

Experience-First Networking for Higher Education

First class enhanced experiences for students, faculty, researchers, staff, and institutional IT teams provided with secure client-to-cloud automation, insight, and AI-driven operations.



Experience-First Networking

Experience is the first and most important requirement for networking in the cloud era.

That's why Juniper focuses on the end-user experience – the students connecting remotely to their online classes or studying in outdoor areas of the campus, faculty looking to provide an always connected, all-inclusive, integrated, and efficient learning environment, and the technical teams behind these experiences making it all happen on a day-to-day on and off campus.

Our comprehensive focus on experience excellence is delivered from the moment we engage with higher education IT teams, to how they can upgrade and scale to provide the modern-day connected academic experience expected from both students and faculty.

Deliver Innovative and Competitive Services that Meet the Needs of Today's Students and Academics

Universities and colleges can leverage AI-driven networks to achieve academic, pastoral, security, and safety objectives; reduce operational costs, and increase student retention and recruitment to drive additional revenue. Optimizing client-to-cloud experiences saves time and money, while enabling IT departments to best align with key institutional objectives.



Winning students and faculty with a great campus and application experience with best-in-class Wi-Fi

Effectively deliver classroom, hybrid, and remote learning, while extending your network to any location.

Deliver predictable, reliable, and optimized network experiences for all users, devices, and applications - from client to cloud.

- Use AI-driven insight and customizable service levels to optimize network experiences for students, faculty, staff, and visitors, based on their constantly changing needs and locations.
- Seamlessly support collaborative conferencing and research facilities across multiple locations.
- Increase reliability, reduce time to remediation, and decrease operational costs with automation of Day 2 operations.
- Ensure technology equality by using the network to identify what's needed and provide appropriate support (such as a replacement laptop, upgraded Internet connection, or guidance to overcome technical issues, such as incorrect configuration).

Real experiences and results



Students at **Dartmouth College** are getting reliable wired/wireless connectivity everywhere on campus.



Alamanda College in Melbourne, Australia, **reduced an average of 10 Wi-Fi complaints a day to zero.** Since moving to a cohesive Juniper wired and wireless network, students, teachers, and administrators enjoy improved digital experiences with reliable connections to online learning tools, video, and the Internet.



None of this can happen in a vacuum. For automation, insight, and AI-driven actions to deliver maximum results from the client all the way through the cloud (or several clouds), they must be coordinated. More specifically, correlation is required across the WLAN, LAN, WAN, Data Center, and security domains to deliver cohesive operations and experiences.

Let us put this into perspective with an example you can relate to.

