

ROADMAP TO BUILD AN AI-DRIVEN, SECURE, DISTRIBUTED REMOTE NETWORK FOR HIGHER EDUCATION

Improve operations and reduce costs with Session Smart SD-WAN

Challenges

With technology playing a greater role, higher education needs an effective way to deliver better application experiences, simplify network operations, and lower OpEx.

Solution

Juniper delivers a consistently secure Session Smart SD-WAN solution in both physical and virtual form factors, while the Juniper Mist Cloud Architecture optimizes wired and wireless campus and branch networks, simplifying operations. With University at Home, AI-driven networking supports remote and hybrid learning.

Benefits

- Improve the user experience with optimized application delivery
- Simplify deployment and management of remote locations with AI-driven operations
- Choose the best-fit WAN connectivity for each site
- Protect sensitive data and maintain compliance with integrated and automated security

Cloud is a top priority for many higher education CIOs as they modernize core instructional and administrative systems to increase agility, optimize user experience, and lower costs. AI and advanced analytics play a growing role in the overall student experience and support student success initiatives. Researchers can analyze massive data sets, bringing new discoveries to light. And the ability to move high-performance compute to the cloud levels the playing field for smaller colleges and universities. However, cloud applications and services have fundamentally different traffic flows than when users access applications from the on-premises data center. And that impacts the design of the WAN.

Traditional WAN architectures and legacy WANs are coming up short in today's cloud era, lacking the scale, flexibility, and agility that higher education requires. Universities and colleges have always connected multiple campuses, remote offices, and labs. But that mission has expanded as institutions have international campuses or operate joint-degree programs with foreign universities. The interconnected, collaborative nature of academia means faraway locations must be tightly woven into the larger university fabric.

Back on the main campus, student, faculty, and staff expectations for outstanding digital experiences are high. Wi-Fi everywhere is a prerequisite. Universities must accommodate the need for remote teaching and learning, and many are exploring contact tracing apps for on-campus health and safety. Tents may be used for pop-up instructional spaces. As institutions look toward smart campuses to create healthy and sustainable environments, the number of IoT devices and sensors are rapidly proliferating.

The Challenge

The next wave of SD-WAN innovation is being driven by AI and multicloud. In today's environment, most traffic from campus and branch locations is headed to the cloud, necessitating an agile network. But routing cloud traffic over the WAN backbone wastes capacity, adds latency, and negatively impacts the user experience. In addition, when network and security in campus and branch locations are configured manually, there's a risk of inconsistent configuration, policy enforcement, and reliability. IT needs the ability to choose the best-fit connectivity for regional campuses, remote offices, and global outposts. Gaps in security policies increase the risk of data breaches and regulatory noncompliance.

The Solution—Juniper Networks Session Smart SD-WAN

Juniper's Session Smart SD-WAN solution brings simplicity, security, and scale to your AI-driven institution, providing an easier way to configure, manage, and secure the connections among different campuses, data centers, collocation facilities, and cloud instances.

When combined with Juniper's branch solutions driven by Mist AI, IT gains the ability to configure, secure, and manage the campus LAN and the enterprise WAN in the same way and with the same set of tools. Consistency and control streamline operations, reduce manual errors, and improve security everywhere. Session Smart SD-WAN leverages software-based Session Smart routers that can also be deployed on Juniper Networks® NFX Series Network Services Platforms. For more advanced security, a Juniper Networks SRX Series Services Gateway or vSRX Virtual Firewall can deliver robust and secure SD-WAN.

Improve the User Experience with Session Smart Technology

With Juniper, IT organizations can optimize the delivery of applications and services to students, faculty, and staff while delivering a better experience. Session Smart SD-WAN provides a tunnel-free architecture that reduces bandwidth overhead by 30% to 50%, noticeably improving application response times. The Session Smart technology delivers richer and more granular services and sessions than packet-based router solutions. Setting up policies per site, per academic department, or per college is quick and simple with an intuitive interface and automated workflows.

Traffic can be dynamically routed over hybrid connections, based on defined policies and the state of the network links and end-to-end application experience. Quality of experience sensors, combined with fine-grained dynamic path selection, provide a new level of control.

