



packet

DEVELOPER-DRIVEN COMPANIES USE PACKET TO DEPLOY AUTOMATED INFRASTRUCTURE AT CLOUD SCALE

Summary

Company:

Packet

Industry:

Web Services

Business Challenges:

Enable technology-driven companies to deploy physical infrastructure at global scale.

Technology Solution:

- MX960 5G Universal Routing Platform
- QFX5100 Switch
- EX4300 Ethernet Switch

Business Results:

- Deliver bare-metal compute in 60 seconds
- Build an automated network that enables developers to deploy physical infrastructure on a global scale
- Deliver private, hybrid, and edge cloud services from 18 locations

When Packet launched in 2015, the public cloud services market was soaring. But Packet took a different approach: It launched on-demand, blazing-fast, bare-metal cloud services with a single-tenant infrastructure. The New York City startup made Juniper Networks routing and switching the foundation of its innovative cloud data center architecture—a solid decision that has carried the company through rapid growth.

Infrastructure is a competitive advantage for technology-fueled businesses, and Packet is appealing to developer-driven companies that need to deploy physical infrastructure at a global scale. In 60 seconds, customers have bare-metal servers, ideal for virtualized or containerized workloads, as well as speedy storage, and a network that's never congested.

"Developers are a critical foundation for us," says Jacob Smith, cofounder and chief marketing officer of Packet. "They are used to an automation-driven experience, and we are delivering that experience for infrastructure."

"What's unique about Packet is that we're offering dedicated machines, not virtualized instances like most public cloud providers," says Adam Rothschild, Packet's senior vice president of Network and Data Center Infrastructure. "With Packet, there are no noisy neighbors. Customers aren't competing for access to compute or network resources."

"The true benefit of partnering with Juniper is service at scale. Juniper has dealt with hard problems for its entire existence, and that fits with our objective at Packet, where we're architecting cloud services for market leaders."

- Jacob Smith, cofounder and chief marketing officer, Packet

Cloud with an Opinion

Packet has attracted more than a thousand customers, with missions as diverse as fleet safety to fighting click fraud to mobile gaming. Customers deploy 70,000 instances per month across the company's public cloud services.

"We're seeing growth from customers who are coming out of the public cloud," says Smith. "Organizations want more opinion and expertise than they've received. They want to optimize for performance, network, and cost, and they can't touch their infrastructure in the public cloud."

Beyond bare-metal public cloud services, Packet sees a huge opportunity in delivering on the promise of the experience economy with customized private cloud services as well as edge cloud.

“We’re just beginning the journey, but workloads are becoming experience-based,” says Smith. “The vast majority of our growth is scale-out, where we deploy and automate custom equipment for larger use cases.”

Cloud-Scale Growth

Packet operates core data centers in New Jersey, Silicon Valley, Tokyo, Dallas, and Amsterdam, and also deploys private infrastructure in more than a dozen other locations around the world.

Packet launched its business using a Juniper-based network, and that same network architecture continues to fuel its expansion. “Refreshing the network gives us more scale and features,” says Smith. “We chose Juniper because it gives us the features to do true Layer 3 automation.”



Packet’s network delivers cloud-scale performance with the cloud-grade networking features that are important to developers, including Layer 3 automation, Virtual Extensible LAN (VXLAN), BGP, anycast, and bring-your-own IP space. With the addition of VXLAN, customers can fully automate and control their own Layer 2 services through an API. “Using VXLAN to create scalable virtual networks has been a big benefit to our customers,” Smith says.

By deploying Juniper Networks® MX960 5G Universal Routing Platform at the core of its data centers, Packet delivers cloud-grade, future-proof scale and density to meet long-term traffic and services growth. Juniper Networks QFX5100 Switches

are used for 10GbE top-of-rack (ToR) switching, while Juniper Networks EX4300 Ethernet Switches are used for 1GbE ToR. Packet’s automation platform leverages the Juniper Networks Junos® operating system REST API to automate and orchestrate network resources.

Packet’s innovative data center network design eliminates the performance penalty of overlay networks. “We’ve decided to architect the network around the lowest possible level,” says Smith. “We borrowed inspiration from how hyperscalers architect their networks, and we’re bringing that architecture directly to customers for their private clouds.”

For instance, to support highly portable workloads, switch configurations are updated every 60 seconds across Packet’s global infrastructure. “We don’t do what everyone else does, at least in terms of a Layer 2 overlay” says Smith. “We worked with Juniper to make IP address portability and workload mobility work within a pure Layer 3 topology.”

As Rothschild explains, “We’re supporting hybrid workloads for customers that have specific security, privacy, or compliance requirements.” Customers manage their own connectivity, but can burst into the Packet cloud as needed, such as a retailer during the holidays. To accomplish this, we’re using MPLS and Layer 3 VPN technologies,” he says. “This capability is very specific to the QFX Series and EX Series switches.”

Today’s mobile-cloud world doesn’t tolerate sluggish response or interruptions. Rothschild appreciates the reliability of Junos OS, which spans routing, switching, and security devices. “Junos OS features like in-service software upgrades, hitless failover, and nonstop routing have spared our customers from outages,” he says.

The Rise of Edge Cloud

The rise of the edge cloud is being driven by the opportunity to interact deeply with people and devices in a meaningful, cost-effective way. Edge cloud is fundamentally different; putting compute closer to the digital consumer or IoT device means delivering subscale cloud services in hundreds or thousands of locations. Specialized infrastructure is required to meet the service need—and to deliver cost efficiencies. Edge infrastructure isn’t situated in data centers, but rather in cell phone towers, buildings, and even along the highway.

Innovation is carrying Packet forward into this emerging world. “We’re fortunate that we’ve been able to keep the same architecture and evolve, even as we embrace the challenges of distributed subscale edge deployments,” says Smith. “Edge data centers present enormous challenges for cost control, so it is critical to have a design that can scale incrementally so we can grow cost efficiently.”

The Power of Partnership

Partnerships are critical for Packet's rapid ascent. "As a growth company, we're very partner-driven. We can't do it all ourselves," says Smith.

"The true benefit of partnering with Juniper is service at scale," he says. "Juniper has dealt with hard problems for its entire existence, and that fits with our objective at Packet, where we're architecting cloud services for market leaders."

"Ten years ago, people barely had iPhones and the cloud was in its infancy. We think 2019 is an equivalent inflection point," says Smith. "Developers continue to change the world, and looking forward over the next ten years, we're certain they will innovate throughout the entire stack, including the network. Our message is simple: come innovate with us."

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- Adam Rothschild, senior vice president of network and data center infrastructure, Packet

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.

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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