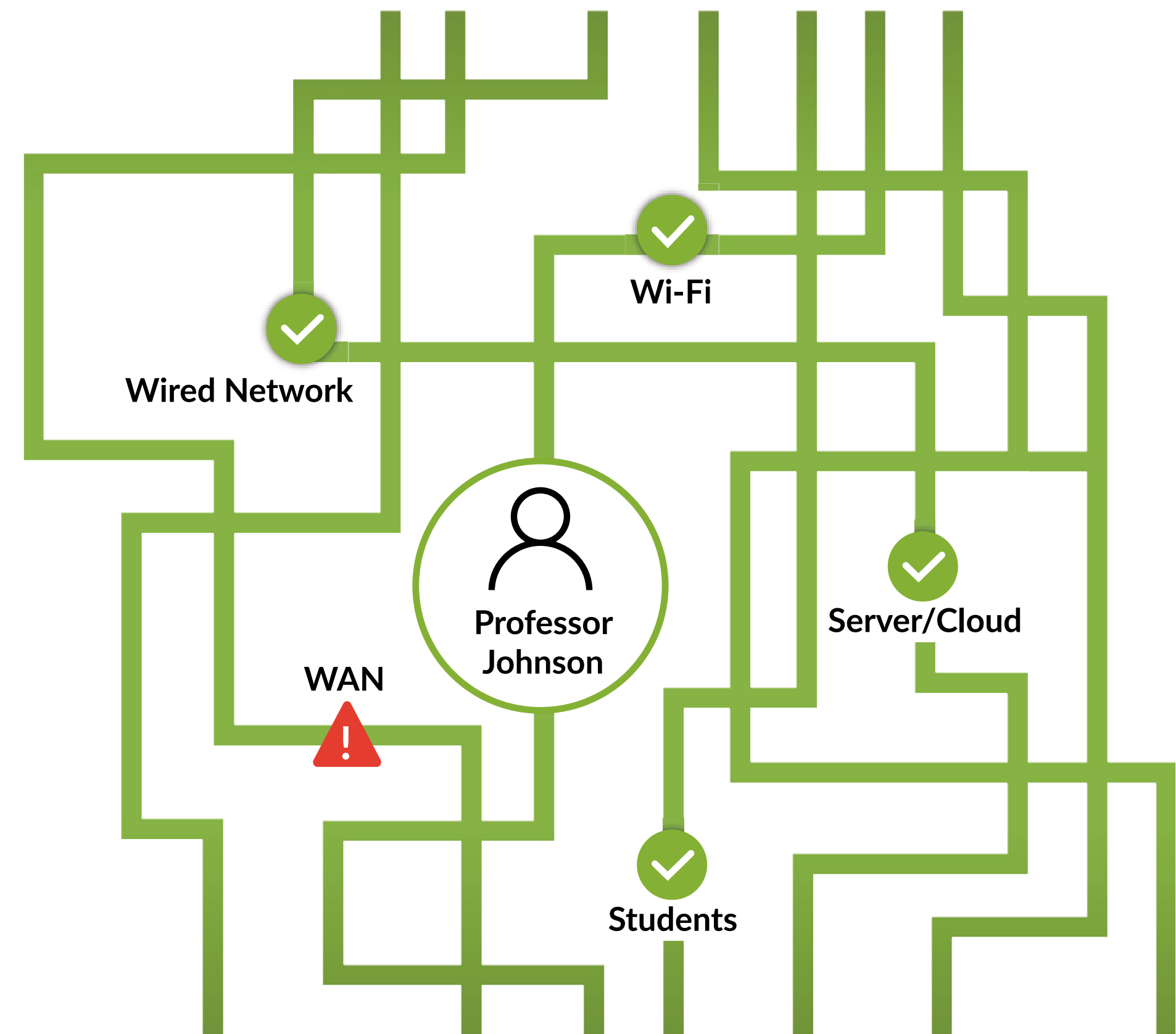
Yesterday, Professor Johnson’s online live lecture with his students dropped. Why? Was it his Wi-Fi? A bad ethernet cable on his router? The application server in the cloud/data center? A new security policy? Malware on his computer? Or his internet/WAN connection?

With end-to-end service levels, event correlation, anomaly detection, and self-driving functionality, you can easily discover the issue and fix it before Professor Johnson even knows there is a problem. Juniper picks up where other solutions stop. We know that even though the network is up, Professor Johnson’s experience is not good. And we know these things proactively, often before a user complains or a ticket is opened.

That’s experience-first networking.



What was wrong with this professor’s video call yesterday?



Build educational spaces based on location data to drive student success, along with automation and data centers

Support student, faculty, and staff safety and wellbeing and deliver engaging and relevant experiences.

Leverage unique and virtualized Bluetooth (vBLE) location-based services built right into the network.

- Enhance student, faculty, staff, and visitor experiences, and increase engagement through localized services such as turn-by-turn wayfinding, class reminders, and campus information.
- Use the accuracy of virtual beacons (within 1-3m) to deliver on-the-spot information, such as digital coupons or hazard alerts.
- Easily locate portable assets (such as student devices or lab equipment), and leverage data analytics to cost-effectively manage use of buildings, facilities, and energy.
- Safely manage room occupancy limits to meet social distancing, safety, and quarantine requirements, and use proximity tracing to determine isolation requirements if needed.
- Harvest footfall and participation analytics to understand class attendance trends and anomalies, and help students stay on the right trajectory for success.

Real experiences and results



University of Reading build a digital foundation to enhance the student experience. The network provides insights into student success. Integrating location data with the university's attendance management system, for instance, may reveal whether a student regularly attends class. With insights like this, along with other indicators of educational success, the university can take action to help students stay on track.



Leverage AI to enhance campus operational efficiency and reduce operational costs

Simplify network operations and increase network service reliability.

Reduce helpdesk workload to free up skilled IT resources.

- Maximize end-user satisfaction by improving operational, classroom, and end-user efficiency.
- Simplify network planning, design, and operation through network automation.
- Leverage AI to automate and accelerate deployment and processes.
- Scale primary and specialty services; scale out efficiently with a single operating system.
- Simplify campus to home network operation and achieve lower cost.
- Leverage automated troubleshooting to dramatically reduce the number of network tickets.
- Use AI to predict network problems and performance issues before they happen, as well as taking proactive remediation to continually optimize each user experience.