Manage AI-Driven Campus and Branch Networks

With Juniper, IT can use the same tools and automated workflows to orchestrate the entire network, from the WAN, to campus wired and wireless networks, to security. Deploying network devices at remote campuses is simplified with zero-touch provisioning (ZTP) that automates access to the SD-WAN. There's no need for local IT expertise to configure network devices at remote sites.

The Juniper Mist Cloud Architecture brings wired, wireless, and WAN assurance with service-level expectations (SLEs), insights, and automation to campus and branch networks, allowing IT to optimize the network user experience while greatly simplifying

management. Juniper Mist Cloud Architecture allows the IT team to provision and manage Juniper Networks EX Series Ethernet Switches and Mist Access Points—all from the Juniper Mist Cloud. The Juniper Session Smart SD-WAN solution is federated with the Juniper Mist Cloud Architecture to also provide visibility into the wired and wireless LANs, simplifying operations.

Advanced security and threat visibility empower IT teams to see, automate, and protect their environments. Embedded security policies ensure that traffic is secured with fine-grained security policies for intrusion prevention system (IPS), Web filtering, antivirus, antispam, content filtering, and URL filtering.

Support Remote Teaching and Learning

Today's educational institutions need to be prepared for both hybrid and remote learning. By combining Mist Wi-Fi and Mist Edge with the Juniper Connected Security solution, institutions can extend the network into faculty, staff, and student homes to provide great connectivity and needed protections. With the Juniper Networks University at Home solution, colleges can easily deploy managed network equipment using ZTP and without the need for site visits. IT gains AI-driven insights into the user experience at home. The hassles of VPN clients are eliminated, while university security policies are enforced no matter where the user is located.

Choose the Best-Fit WAN Connectivity

Lowering telecom costs was a big driver in the early days of SD-WAN, as the technology reduced reliance on MPLS in favor of broadband Internet. While the appeal of more affordable connectivity is ever present, the need for choices for connectivity is equally critical.

Many organizations still rely on legacy WAN interfaces to support their current applications, even as they embrace cloud applications and services. For them, a gradual transition to SD-WAN is necessary. Juniper Session Smart SD-WAN allows institutions to use broadband Internet, metro Ethernet, 4G LTE wireless, and MPLS, in addition to legacy links such as T1/E1 or DSL, thereby balancing availability, costs, and reliability for different locations.

Institutions can choose the best-fit WAN edge device for different needs and locations. Juniper Session Smart SD-WAN and branch solutions driven by Mist AI run on flexible, open platforms, including NFX Series Network Services Platforms. These devices, which scale from 100 Mbps to 10 Gbps, feature both modern and legacy link interfaces, and they integrate VPN and next-generation firewall functions with SD-WAN services to reduce management overhead, costs, and complexity.

Protect Sensitive Data with Integrated Security

Information security remains a priority, as higher education seeks to protect intellectual property, secure students' personally identifiable information, and maintain data sovereignty. Juniper gives IT organizations visibility into threats and automates the protection of institutions. Security policies ensure that traffic is inspected, and policies are applied as close as possible to where the data resides, whether it's a workload in the cloud, a pop-up classroom, or IP surveillance cameras at a satellite campus—minimizing the spread of threats.

SRX Series firewalls, NFX Series services platforms, and vSRX virtual firewalls provide next-generation firewalling and universal threat management. For added threat protection, Policy Enforcer, a critical part of Juniper Networks Junos Space® Security Director, blocks threats at the switch port to contain threats closer to the source, and it dynamically follows and contains any threats that may roam among ports.

Fueled by AI and automation, Juniper Session Smart SD-WAN improves user experiences and simplifies network operations.

Summary—Improve Operations and Reduce Costs with Juniper Secure SD-WAN

Higher education has long relied on Juniper networking to foster the bright, curious minds of our next-generation leaders and advance scholarship and discovery. With digital technologies an increasingly important element of higher education today, universities and colleges are increasingly looking to Juniper for a better way to operate their essential network foundation.

To learn more, please contact your Juniper account manager or solution provider.

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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