

Mac IaaS Leader Uses Cisco VXLAN and Cisco DCNM to Connect and Automate Multiple Data Centers

MacStadium · Industry: IT services · Size: 100+ employees · Location: Atlanta, Georgia

Based in Atlanta, Georgia, MacStadium Inc. provides private cloud solutions built on Apple infrastructure to organizations around the world. Powered by MacStadium, Orchestration with Kubernetes on Apple (Orka) is the only virtualization layer for Mac infrastructure that is based on Docker and Kubernetes technology. For more information, visit macstadium.com.



Challenges

- Align infrastructure across multiple data centers
- Increase operational efficiency
- Improve IT agility and scalability

Solutions

- Cisco Nexus® 9000 Series switches
- Cisco Data Center Network Manager (DCNM)
- Cisco Data Center Network Insights

Results

- Increased the speed of client deployments
- Accelerated large-scale network changes from months to one day
- Improved infrastructure security, visibility, and automation

For more information

- [Cisco Nexus 9000](#)
- [Cisco DCNM](#)
- [Cisco Data Center Network Insights](#)

Challenge: Align infrastructure in multiple colocation facilities

With heavy demand for Apple Mac infrastructure and a lack of true competition, MacStadium's rocket-like ascent in the IaaS industry has been swift and dramatic. What started with a single data center in 2012 has expanded across the United States and even overseas to Ireland and Germany.

"We scale our business on demand, and there's been a lot of demand," says Khoa Tran, network architect at MacStadium. "We have customers who order 10 to 20 racks of equipment, and they want it provisioned in less than two weeks."

Speed of provisioning is just one challenge. MacStadium also has to monitor and maintain its mushrooming infrastructure, which is now spread across eight colocation facilities in three countries.

"We keep outgrowing physical spaces," Tran explains, noting the use of two facilities in Atlanta and three in Silicon Valley. "So, we needed to find a way to connect and manage all of our gear."

MacStadium recently established a Virtual Extensible LAN (VXLAN) Ethernet Virtual Private Network (EVPN) using Cisco Nexus 9000 switches. Leveraging a Multi-Site design, the VXLAN EVPN links the company's infrastructure within each colocation facility—and across multiple facilities in Atlanta and Silicon Valley.

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Centralized management and automation

MacStadium is using Cisco DCNM to centrally manage its facility-spanning infrastructure resources. A comprehensive management platform, Cisco DCNM provides fabric-oriented configuration, automation, and control for NX-OS network deployments.

“We use Cisco DCNM to automate and orchestrate our top of rack switches,” says Tran.

Centralized, automated infrastructure management has significantly eased the burden on MacStadium’s IT staff. Updating all of the company’s switches with new software or configurations used to take months. With Cisco DCNM, it takes a day or less.

“It’s very easy,” Tran says. “You just load the image, choose the switches, schedule the update, and press a button. Cisco DCNM does the rest, and everything is validated. It runs compatibility checks, provides before-and-after configuration snapshots, and even shows before-and-after traffic usage.”

Cisco DCNM also provides essential visibility into the VXLAN, he adds.

“It shows the health of the VXLAN,” Tran says. “We can see and resolve issues before they impact our customers’ workloads.”

MacStadium intends to deploy Cisco Data Center Network Insights in the near future for additional visibility. The integrated set of tools can identify anomalies in the VXLAN fabric and help automate troubleshooting, root-cause analysis, capacity planning, and remediation.

Speed and security

With its infrastructure resources more connected and automated, MacStadium is no longer playing catchup with customer demand.

“Speed is the key to winning business,” Tran notes. “Since we implemented these Cisco technologies, we’ve been able to deploy new client environments faster than the identified delivery date.”

Data security is also a critical factor for MacStadium’s clients, and Tran says the VXLAN provides full workload isolation.

“We have completely segmented and separated our customer environments,” he explains. “And we can further divide those environments and place the workloads in multiple facilities if we want. We have a ton of flexibility.”