodologies. It provides a viable demonstration and reference model of networks that meet current and future business needs. In the past, UBM TechWeb selected one main vendor to build the wired production portion of the network and one for the wired out-of-band management portion of the network. In 2011, UBM TechWeb invited HP to deliver 50% of the wired access, putting the interoperability of HP and Cisco networking gear to the ultimate test.

"We took a much larger role in Interop in 2011 than we had in the past," says Tim Swiader, senior program manager, HP Technology Consulting. "One of our main objectives was to prove that HP and Cisco gear can seamlessly interoperate and are manageable from a 'single pane of glass' using HP solutions."

IPv6: Is it really here?

HP also delivered an IPv6-only and dual-stack network for the show vendors and attendees. IPv6 is the next-generation Internet Protocol (IP) providing many advantages over IPv4: expanded address space, streamlined packet processing, enhanced standards-based security, seamless mobility and much more. Depletion of the IPv4 address space is just one of the factors pushing users to an IPv6 world.

"For many years to come, there will be an IPv4 Internet and an IPv6 Internet, with no connection between them," says Jeff Enters, technology consultant for HP and HP's lead architect for the InteropNet network. "Because of this, our customers are beginning to realize the competitive advantage of beginning the transition to IPv6 before their opponents. At the show, we were able to demonstrate the ease of transition and what the IPv6-only Internet looks like by deploying an IPv6 dual-stack and IPv6 only network."

Pre-staging: two weeks in a warehouse

To kick off the project, the HP team—consisting of one project manager and six engineers from HP's Technology Consulting Group who provide services to HP customers regularly—spent two weeks with 18 other companies in a warehouse near San Francisco fine-tuning the network design. Seasoned engineers from all of the companies collaborated with their counterparts, often working shoulder-to-shoulder at whiteboards to consider all the logical configurations.

After the design phase was complete, the vendors staged the 2011 InteropNet in the warehouse, handling everything from breaking down cardboard boxes to deploying HP's networking solutions including switching, routing, connecting to the show's WAN provider, management, and security. Once the network was fully deployed and tested, its components were loaded on a truck and sent to Las Vegas for production set-up prior to the event. During this entire process, interoperability emerged as the key requirement.

Ultimately, the 2011 InteropNet includes three different collocated facilities—all three cloud-based and networked virtually. Providing routing and security, HP headed up building the data center in Newark, New Jersey to support the live show. Cisco spearheaded its efforts at a facility in Sunnyvale, California. And Vyatta took the lead on the Denver, Colorado facility.

The project was deployed and live at Interop 2011 in just under three weeks. That timeframe included staging, configuring, testing, packing for shipment from San Francisco, and unpacking in Las Vegas. Adding to the challenge, HP had to manage 12

InteropNet – IPv4/ IPv6 Enabled Network Provided By Hewlett-Packard
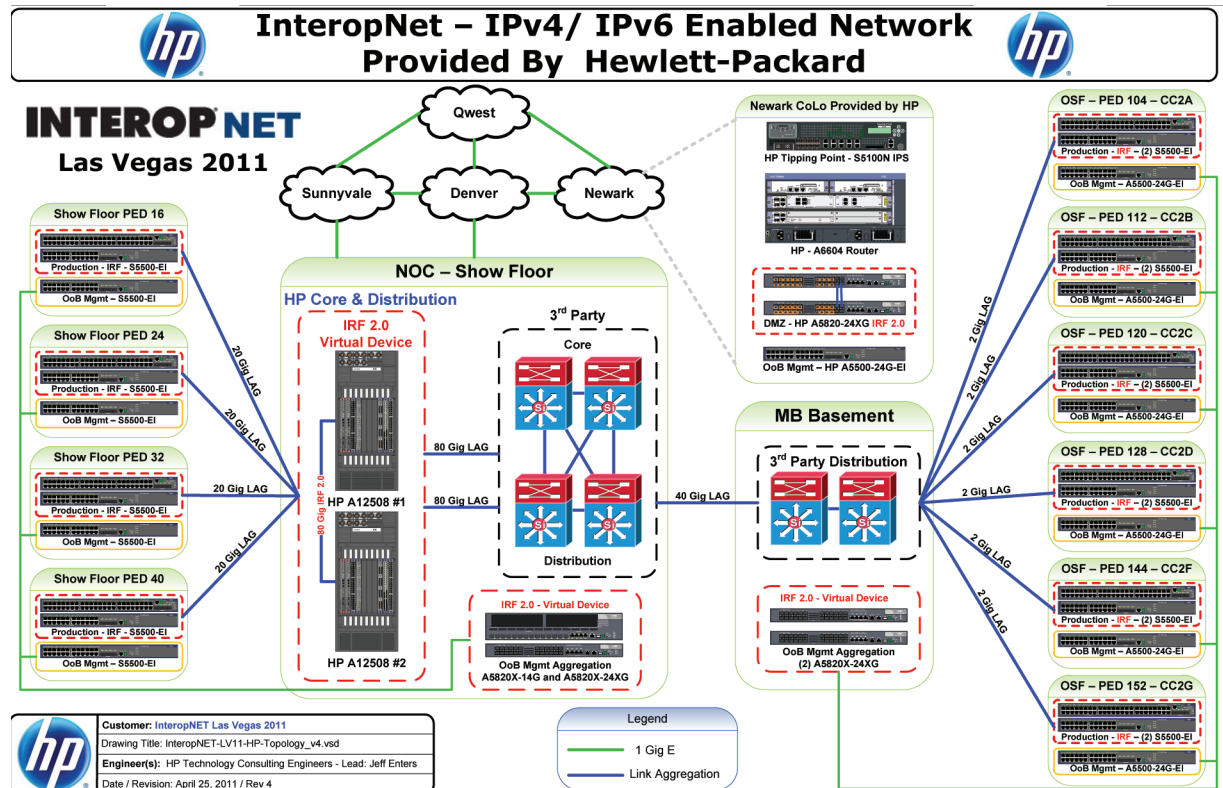
different pedestals, or "peds" scattered across the convention center. These consisted of data closets, cores, initial distribution frames and main distribution frames.

