Internap Increases Service Velocity and Scalability While Lowering Cost with Juniper at the Edge

Summary

Company:

Internap

Industry:

Cloud, Hosting, Colocation, and Network Services

Business Challenge:

Offer compelling high-performance Internet infrastructure services with greater business agility and lower cost.

Technology Solution:

- MX960 3D Universal Edge Router
- QFX5100 Switch
- EX4550 and EX4200 Ethernet Switches

Business Results:

- Enter new markets and offer additional services to grow top-line revenue
- Improve ability to scale routing capacity and features
- Embrace SDN and automation for operational management
- Deploy a platform that is future-proof

INTERNAP

Internap has been delivering high-performance Internet infrastructure for two decades. Today, it offers virtual and bare-metal cloud, hosting and colocation, IP transit and transport services, and a variety of managed network services to customers around the world. Its services are backed by a 100% uptime guarantee, the highest levels of compliance and accreditations, industry awards, and a long list of customers in ad tech, e-commerce, financial services, healthcare, gaming, and education. Juniper Networks enables Internap to achieve its mission of "performance without compromise."

Business Challenge

Delivering powerful Internet infrastructure to demanding customers means that Internap must deliver exponentially higher levels of performance—year after year. To keep up with current network growth and power the next wave of innovative services for customers, Internap needed to revitalize its network. It also wanted to reduce operational overhead. Internap had stringent requirements for its next-generation routing platform and well-defined business objectives that would enable the company to offer new revenue-generating services and lower the cost of delivering current services.

"Our network was growing too fast, and the growth was outstripping our routing hardware capability," says Mike Palladino, Vice President of Network and Support at Internap. "We needed to significantly increase the CPU and routing table capacity, future-proof the backplane capability, and drive down the cost per port. We needed a new platform that would better position us to scale out for years, enable us to build more innovative services for our customers, and allow us to build the automation we need to operate the network quickly and efficiently."

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Mike Palladino, VP of Network and Support at Internap

With over 80 service points worldwide, Internap also needed a way to build new sites faster, easier, and more cost-effectively with no reduction in service features, reliability, redundancy, or performance. "With our legacy design, building new sites was cumbersome, time-consuming, and required an inordinate amount of initial infrastructure, which came with expensive ongoing costs for data center power and space," Palladino says. "We wanted to lower the barrier to establish a beachhead in a brand-new market, or build a satellite extension in an existing market to meet customer demand quickly and easily, without giving up anything in the way of the performance

or reliability that our customers have come to expect from the Internap brand. Juniper allows us to do that with a holistic and seamless design, whereas their competitors simply couldn't."

Many roads led Internap to the decision to partner with Juniper. Internap was scaling its infrastructure faster than its people and needed to automate and innovate in a way not possible on the legacy network. The company needed an easier way to bring new services to market quickly, automate, and scale—in short, Internap needed a platform for innovation. The desire to do all this with a single partner made Juniper an ideal fit.

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Steve Orchard, SVP and General Manager Data Center and Network Services Business Unit at Internap

Technology Solution

Internap deployed Juniper routing and switching solutions for its next-generation downstream edge network. "For the customer terminating edge, we saw the need for power and throughput, but also feature parity, scalability, a long-term roadmap, and the ability to do programming in the future," says Steve Orchard, SVP and General Manager Data Center and Network Service Business Unit. "Juniper was the only thing that made sense."

Internap's network follows a hub-and-spoke architecture, with Juniper Networks® MX960 3D Universal Edge Router as the hub in each market, and Juniper Networks EX4200 and EX4550 Ethernet Switches deployed as the spokes. Internap is also evaluating the Juniper Networks QFX5100 switch, in order to migrate to Junos® Fusion technology in the near future. Junos Fusion will enable Internap to bring new configurations to market quicker, reduce operational overhead, reduce complexity for operational break/fix response, and reduce the total number of network elements to manage. "We are extremely excited about the QFX Series switches and Junos Fusion, which will make the fabric happen," Mike says. "Instead of managing all of the network elements, we can manage a pair of devices in each market. By reducing the number of individual elements, our operational teams can manage the network more easily and respond faster to our customer needs." Junos Fusion technology reduces complexity by collapsing underlying network elements into a single, logical point of management using Juniper routers and switches. With Junos Fusion, the aggregation and satellite devices maintain the control plane, and the aggregation device handles all of the management responsibilities.

The SDN-ready MX960 router delivers highly scalable routing, switching, security, and service features that enable network consolidation and service convergence. Internap takes advantage of many of the advanced features of Juniper Networks Junos operating system and continues to evaluate additional features such as Bidirectional Forwarding (BFD), nonstop forwarding (NSF), and virtual routing and forwarding (VRF) to deliver the highest levels of performance and reliability to customers.

