

DreamHost Scales to the Cloud with Juniper Networks Data Center Solution

Summary

Company:

DreamHost

Industry:

B2B Cloud Services

Challenges:

Improve the scalability and reliability of Web hosting service and scale to meet customers' growing demand for cloud services

Selection Criteria:

Best-in-class data center routing, switching, and security that would meet goals for high performance, high availability, and scalability

Network Solution:

- EX Series Ethernet Switches with Virtual Chassis technology
- MX Series 3D Universal Edge Routers
- SRX Series Security Gateways
- MAG Series Junos Pulse Gateways
- Junos Space Network Management Platform
- JSA Series Secure Analytics¹
- Juniper Care Plus services

Results:

- Improved Web hosting availability and scalability
- Prepared data centers for reliable cloud services delivery
- Rolled out new DreamObjects and DreamCompute cloud services
- Ready to meet business projections for rapid growth



DreamHost is the quintessential Internet startup. Four Computer Science undergraduates started the company in 1997 with a single Web server and no capital. More than a decade later, the Southern California-based company has more than 340,000 customers and hosts 1.2 million websites, blogs, and applications.² DreamHost offers a wide spectrum of Web and cloud hosting solutions, including shared hosting, virtual private server and dedicated server hosting, domain name registration, the cloud service DreamObjects, and the cloud computing service DreamCompute. The DreamHost difference, according to the company, is its innovative open source DNA, strong customer service, and “the absolute best Web hosting and cloud packages in the industry.”³

Challenge—Building for Growth

DreamHost needs to be ready for unpredictable spikes in traffic to its customers' blogs and websites. Plus, with a sunny forecast for cloud services, DreamHost is well positioned to double its business with next-generation new services. For instance, customers can take advantage of DreamObjects, the company's new object storage service that provides gigabytes of storage for pennies per month. DreamHost also recently launched DreamCompute, its infrastructure-as-a-service public cloud computing platform for entrepreneurs and developers.

“DreamHost has experienced rapid, organic growth across its business,” says Kenneth McRae, infrastructure director at DreamHost. “We needed to refresh and rebuild the network core to achieve our stability goals.”

DreamHost must deliver on its promise of quality service at an affordable price while continuing its steep growth trajectory. To achieve these goals, the company has built a new data center in Virginia and refreshed its three data centers in Southern California.

“DreamHost has more than 300,000 customers, and any kind of network interruption is a public event. We are counting on Juniper to provide the stability, uptime, reliability, and performance, and we have not been disappointed.”

Kenneth McRae, Infrastructure Director, DreamHost

¹ Formerly STRM Series Security Threat Response Managers. DreamHost Introduces DreamObjects Cloud Storage Service.”

² DreamHost Press Release, September 2012. <http://dreamhost.com/press-releases/dreamhost-introduces-dreamobjects-cloud-storage-service/>

³ “The DreamHost Difference, October 2012. <http://dreamhost.com/about-us/the-dreamhost-difference/>

Selection Criteria—Reliability and Scalability

To make this transition, DreamHost carefully evaluated the top providers of routing, switching, and security solutions. “Juniper Networks had the best products for the job, given our requirements for redundancy, the protocols we needed, and how we will use the devices,” says McRae. “That’s why we standardized on Juniper.”

DreamHost deployed Juniper Networks® MX Series 3D Universal Edge Routers, Juniper Networks EX Series Ethernet Switches with Virtual Chassis technology, Juniper Networks SRX Series Services Gateways, and Juniper Networks JSA Series Secure Analytics in its data centers.

Adopting Juniper Networks at all layers of the network was a decision made with care. “Typically, people select best-of-breed for each layer,” says McRae. “DreamHost was impressed to the point that we decided on a full adoption of the Juniper product line. We were comfortable with Juniper’s product offerings and maturity, especially with Virtual Chassis technology on EX Series switches.”

Having the consistency of a single network operating system across routing, switching, and security platforms helped DreamHost achieve the scalability it needed. Running Juniper Networks Junos® operating system reduces the complexity of the network, increases reliability, and reduces the time required to deploy new network operating services.

Solution—Cloud-Ready Data Centers

Using virtualization to improve network reliability and scalability was a major requirement for DreamHost. The company knew it could achieve higher levels of performance and reliability with a two-tier network core rather than a legacy three-tier architecture using Spanning Tree Protocol, which did not scale predictably.

Juniper Networks EX8200 line of Ethernet Switches was a perfect fit for DreamHost’s requirements for high-performance, highly available data center switching for both the core and access layers. The chassis-based EX8200 Ethernet switches support Juniper’s Virtual Chassis technology, which enables up to four interconnected switches to operate as a single, logical device. DreamHost chose the 16-slot Juniper Networks EX8216 Ethernet Switch for core and end-of-row switching.