Real experiences and results



The University of Cyprus transformed campus access, the core data center, and Internet edge networks with Juniper, resulting in a 40% operational cost saving compared to their previously installed network infrastructure. Educational and administrative applications have benefited from faster network speeds and capacity, and the network team can now accomplish more than ever.



The Joint Universities Computer Centre (JUCC) in Hong Kong has built an infrastructure powered by Juniper to ensure the high-speed exchange of information, facilitating global research collaboration in data-intensive fields such as high-energy physics, genomics, and public health. The high-density, power-efficient 100 Gbps open exchange point connects Hong Kong universities to researchers in China, the U.S., Europe, Singapore, Japan, and elsewhere around the world.

The delivery of experience extends beyond what is going on for the higher education user. This assured user experience depends on the experience and means of the operations team. Better automation, insights, and AI in operational toolsets helps them to deliver new academic apps and services more quickly and efficiently and assure the user experience and higher education institution security and make repairs and changes when needed.

Here’s an example from the operator’s point of view.

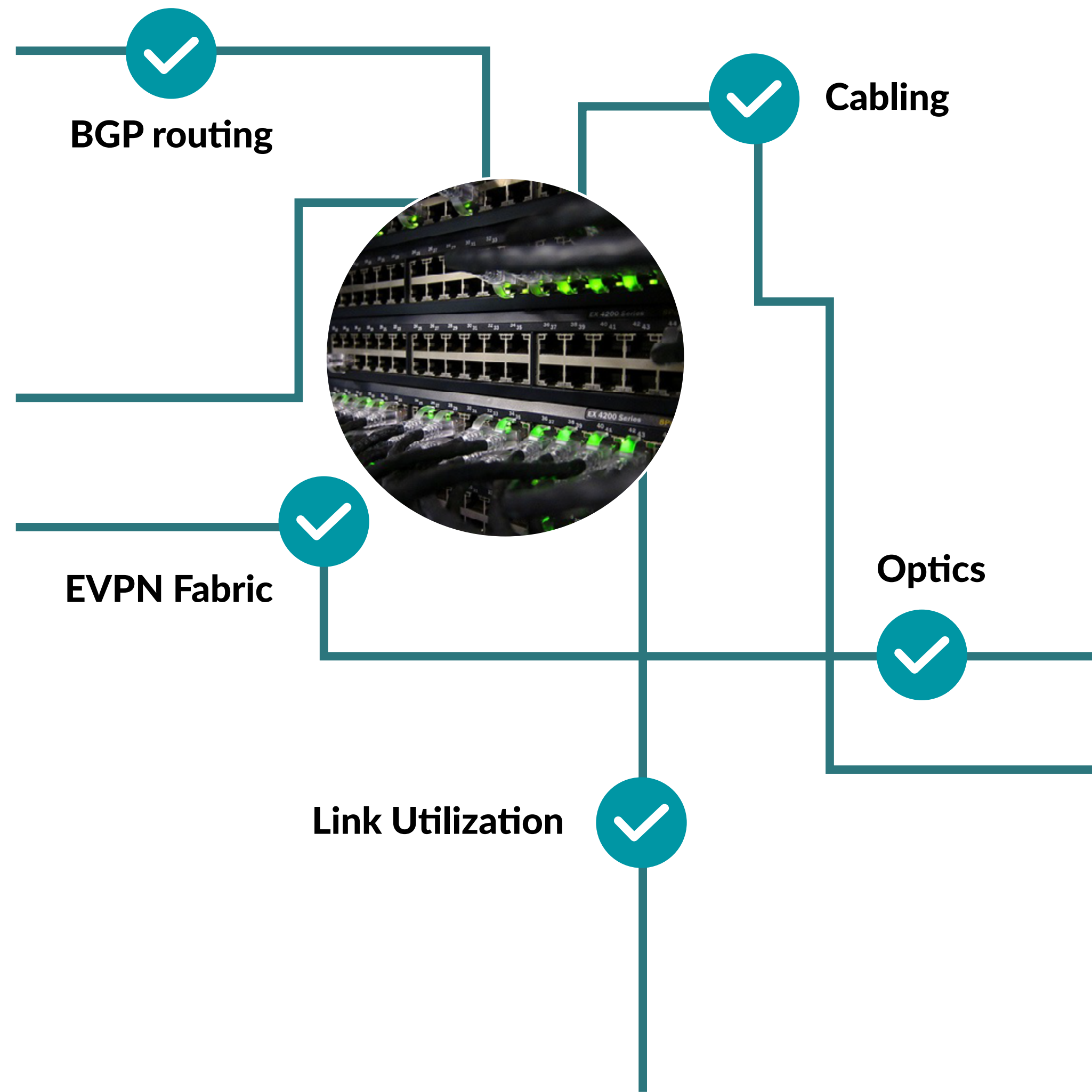
It’s a refrain we’ve heard before – the application isn’t functioning correctly, so it *must* be the network. The ability to quickly diagnose where the problem lies is key to getting the network fixed, or as is often the case, shortening the mean time to innocence.

