

PEER 1 HOSTING TURNS TO JUNIPER NETWORKS ROUTERS TO MEET ESCALATING NETWORK DEMANDS

Summary

Industry: Telecommunications

Challenge: To support growing network demands for colocation and hosting services with a more scalable, reliable, and manageable infrastructure.

Selection Criteria: To ensure connectivity for its customers, PEER 1 Hosting needed a routing platform that combined unparalleled scalability and reliability with the capacity to manage increasing demands for high-density, high-bandwidth services, accommodation for an ever-growing set of Internet routing tables, and the flexibility to provide both Ethernet and SONET connectivity.

Network Solution: Juniper Networks M120 and MX960 Routers.

Results: After deploying 16 M120 routers in its global network in just four months, PEER 1 Hosting:

- Experienced dramatic improvements in network performance, stability, and scalability.
- Can offer new security services as well as provide dedicated resources for the control, forwarding, and services planes due to Juniper’s unique hardware architecture.
- Has plans to deploy several MX960 routers to further increase the capacity, density, and performance.

Headquartered in Vancouver, Canada, PEER 1 Hosting (TSX:PIX) is a leading online IT infrastructure provider. PEER 1 Hosting delivers highly scalable managed hosting and colocation solutions that ensure its customers’ online presence is always fast and available. Since 1999, PEER 1 Hosting has grown to include data centers and network points of presence in 17 major cities across North America and Europe. Today, they serve more than 9,000 companies with solutions designed to help customers make the most of their Web commerce opportunities, regardless of company size.

Challenge

Based on a 10 GB OC192 Internet backbone, the PEER 1 Hosting SuperNetwork includes 16 data centers, 21 points of presence, and 13,000 miles of fiber connectivity. PEER 1 Hosting maintains over 1,000 peering relationships across its backbone and has multiple Tier 1 upstream providers to ensure its SuperNetwork can deliver exactly what their customers need, when and where they need it most.

PEER 1 Hosting guarantees 100% availability and minimal latency to every customer. Fulfilling this promise requires a high-performance backbone network with scalability, flexibility, and availability features that can deliver maximum uptime, faster connections, and dependable reliability to their entire customer base.

Approximately two years ago, PEER 1 Hosting’s Jag Bains, director of Network Operations, realized that customer demands for bandwidth and the ever-increasing connectivity requirements had pushed the SuperNetwork’s existing infrastructure based on a major competitor’s routers to its limits. For a while, Bains was able to upgrade the memory, modules, and route processors on the existing routers to keep pace with increasing processing demands. Ultimately, however, the processing and bandwidth demands exceeded the capacity of these routers.

“It was coming to a point where no amount of upgrading was going to allow us to continue using the existing routers. They have a limited memory capability. When you are using BGP routing protocols on the backbone, it’s very memory-intensive and it only gets worse as the routing table grows,” said Bains.

As processing, capacity and memory demands of the PEER 1 Hosting SuperNetwork approached the limits of the routers, Bains and his team noticed an increase in routing instability. More and more frequently, memory exhaustion caused router performance to degrade and the routers to reboot. Although the redundancy that is built into the SuperNetwork prevented customers from noticing these problems, the limitations of the existing routers meant that Bains and his team had to work especially hard to keep things running smoothly.

“We needed to remove those routers from the equation,” added Bains.



Selection Criteria

The SuperNetwork backbone has always been an organic process in motion. Over its 10-year history, PEER 1 Hosting has constantly upgraded its capacity while extending the network to new cities. Because PEER 1 Hosting wanted the flexibility to move its backbone to 10GbE over time, the new networking solution had to be able to provide both Ethernet and SONET connectivity in a single, cost-effective platform. Their commitment to maintaining absolute availability also made it critical for the new routers to provide superior performance and reliability as the SuperNetwork is scaled to meet increasing capacity demands. Additionally, PEER 1 Hosting needed a partner that could provide prompt support if problems occurred after the new routers were in place.

