



AT TELEHOUSE AMERICA, A FEW ELITE ENGINEERS OPERATE NEW YORK'S LARGEST DATA CENTER

Summary

Company:

Telehouse America

Industry:

Web Services

Business Challenges:

Enhance data center services and simplify operations by adopting network automation, EVPN, and VXLAN, and a highly flexible data center fabric.

Technology Solution:

- QFX5100 line of Ethernet switches

Business Results:

- Enhanced agility of multitenant data center environment
- Reduced network changes from hours to minutes
- Simplified operations with network automation

Telehouse America, which offers carrier-neutral data center services in the U.S., opened its first data center on Staten Island in New York City in 1989. Today, it operates two massive data centers in New York as well as 46 other data center facilities around the world, including London, Paris, Los Angeles, Hong Kong, Seoul, Singapore, and Vietnam. Telehouse also offers international exchange (IX) services and connectivity with more than 750 carriers and ISPs. A subsidiary of KDDI, a Global Fortune 300 Japanese telecommunications company, Telehouse has more than 3000 customers.

Business Challenge

With a history of innovation and growing demand for data center services, Telehouse America wanted to enhance the network connecting its two New York facilities. The company is known for its rock-solid infrastructure and exceptional customer service. The Staten Island facility has provided uninterrupted service for nearly three decades—including during power failures caused by an unprecedented natural disaster. Telehouse America's Chelsea location is a central network infrastructure facility, and is the location of Telehouse NYIX, the largest peering exchange in New York and one of the top 10 exchanges in the world.

"In the future, the importance of networks will undoubtedly continue to increase," says Akio Sugano, vice president at Telehouse America. "Establishing powerful connectivity inside and outside of the data center and providing a stable network is an important mission that we have been tasked with."

There were three firm requirements for the new network: The use of Ethernet VPN (EVPN) and Virtual Extensible LAN (VXLAN) technology to accommodate a multitenant environment; an Ethernet fabric to reduce the operational load; and an API to automate network control.

Reducing the workload of the operations staff while expanding capabilities was critical. A small team ensures highly stable data center operations at Telehouse America, but as Sugano notes, network engineers are scarce and they do not have sufficient manpower in the face of rapidly growing customer demand.

"Junos OS is stable and easy to use, and our engineers can quickly configure the network without worrying about detailed conditions."

- Gregory Grant, Manager of Operations, Telehouse America

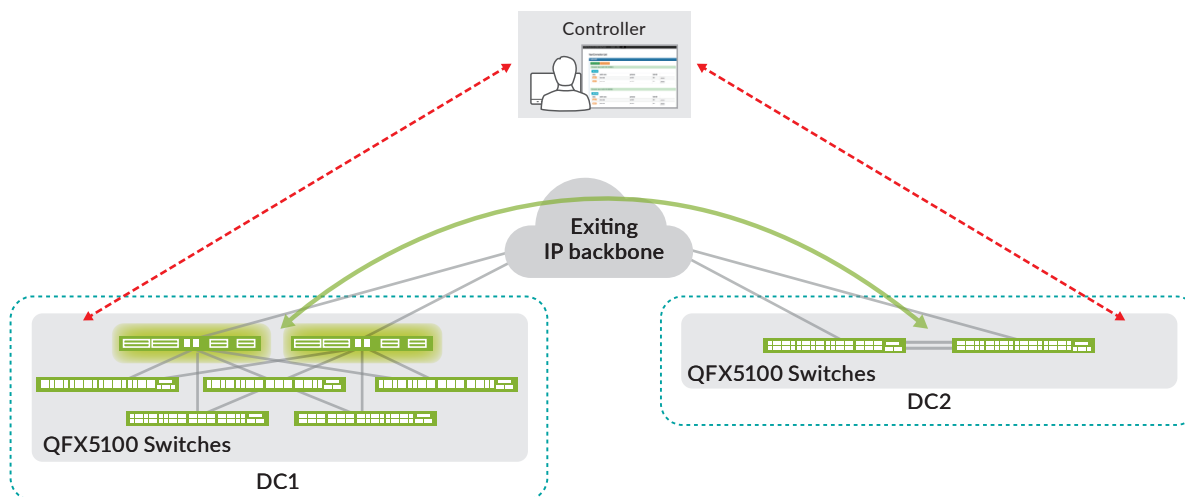


Figure 1: Multi-tenant L2 overlay with EVPN/VXLAN technology

Technology Solution

Sugano determined that automating network configuration, along with an Ethernet fabric foundation, would reduce the operational load within the multitenant environment.