DreamHost packs a lot of density into a row configuration, and a single row can have 1,200 to 1,400 Ethernet connections. “A single failure in our business could affect tens of thousands of customers,” says McRae. “We needed a methodology that supports our row configuration density and redundancy requirements. Juniper is the only vendor that could deliver it.”

Two DreamHost data centers use EX8216 switches deployed in a Virtual Chassis configuration as their core switches. Juniper Networks XRE200 External Routing Engines—purpose-built, server-class appliances that work with internal Routing Engines on EX8216 switches—externalize the control plane functionality

and separate it from the data plane running on the actual switch fabric. When deployed along with the EX8200 switches in a Virtual Chassis configuration, XRE200s enable a highly reliable design that eliminates any single points of failure and can scale to support more than 3,000 GbE connections. The EX8216 switches have also met DreamHost’s requirements for OSPFv3 and IPv6.

McRae, who is well-versed in other vendors’ network virtualization schemes, calls Juniper’s Virtual Chassis technology “refreshing.” All in all, Virtual Chassis technology has greatly simplified network operations for DreamHost. “Virtual Chassis is truly virtual. When you execute commands on the primary XRE200, those commands are in sync across the switching fabric. And the amount of time it takes to build the configuration is cut in half with Virtual Chassis,” McRae says.

Results—Peak Performance and Strong Security

DreamHost uses Juniper Networks MX960 3D Universal Edge Router in its Southern California facilities for border routing as well as for the network core in its Virginia data center. The MX960 router provides DreamHost the bandwidth, services, and predictable performance for Web hosting and cloud services that subscribers need, even during times of peak traffic.

“One of the biggest requirements we had was scale,” says McRae. “The MX Series platform was attractive because we can buy a chassis with redundant Routing Engines, and then scale the platform to accommodate additional bandwidth requirements.”

As McRae explains, “A major advantage of using Juniper platforms is the separation between the data plane and the forwarding plane, and the protection provided by keeping them separate.” The MX960 router separates control and forwarding functions to provide maximum scale and intelligent service delivery capabilities. In addition, the MX960 increases system availability with hardware redundancy for the switch control boards, Routing Engines, fan trays, and power supplies.

Unified in-service software upgrade (unified ISSU) allows the operations team to upgrade the routers with new Junos OS features and versions with minimal risk or downtime. But having tried in-service upgrades with other network vendors, McRae was initially skeptical about using ISSU on Juniper platforms. “Bad experiences are hard to forget,” he says.

“When we tried an in-service upgrade on the MX960, the whole company was watching to see what would happen. People were asking, ‘Have you started? We’re not seeing any issues.’ We came back and said it was finished.” With such a positive experience, DreamHost now performs in-service upgrades on its MX960 routers and EX8216 switches.

As a Web hosting provider, DreamHost has to be especially vigilant about security attacks. “Denial-of-service attacks are a big issue,” says McRae. “It’s 24 by 7. It happens all the time.”

DreamHost uses the Juniper Networks SRX1400 and SRX5800 Services Gateways to protect its data centers, and the Juniper Networks SRX240 Services Gateway to protect its branch offices. The SRX Series Gateways deliver market-leading network security performance, scalability, and service integration. Unified Threat Management (UTM) services include stateful firewall, application security, intrusion prevention, antivirus, antispymware, anti-adware, antiphishing, antispam, and Web filtering capabilities. In addition, DreamHost plans to take advantage of AppSecure for advanced application identification and classification for greater visibility, enforcement, control, and protection over the network.

DreamHost uses Juniper Networks MAG4610 Junos Pulse Gateway for secure SSL VPN. The employees previously used an open-source SSL VPN for secure remote access, but it was tricky to use and manage, even for a technically astute staff. With the MAG4610, DreamHost employees have easy, fast, and secure access to corporate resources and cloud applications, whether they are mobile, remote, or local.

“When people saw how easy Junos Pulse Gateway was to use, it was a no-brainer,” says McRae. “We didn’t make any public announcements that the SSL VPN was available, but we got tons of requests to provision user names and accounts. It sold itself.”

The operations team also uses Juniper Networks JSA Series Secure Analytics for network performance and security management. With the JSA Series Secure Analytics, DreamHost can combine, analyze, and manage surveillance data such as network behavior, security events, vulnerability profiles, and threat information to manage business operations on their

networks from a single console. JSA Series Secure Analytics helps the team implement better security faster and at a lower total cost of ownership.

Finally, DreamHost leverages Juniper Care Plus to keep its network at optimum readiness through personalized high touch support, direct access to Juniper’s senior engineers, and proactive network automation with Junos Space Network Management Platform. Network Insight enables the operations team to proactively manage and analyze network element data and optimize network infrastructure and operations management.

Next Steps and Lessons Learned

McRae sums up the benefits of the new network: “DreamHost has more than 340,000 customers, and any kind of network interruption is a public event,” says McRae. “We are counting on Juniper to provide the stability, uptime, reliability, and performance, and we have not been disappointed.”

For More Information

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.

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