Could the issue be caused by an external routing issue? Something internal to the network fabric? Security policy? Bandwidth or cabling? It can be a major headache to sort through all the possible areas of failure to find the root of the problem.

Having a single source of truth for your network allows network operators to specify exactly how they expect their network to operate and ensure that the network’s function is continuously validated against that intent – if there is deviation, the system generates an anomaly. Further, the approach enables observability across teams, proactive discovery of potential issues and eases change management.

That’s putting experience for the operations team first.

Streamline Operator Experiences



Protecting campus network, student, and administration data privacy

Safeguard against rising cyber threats.

Secure student, faculty, research, and administration data and records with a zero trust, threat-aware network.

- Secure network, devices, software, and data, with top security efficacy against exploits, malware, and ransomware to ensure institutional regulatory compliance.
- Use Juniper Advanced Threat Prevention Cloud to find and stop botnet and ransomware threats without decryption, ensuring both privacy and security.
- Utilize any point of the network for policy and security enforcement; manage security policy across the entire network, including third-party devices.
- Unify and rate intelligence from multiple sources.
- Leverage intent-based security policies that are easy to write, understand, and apply.
- Analyze and respond to risk with one-touch mitigation that can easily scale.
- Third party validation by CyberRatings, ICSA Labs, NSS Labs, and certified by NetSecOpen.

Real experiences and results



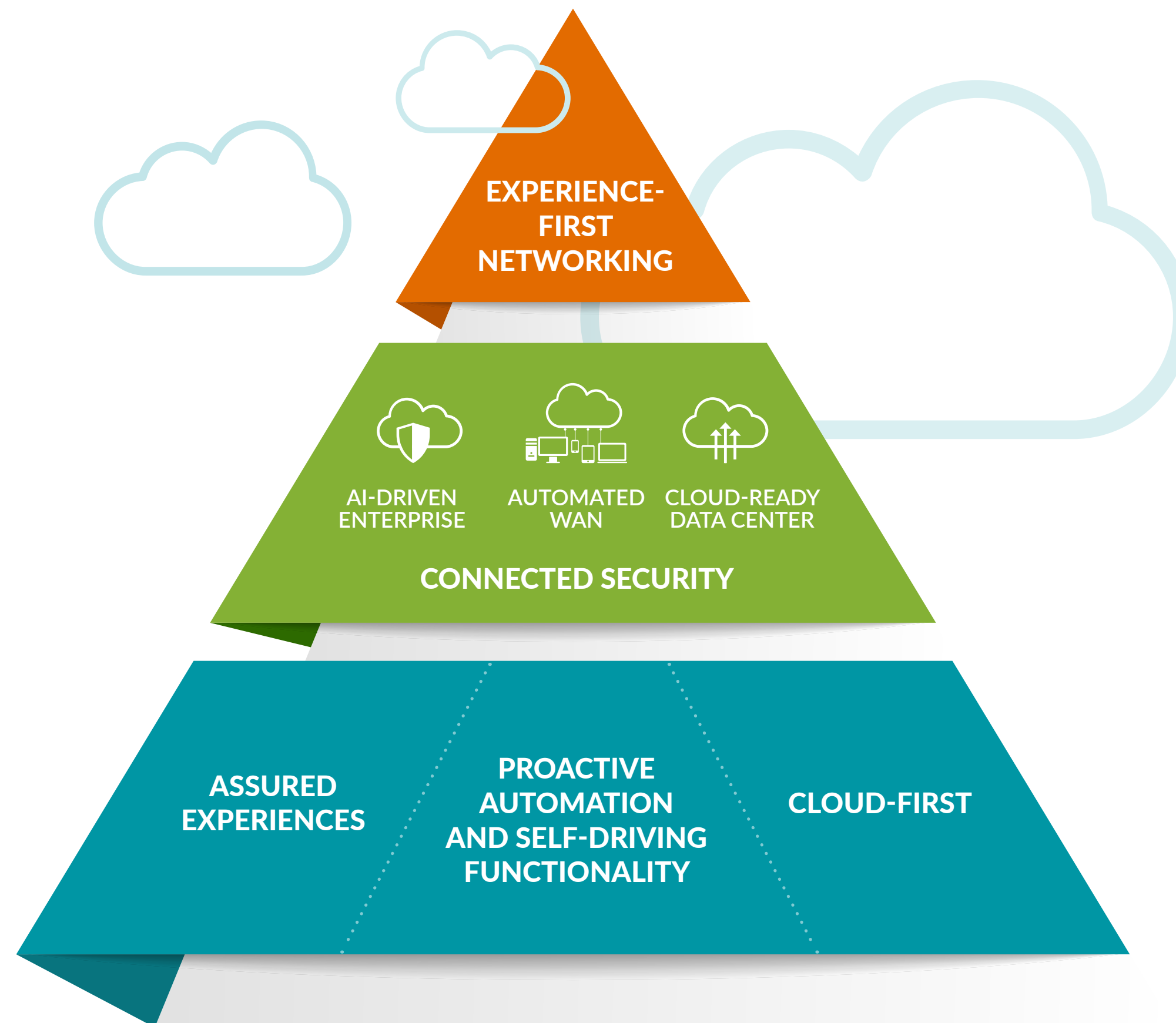
The College of William & Mary built a robust network infrastructure with the added firewall security services to keep up with digital demands of learning, student, and faculty expectations for great connectivity and support 50,000 connected user and IoT devices, and to be prepared for the ongoing growth.