PEER 1 Hosting tested solutions from multiple vendors that met many or all of its technical criteria. The Juniper Networks® M120 Multiservice Edge Router outperformed all other solutions. In the PEER 1 Hosting test, the M120 seamlessly supported both SONET and 10GbE services, while offering consistent levels of performance, security and reliability. Due to the platform's advanced quality-of-service (QoS) capabilities and excellent mitigation for distributed denial-of-service (DDoS) attacks and other security threats, the PEER 1 Hosting team decided that the Juniper M120 router would provide the most cost-effective platform for scaling and securing new application services for business clients around the world.

Before committing to the M120 migration, PEER 1 Hosting examined Juniper Networks' reputation. Bains spoke with several fellow networking engineers at Tier 1 service providers who had already made the change to Juniper Networks equipment. They all confirmed that Juniper Networks had earned its reputation as a premier carrier-class routing platform and provided prompt, able technical support to rapidly resolve even the most difficult networking issues.

Solution

After PEER 1 Hosting chose a Juniper Networks solution, Bains and his team began replacing the existing routers in the backbone network with the M120 Multiservice Edge Router. The team installed 16 new M120s in just four months.

This rapid installation went smoothly, but in order to take advantage of all the benefits of Juniper Networks Junos® operating system, Bains and his team decided to take a two-day course on Junos OS before completing the installation and reconfiguration of the network.

"Juniper was very helpful in this regard. Their solutions engineers analyzed our BGP configurations thoroughly and helped us translate them for the Junos OS platform, as well as develop strategies to make the M120s interoperable with the legacy network for the transition period. And, because Juniper is becoming a major player in the backbone and data center world, there are a lot of resources on the Web and in the network community at large to help you make the transition," explained Bains.

"Juniper's architecture and proven Junos OS provide our organization with the high-performance and reliability we require to address the ever-expanding requirements of our customers."

