

Shutterstock Keeps Pictures Moving with MetaFabric Architecture for its Private Cloud Data Center Expansion

Summary

Company:

Shutterstock

Industry:

Mission-Critical IT Data Center: Cloud Builder

Business Challenges:

Expand data center operations for greater automation and ease of management in a private cloud infrastructure to keep pace with exploding demand for images, video, and music from customers

Technology Solution:

- MetaFabric architecture
- MX240 3D Universal Edge Router
- SRX3600 Services Gateway
- EX4550 and EX4200 Ethernet Switches

Business Results:

- Expanded data center to support exponential business growth while evolving to a private cloud
- Deployed support for agile processes to develop, test, and run new code more quickly
- Adapted to changing business needs with an open, programmable network architecture
- Eliminated the need for full-time network administrators



Designers, marketers, and social media mavens turn to Shutterstock for the perfect visual. They can pop a few keywords into the search box and, behind the scenes, Shutterstock tears through its massive database of 35 million images, 1.5 million videos, and a vast library of music to find just the right content. An icon of the New York tech scene, with offices in the Empire State Building, Shutterstock has a nearly \$3 billion market capitalization and enjoys an annual revenue growth of 42%, as reported in Q1 2014.

Business Challenge

Shutterstock's challenge is one of massive growth. Shutterstock collects more than 2.5 terabytes of data every day from photographers, videographers, and designers submitting tens of thousands of new art to be chosen for sale through the marketplace. The company also expects its information to grow exponentially over the next few years.

Shutterstock wanted to re-architect and expand its data centers to keep pace with this growth. As a proponent of DevOps, Shutterstock wanted to create a public/private cloud data center architecture that would put the applications and operations first—and give its developers the freedom to work on innovative new capabilities without being hampered by details of the underlying network infrastructure.

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Chris Fischer, Vice President of Technology Operations, Shutterstock

Shutterstock debated whether to build more data centers globally or to re-architect its existing facilities. “We have multiple data centers and a substantial network and storage footprint,” says Chris Fischer, vice president of technology operations at Shutterstock. “We take the same approach that you would use for a scale-out, distributed server architecture. We have lots of blocks pieced together using simple infrastructures, and do it over and over.”

Technology Solution

Shutterstock chose Juniper Networks® MetaFabric™ architecture, which is based on routing, switching, security, and automation solutions, for its data center expansion. With Juniper, Shutterstock has a high-performance, scalable data center network solution built on an open framework that gives the maximum level of network programmability and automation, drastically simplifying the evolution to private cloud-based operations. It also positions Shutterstock to rapidly scale and adopt new applications and technologies, including SDN, when it's necessary for the business. Simplicity of operations comes from elements such as Juniper Networks Junos® operating system, so there is consistency across switching, routing, and security platforms. The ability to perform configuration validation and rollbacks lessens the likelihood of human error. This improves efficiency and allows Shutterstock to be more agile and focus on the business.

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“The thing that stands out about Juniper is that we could choose from many different shaped LEGO® blocks, if you will,” says Fischer. “When we designed the data centers, we knew that we wanted a uniform feel from Layer 3 routing down to Layer 2 switching. We were able to accomplish that with Juniper and having Junos OS run across the different platforms so that they had a similar look, feel, and operator capacity.”

Shutterstock uses Juniper Networks MX240 3D Universal Edge Router for the network core and Internet edge routing. The MX240 platform is optimized for the cloud and enterprise data center as well as service provider edge networks. MX Series 3D Universal Edge Routers are SDN-ready and powered by Junos OS and the programmable Junos Trio chipset.

Shutterstock uses the Juniper Networks EX4550 Ethernet Switch for high-density 10GbE aggregation and top-of-rack switching and Juniper Networks EX4200 Ethernet Switch for GbE top-of-rack switching. With Juniper's Virtual Chassis technology, multiple interconnected EX Series switches can operate and be managed as a single logical device, reducing operational expenses. EX4550 and EX4200 switches can also be deployed in the same Virtual Chassis configuration to support GbE and 10GbE servers.

“We use a lot of Juniper's Virtual Chassis technology to remove protocols that are cumbersome,” says Fischer. “For example, we don't have to run Spanning Tree because we use Virtual Chassis in the core and we can design around the idea of creating high availability.”

Shutterstock uses SRX3600 Services Gateway for its firewall and IPsec VPN between data centers. SRX3600 platforms are equipped with a full range of integrated security features and deliver market-leading performance, scalability, and service integration.

Business Results

Shutterstock's elegantly simple approach to data center expansion has significant advantages in terms of business flexibility and scalable performance. “By logically segmenting our data center into compute, storage, and network building blocks, Shutterstock not only scales performance, but we can also develop, test, and put new capabilities and applications in production faster,” says Fischer. “The consistency, flexibility, and openness of the Juniper platform allow our developers to work freely without network constraints when building new applications.”

Amazingly, the company does not employ dedicated network administrators. The network delivers such levels of performance, availability, and programmability that it doesn't need the careful tending of full-time staff.

“Whenever I'm thinking about my network platform of choice, Junos OS is the one I'm most excited about,” says Fischer. “We are solving some interesting challenges when trying to deliver huge volumes of files. The business is really growing from the customer side, and there's a tremendous amount of time used to move all of the bits around the data centers on the backend to make sure that we have the right amount of resiliency, business continuity, and copies of data in multiple places.”

A scale-out, distributed architecture makes it easier to deliver services through the cloud, both from Shutterstock's private cloud and a hybrid cloud service that leverages public cloud services. “With a hybrid model, we can use capacity in the public cloud or in our own data center, whichever makes the most sense for a particular application,” says Fischer.

Fischer describes his Juniper account team as “very open.” He continues: “Even if we're buying an appliance, we've always been able to work with Juniper to create a customized solution for us, in a very open, standard way, which is really important. We're a big open-source company, and if we can't be open source, we want to be open.”

Next Steps

Shutterstock is looking to network automation and orchestration to deliver even greater efficiencies. “The term ‘software-defined’ has a lot of buzz in the industry, but it’s an important idea,” says Fischer. “For us, it means that whether it’s a server, a network appliance, or some other infrastructure component, we’re finding a way to do the same thing, the same way, many times over via software. That’s a huge thing in building any scale-out, distributed system.”

Ultimately, greater automation and efficiency can deliver a better experience for Shutterstock customers. “There’s a lot of room for improvement in having simple, standardized, reproducible functions inside the data center or cloud,” says Fischer. “We want to provide an excellent customer experience, and there’s tons of instrumentation we can do, so that we know early on that a certain sector, virtual LAN, or data center is underperforming, we can take action and fix the problem. That way, customers aren’t interacting with a slow or sluggish site.”

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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