Telehouse America selected the Juniper Networks® QFX5100 line of Ethernet switches as the network solution that satisfied all of its requirements.

“We tested various devices, but only the QFX5100 switch enables the proper level of EVPN/VXLAN functionality we expected,” says Gregory Grant, manager of operations at Telehouse America.

Telehouse America leveraged EVPN/VXLAN technologies on the QFX5100 switches to scale out its multitenant network. A Layer 3 IP-based underlay network, coupled with a VXLAN/EVPN overlay network, enabled the company to deploy a much larger network than with a traditional Layer 2 Ethernet architecture. By decoupling the virtual topology from the physical topology, servers and virtual machines can be placed anywhere in the network and remain connected to the same logical L2 network.

With the QFX5100, Telehouse has a low-latency, high-performance fabric architecture that can be managed as a single device. Multiple QFX5100 switches can be interconnected into a single logical device, vastly simplifying management and operations.

Juniper Networks Junos® operating system was also a factor in the decision. “Junos OS is stable and easy to use, and our engineers can quickly configure the network without worrying about detailed conditions,” says Grant. “We also focused on the extensive functions for data center network management and the high performance and functionality that each provides.”

Grant appreciates the many ways the Junos operating system simplifies operations: “Junos OS is commitment-based, so the work can be done without stress, and no mistakes or problems occur. I feel that Junos OS is a very important element in providing stable services,” he says.

Grant uses the Junos OS REST API to automate network configuration changes and other network operations. Based on open-source technology, the Junos OS API offers a high level of freedom and flexibility.

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Business Results

Telehouse America built more than a network to connect its New York facilities. It reduced the operational load on its engineering team by leveraging EVPN/VXLAN and the Junos OS API—while enhancing its services.

Its previous network had a traditional three-layer design, and every time a customer made a request, the configuration work had to be performed within the physical environment. Changes to the network configuration could take several hours or even up to half a day—a heavy load for just a few engineers.

Now when the configuration of a single switch is changed via software, that change is propagated across the network. The operational load has been greatly reduced, and the team says that work that had previously taken a half a day can now be completed in just five minutes.

A simpler, more agile network, powered by Junos OS, enables a small engineering team to be more effective and efficient as the business evolves. "A data center must adapt to user needs and environmental changes. For that reason, there are some major difficulties when it comes to securing human resources," says Grant. "Junos OS is an operator-friendly network OS that enables staff who do not possess advanced technical skills to control the network relatively easily."

"The Junos OS API is very convenient, and we've developed our own monitoring tool to help reduce operating costs," says Grant. "I like that it can be flexibly configured according to detailed technical requirements. I hope to acquire new knowledge by converting management information into database format and tying that into advanced business applications such as sales and marketing."

Next Steps

Currently, the QFX5100-based EVPN/VXLAN infrastructure is comprised of the two facilities in New York. Telehouse America has expressed its intent to expand the EVPN/VXLAN to its Los Angeles facility, home to Telehouse LAIX, which provides peering exchange to the Pacific Rim. It also has set its sights on rolling out the new network to the Telehouse Group in Europe and the Pacific Rim.

That deployment can be accelerated, now that Telehouse has standardized on Juniper. "We hope to increase the quality of our services by actively adopting cutting-edge technologies,"

says Sugano. "There are many promising technologies, but in each case, standardization takes a long time. Juniper Networks was quick to adopt advanced open-source technology and is proactively engaged in standardization. I hope they will continue to maintain both the historic network OS and advanced open-source technology."

With Juniper, Telehouse and Telehouse America have built the digital foundation of cutting-edge, robust services that enable customers around the world to serve their customers and accelerate their own digital transformation.

For More Information

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

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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