Ted Smith,
Vice President of Operations, PEER 1 Hosting

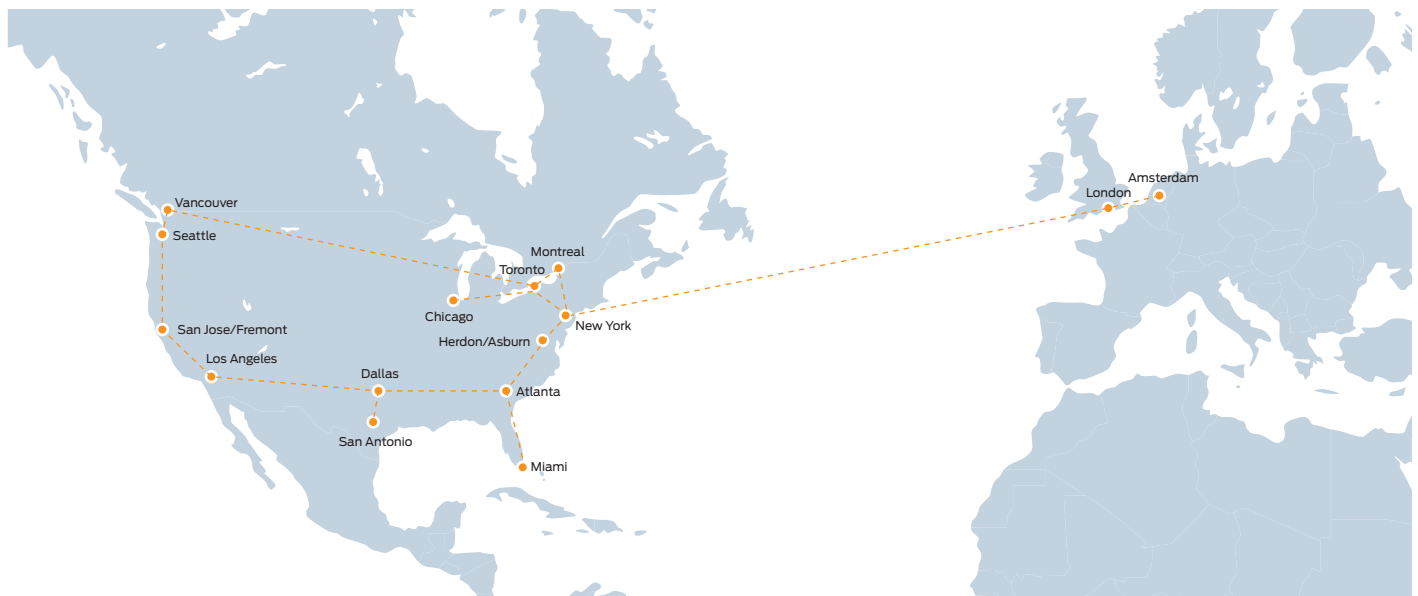


Figure 1: Juniper Networks M120 Multiservice Edge Routers in PEER 1 Hosting's SuperNetwork

Results

After the M120s were in place, Bains and his team noticed an immediate improvement in the performance and reliability of the network.

“We’re peered at some of the largest peering exchanges in the world. Towards the end of 2007, our existing routers were beginning to basically wilt from load. When we implemented the M120s, all those issues went away immediately. We had a much more stable backbone router that could handle even the most severe disruptions at these peering exchanges,” said Bains. “The M120 allowed us to become even more aggressive in pursuing additional peering partners, which we previously were not able to do because of CPU and memory exhaustion. Consequently we are running more than double the amount of traffic at these exchanges since the introduction of the M120 to our operations.”

With a more stable backbone in place, Bains immediately saw a significant drop in the number of trouble tickets his network operations center (NOC) received and subsequently a sharp decline in the number of maintenance events. The reduced call volume has enabled Bains to reduce his operating costs and streamline network maintenance.

“The NOC and engineering teams are now able to focus on provisioning and development of the network, instead of diverting attention to support stressed infrastructure.” Bains pointed out, “For instance, the NOC has also been leveraging Junos OS real-time performance monitoring to create ad hoc router monitors for a variety of situations, allowing the team, considered to be the best in the business, to be even more capable in providing first call resolution.”

The M120 router introduction enabled PEER 1 Hosting to expand capacity immediately. Prior to the M120 arrival, the total capacity of the backbone was 135 Gbps. Immediately after the installation, capacity was 255 Gbps and is continuing to grow.

“We just signed off to do an additional 10 GB port install at one of our Equinix exchange points,” added Bains.

Beyond the NOC, the M120 offers advanced QoS capabilities and threat mitigation capabilities that PEER 1 Hosting uses to provide a higher level of service to its customers. For example, PEER 1

Hosting is able to use the rate-limiting capabilities of the M120 to help customers mitigate the effect of a denial-of-service (DoS) attack.

“This wasn’t something we could do easily with our previous routers. The CPU costs meant that we couldn’t afford to take those steps on our backbone. Now we can with the M120,” declared Bains.

Next Steps and Lessons Learned

Customers that once considered a 100 Mbps circuit ample bandwidth now demand GbE access to PEER 1 Hosting services. The demands are especially acute in Canada where PEER 1 Hosting is a dominant player in the colocation market. Increasing demands from customers for GbE access has a ripple effect on the network architecture, translating into requirements for routers with high-density GbE/10GbE connectivity, robust BGP routing engines, rate limiting, comprehensive MPLS feature sets, and superior stability and performance. Success with the M120 has prompted the company to begin deploying the Juniper Networks MX960 Universal Edge Router to increase the scalability, density and performance of its next-generation network in Canada.

For More Information

To find out more:

About Juniper Networks products and solutions, visit www.juniper.net.

About Juniper Networks M Series Multiservice Edge Routers, visit www.juniper.net/us/en/products-services/routing/m-series/.

About Juniper Networks MX Series Universal Edge Routers, visit www.juniper.net/us/en/products-services/routing/mx-series/.

About PEER 1 Hosting, visit www.peer1.com.

About Juniper Networks

Juniper Networks, Inc. is the leader in high-performance networking. Juniper offers a high-performance network infrastructure that creates a responsive and trusted environment for accelerating the deployment of services and applications over a single network. This fuels high-performance businesses. Additional information can be found at www.juniper.net.

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3520310-001-EN Dec 2009

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