

Penn State supports application reliability with modern data center network



Penn State is a powerhouse, from the classroom to the football field to the research lab. As Pennsylvania’s largest public university with more than 88,000 students and 35,000 employees, Penn State consistently ranks among the top universities in the world.

The university relies on Juniper Networks QFX Series Switches for its data center network fabric to support the university’s academic, administrative, and research objectives.

OVERVIEW

Company	Pennsylvania State University
Industry	Education
Products Used	QFX10008 and QFX10016, QFX10002, QFX5120
Region	Americas

CUSTOMER SUCCESS AT-A-GLANCE

88,000

Students on 24 campuses across Pennsylvania

No. 31

Among national public universities in U.S. News & World Report “Best Colleges” ranking (2022-23)

Reliable operations

Scalable data center network supports the university’s academic, administrative, and research objectives

IT agility

Faster service delivery with resilient data center networking and automation

CHALLENGE

Deliver IT at the speed of business

Resilience is a unifying concept throughout Penn State’s strategic plan for the next decade. The university is engaging students and the broader community to respond to adversity and create new solutions to the world’s complex challenges. Enhancing access to education, supporting student success, driving economic development, and supporting sustainability are all foundations of Penn State’s mission.

Resilience is also critical for the IT systems that support Penn State’s academic, administrative, and research operations. Behind the scenes are three data centers that power the university’s core applications, including student information systems, human resources, and financial operations, and also support the work of dozens of academic colleges, including agricultural sciences, engineering, and medicine.

“We rely on the stable networking in our data centers to support IT service delivery,” says Tom Long, director of enterprise networking and communication services at Penn State.



 SOLUTION

Data center fabric delivers scale, reliability

Penn State relies on Juniper networking for its data centers at its flagship University Park and other campuses.

With an IP fabric from Juniper, Penn State can decouple the underlay, or physical network, from the overlay, or virtual network, and seamlessly stretch connectivity across its three data centers. EVPN-VXLAN allows data centers and other sites to be connected at Layer 2 over the Layer 3 network, while providing segmentation like a VLAN but without the scaling limitations. The university uses Juniper QFX10008 switches for the spine, Juniper QFX10002 switches for the border leaf nodes, and Juniper QFX5120 switches for the access leaf nodes.

The resilient, secure, and flexible Junos® operating system runs networkwide. Open and programmable, Junos OS supports the network team's shift to infrastructure automation and NetOps. To speed service delivery, the team developed automation tools that leverage open-source NetBox software for data center infrastructure management. Juniper Ansible plug-in modules are integrated with NetBox to automate network provisioning and management.

 OUTCOME


Deliver scalable data center network services

Penn State continues to deliver reliable, scalable data center services to support the university's administrative, academic, and research missions.

"With Juniper, we have a highly reliable and scalable network for our data centers that helps us deliver application and network services to our stakeholders faster," says Long.

Beyond the technology, Penn State's network team appreciates the relationship with the Juniper team over the years, from insights into product roadmaps and best practices for data center networking to support at local events.

"The Juniper account team is responsive to new feature requests and provides quick resolution when we experience issues," says Long.



"Juniper's data center network solution provided Penn State with an architecture that met our requirements from Day One and also scales to address new needs as colleges and departments need more services."

Tom Long
Director of Enterprise Networking Communication Services, Pennsylvania State University

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