Akamai connects its massively distributed cloud with Juniper 400G

Akamai has powered and secured digital life from the earliest days of the Internet, and it views the introduction of Akamai Connected Cloud as its future. Akamai Connected Cloud is a massively distributed edge and cloud platform for cloud computing, security, and content delivery.

To deliver Akamai Connected Cloud services to customers, Akamai completely reimagined how it builds and scales its global network with Juniper 400G routing and integrated coherent optics.

OVERVIEW

Company	Akamai
Industry	Technology
Products Used	PTX Series, JCO400 Coherent Optical Transceivers, MX304
Region	Americas

CUSTOMER SUCCESS AT-A-GLANCE

4X

Increase in metro capacity

80%

Cost savings by migrating to 400G routers with integrated coherent optics vs. 100G routers with separate DWDM

Eliminated

DWDM layer for simplified operations, reduced power consumption, reduced cross-connects, and lowered CapEx/OpEx

900+ Tbps

Network edge capacity to support 4,200 locations across 130+ countries

CHALLENGE

Connect the Akamai Connected Cloud

Akamai Connected Cloud delivers compute, storage, database, and other services at scale to customers around the world, as well as its content delivery network (CDN) and security services.

"We are redesigning the network to expansion into cloud services and new verticals," says Steven Schecter, senior director of network architecture for Akamai.

That growth meant that Akamai needed to expand the capacity of its global backbone and edge as well as adapt its network design to deliver cloud services closer to its customers' locations. Achieving its goals required creating distributed computing sites in more than 50 cities.

SOLUTION

Scale with 400G

A longtime Juniper customer, Akamai is deploying Juniper PTX Series Packet Transport Routers with integrated 400G coherent DWDM optical transceivers for its core, edge, and metro networks.

Akamai uses Juniper PTX10008 routers for its backbone and Juniper PTX10000 routers for its edge and metro networks. Juniper JCO400 series coherent optical transceivers deliver power efficiency, operational simplicity, and an open architecture for the converged packet-optical design.

"Ultimately, Juniper PTX routers with coherent optics are more cost-effective," says Schecter. "We also can achieve our stringent service levels and have better traffic engineering control."

Akamai's distributed computing sites—comprised of large data centers and smaller server farms—within a city or a region are connected by an elastic IP Clos fabric that is ready to deliver high-performance compute and other cloud services closer to customers' locations.

"We can grow from a couple of data centers in a region as needed without forklifting routers," he says. "Rather than replacing a router when we need more capacity, we can plug in another optical transceiver."

OUTCOME

Cloud computing, security, and content delivery

Akamai's distributed computing strategy, along with its massively scaled edge network, will help deliver better performance and resiliency for the company's CDN, security, and cloud computing customers, while also reducing capital and operational costs.

"This architecture allows us to expand capacity, agility, and scale, especially for compute services," says Schecter. "Our customers will have a better quality of experience leveraging Akamai Connected Cloud to create and deliver flawless digital experiences at massive scale."

Migrating to 400G with Juniper not only allowed Akamai to simplify the global upgrade, but also leverage its deep expertise in Junos OS Evolved and the operating system's extensive automation tools to streamline ongoing operations.

The migration is a multiyear effort with about a dozen sites completed in 2023 and more than 30 locations planned for 2024.

"Moving from 100G to 400G routing with Juniper will result in more than 80% savings in network costs."

Steven Schecter
Senior Director of Network Architecture, Akamai

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