To provide an uninterrupted experience for students, faculty, and staff, **Kyungsung University** introduced Juniper HealthBot as well as the Juniper SRX4100 Services Gateway. The SRX4100 offers a next-generation security solution that supports the growing security needs of Kyungsung University's network at a time when cyberthreats are increasing.

The Juniper Enterprise Portfolio: When Experience Matters

Juniper provides a complete client-to-cloud enterprise solution for Higher Education that encompasses three components to deliver the best IT and user experiences.



The Juniper experience-first solution has the following networking components, each equipped with security built in to make them threat-aware:

AI-Driven Enterprise

which includes wired and wireless access and SD-WAN 3.0, all driven by Mist AI to Connect hybrid learning, processes, applications, faculty, and students.

Automated WAN Solutions

for linking different offices and data center facilities with enhanced and reliable academic connectivity.

Cloud-Ready Data Center

for simplified underlay/overlay management with intent-based automation and assurance.

AI-Driven Enterprise: Wired/Wireless Access

Wireless is more critical than ever in Higher Education, but traditional WLAN solutions are over a decade old and lack the agility and elasticity to support the rapid growth in mobile, IoT devices, and applications.

Juniper changed the WLAN game with a revolutionary modern cloud-native platform that leverages Mist AI to:



Lower IT costs to place focus on other educational areas

with AIOps, self-driving network functions and a conversational Virtual Network Assistant™: Marvis.



Assure better faculty, student, and administrative staff experience

with wireless service levels, proactive remediation, personalized location services, and security.



Bring agility to the network

through a microservices architecture that enables weekly updates to adapt to new devices and applications being deployed in your institution's networks that support connected learning.

By leveraging the years of learning that Marvis has performed in the wireless domain, Juniper has brought unprecedented insight and automation to wired access by bringing all these attributes to the EX switching platform.

We believe the following are key differentiators of the Juniper solution for wired and wireless access driven by Mist AI:

Dynamic packet capture (without human interaction)
for easy and accurate data collection without truck rolls.

Automated event correlation

across the wired, wireless, WAN, and security domains for fast root cause identification and remediation for a seamless hybrid learning and the support of IoT device growth

Programmable workflows

for 100% API-driven network operations, improving operational and academic efficiency.

Virtual Bluetooth LE and integrated IoT

which bring the benefits of indoor location without extra hardware (e.g., no battery beacons) and software. Easily locate educational assets and monitor student academic success.

Risk profiling for wired/wireless

Juniper wired/wireless customers can receive alerts of threats detected by Juniper SRX Series firewalls and ATP Cloud. This allows administrators to quickly assess security risks when users and devices connect to access networks, and take appropriate action if required, such as quarantining or enforcing policy.

2020 Gartner Magic Quadrant for Wired & Wireless LAN Access Infrastructure (A Leader & Furthest in Execution)



Gartner Magic Quadrant for Wired and Wireless LAN Access Infrastructure, Bill Menezes, Christian Canales, Tim Zimmerman, Mike Toussaint, 4 November 2020.

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A new era of Experience-First Networking is upon us, led by Juniper.

Is your campus network ready?

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