"Instead of being a relatively simple network installation, exhibitors have all kinds of extreme and dynamic requirements at the network edge, including IPv6, security, voice and real-time video streaming. Their need for reliability in a short life span network is absolutely critical and all had to be delivered in under three weeks," says Enters.

Simplifying and accelerating networking

For HP, InteropNet presented the perfect opportunity to showcase its newest networking and network management technologies, including the new HP FlexNetwork Architecture. Officially unveiled and used at the Interop event, the HP FlexNetwork is a unified architecture for the data center that enables enterprises to fully harness the power of media-rich content, virtualization, mobility, and cloud computing.

When the teams of engineers from many companies came together for the InteropNet network design and staging phase, lively conversation ensued about HP's newest networking technologies. Says Enters, "We had to walk into the data center and be able to plug equipment into any port, and everything had to interoperate seamlessly. The HP FlexNetwork Architecture is how we accomplished it. Many network engineers had never seen this kind of flexibility. The

FlexNetwork made HP shine—especially because the only constant within the InteropNet is change."

Doing more with less

In the HP-built data center in New Jersey, HP set up one HP ProLiant BL495c server blade in a HP BladeSystem c3000 enclosure and multiple HP A-Series switches and routers. A primary component of the New Jersey facility was the HP A8800 and A6600 data routers. These routers automatically sense if a specific component is using 120 or 220 volt input power. UBM TechWeb pays more to the convention center for 220 input power, so the ability to optimize the use of the power supply is a critical energy and cost-saving advantage.

"Our philosophy is always to 'do more with less,' and InteropNet was no exception," says Swiader. "We created a flexible solution that consumes very little power and space."

Security in a challenging environment

During Interop, HP also proved the reliability and power of HP TippingPoint Security—a complete set of security solutions that address sophisticated security threats at the perimeter and interior of the show. This was implemented at the Newark, NJ virtual, cloud-based data center. TippingPoint also helped protect UBM TechWeb's registration operations and other interactions occurring on InteropNet. This solution makes it extremely challenging for network experts to hack into the network or unleash worms or viruses — reducing the network's vulnerability to attacks.

3

"UBM TechWeb wants InteropNet to be extremely open so that exhibitors can essentially use the network for any of their needs," says Enters. "This means we can't block them from doing business, but we need to protect and monitor the network and the devices connected to it. HP TippingPoint security solutions enable us to do that."

True multi-vendor network management

The HP team—and the entire InteropNet—also leveraged HP's Intelligent Management Center (IMC). While there was another highly competent vendor assigned to the overall management of the InteropNet, HP saw it as a key requirement to be able to manage and oversee the virtual, cloud-based network, which used 2 Gigabyte feeds to connect among the San Francisco and Denver collocated data centers and the and Las Vegas show. HP engineers used IMC resource management software to keep a pulse on everything from bandwidth needs and availability to CPU and memory use. With just a few mouse clicks, the engineers could monitor the overall health of the multi-vendor network all through a single view using HP IMC.

A key requirement was the ability to push configurations and software out to 53 HP network boxes scattered across the convention in the peds. HP accomplished this without physically touching equipment—and backed up every configuration change using IMC. HP was also able to monitor and manage third-party equipment and Cisco gear to provide a holistic picture of the entire InteropNet, anticipating and resolving issues before they became acute. IMC generated several reports on the health and activity of InteropNet including traffic transmission, average utilization, and average uptime. Because any vendor on InteropNet can reach other vendors' equipment, HP wanted to be sure that no accidents occurred on the network that could cause issues. Using IMC, HP engineers were able to monitor any network activity in real-time.

Customer solution at a glance:

HP Services
• Technology consulting for InteropNet

Primary hardware
• HP A12508 Switch
• HP A5820 Switch
• HP A5800 Switch
• HP A5500 Switch
• HP A8808 Router
• HP A6604 Router
• HP S5100N
• HP NJ2000 1Gb IntelliJack Switch
• HP C3000 Blade Enclosure
• HP ProLiant BL495c Server Blade

Primary software
• HP FlexNetwork Architecture
• HP Intelligent Management Center
• HP TippingPoint Security

"Our network design withstood the test, and our products performed phenomenally," says Swiader. "But equally important was the ingenuity and expertise of the seven HP technology consultants who worked on the project. We had zero equipment failures. UBM TechWeb told us this is the first show in recent memory where they did not have a major issue with vendor equipment."

Building on the success of this same solution, Interop plans to use the HP FlexNetwork Architecture for Interop New York in October 2011.

About Interop

Interop is the only event to give attendees a comprehensive and unbiased understanding of all the latest innovations—including cloud computing, virtualization, security, mobility and data center advances—that help position companies for growth. Part of TechWeb's family of global brands, Interop is the leading business technology event, driving technology adoption by providing knowledge and insight to help IT and corporate decision-makers achieve business success. For more information on Interop events worldwide visit
http://www.interop.com

Get connected
www.hp.com/go/getconnected

Get the insider view on tech trends, alerts, and HP solutions for better business outcomes

This is an HP Indigo digital print.