Business Results

With a next-generation infrastructure from Juniper, Internap has the power and agility to bring new and incremental services to market faster, and at a lower price point. Selling IP transit is a commodity business, and with margins declining, it's critical to offer a portfolio of services. "Selling IP transit alone just doesn't get it done," says Orchard. "We must do transport, CPE, virtual routing, IPv6—customers are looking for a provider that says they can do it all."

"Our customers were making requests for services or configurations that our infrastructure couldn't support." He added. "My architecture and engineering teams were frustrated by the inability to add innovative new products or services to our legacy infrastructure. Now we can say with reasonable confidence that we can do what our customers are asking for and what our engineers and architects want to do. The new Juniper platform allows us to bring those ideas to life." With their new Juniper technology, Internap now has the potential to evaluate customer requests for 40 GB / 100 GB services, VPLS and EVPN, transit and transport on the same wire, virtual CPE services, and more. "We can now evaluate opportunities we couldn't before. We are able to say 'yes' to customer requests and innovative engineering ideas," said Orchard.

Not only is the business more agile, but delivering services will be more cost-efficient, adding to the bottom line. The physical footprint of the extensions has decreased dramatically. Instead of three cabinets filled with legacy gear, Internap now deploys one cabinet and minimal power. "In the new world with Juniper, we can reduce the extension site's power and space operational expenditures by up to one-third without sacrificing the performance or reliability of the product that we are known for," Mike says. "A dollar saved is a dollar earned."

Internap is embracing SDN and automation to gain operational efficiencies. "The network is growing much faster than my team's headcount," says Palladino. "Managing an ever-growing number of network elements was consuming the majority of our network engineering time. If we decided to turn a config knob, it could take weeks or months to get it deployed globally because we have hundreds of devices and only so many nights when we can do maintenance."

Palladino and his team are looking forward to leveraging SDN and open-source tools for orchestration and service chaining. "The Juniper infrastructure allows us to build automation and SDN tools and leverage more intelligent infrastructure and protocols," he says. "It could be XML, NetConf, or us writing software against

a Juniper API. The old infrastructure didn't allow us to do that." SDN will also be a huge benefit to Internap's customers. Internap is evaluating ways to simplify operations with automated provisioning and configuration, allow on-demand customization to customer configurations, scale at any time, and access granular analytics.

Having a platform that was future-proof was a critical requirement, and Palladino is confident that his investment in Juniper is protected. "Given the cost and complexity of replacing hundreds of network elements, we only wanted to do it once in our lifetime. We wanted a platform that had an 8- to 10-year life cycle," he says. "In just the last 6 years, we've seen dramatic leaps in the power and scalability of the Juniper platform." Juniper's MX960 fabric bandwidth increased from 80 Gbps in 2009 to 340 Gbps in 2015.

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Junos OS and the MX Series routing platform delivered on that requirement. "We spent a lot of time working with Juniper to understand that the MX Series has the capability for additional line cards, switching fabrics, and port density as things change. It's really important to feel confident about scaling and the future longevity of the platform," he says. "Other vendors say 'that box was amazing at the time, but now you have to replace it.' We have no appetite for that."

Despite a storied history as an Internet infrastructure provider, this has been Internap's first experience with Juniper. "We have a very strong partnership with our Juniper account manager and the technical team," he says. "They have the technical acumen to solve problems the first time. The level of white-glove treatment we receive is impressive and it's tough to ask for more."

Next Steps

Internap's customers are used to the flexibility and simplicity of the cloud-based IT services that they get from Internap's Cloud, Hosting and Colocation service offerings. As Internap completes their global rollout in 2016, Palladino's attention has turned to applying the cloud-based model to their network services. Internap is in the early stages of investigating Managed Cloud CPE services designed to replace existing CPE-based hardware. A software-based managed services platform offers Internap the potential to introduce instant service activation, service customization, usage-based payment models as well as a self-provisioning portal to the Internap customer base.

"Now that Juniper has modernized our physical infrastructure they are working with us to explore the value of a virtual service creation environment based on SDN and Network Function Virtualization (NFV)' says Orchard "We are confident that our IP Services customers would benefit from a virtualized, pay-as-you grow managed services deployment model."

Internap is evaluating potential business models and planning to conduct a proof of concept evaluation of cloud-based virtual network services in the very near future.

For More Information

To find out more about Internap products and solutions, please visit www.internap.com.

To find out more about Juniper Networks products and solutions, please visit www.juniper.net.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

Corporate and Sales Headquarters
Juniper Networks, Inc.
1133 Innovation Way
Sunnyvale, CA 94089 USA
Phone: 888.JUNIPER (888.586.4737)
or +1.408.745.2000
Fax: +1.408.745.2100
www.juniper.net

APAC and EMEA Headquarters
Juniper Networks International B.V.
Boeing Avenue 240
1119 PZ Schiphol-Rijk
Amsterdam, The Netherlands
Phone: +31.0.207.125.700
Fax: +31.0.207.125.701

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