



LEVERAGED FOR SUCCESS

- Elite Partnership Status
- Expert-Level Certified Engineers
- Extensive Platform Specific Experience & Knowledge
- Gained Efficiencies from Strategic Distributor Relationships
- Secure Supply Chain
- Flexible Onsite Availability
- Best Practice Project Management and Engineering Methodologies

NETWORK INFRASTRUCTURE SERVICES

- Architecture Design & Deployment
- Cyber Defense Infrastructure
- Modernization / Optimization
- Assessment / Compliance
- Migration / Refresh
- Customized Engineering Block Schedules

PROVEN PAST PERFORMANCE

- Enterprise
- K-12 and Higher Education
- Service Provider
- State and Local Government

DRIVING CUSTOMER SUCCESS

PARTNERED TO ELEVATE HIGHER EDUCATION WITH JUNIPER NETWORKS

AT WILLIAM & MARY, LEARNING IS CONNECTED FROM CAMPUS TO CLOUD

William & Mary is a premier public research university, recognized for its outstanding academics, beautiful campus, and vibrant community. Chartered in 1693, the university is the second oldest institution of higher learning in America, and today, 8770 students are enrolled in undergraduate and graduate degree programs. William & Mary relies on Juniper networking from campus to cloud.

At William & Mary, historic brick and modern Leadership in Energy and Environmental Design (LEED)-certified buildings are spread across a 1200-acre campus, where students study everything from neuroscience to linguistics to accounting and philosophy. Beyond the ivy-covered walls and hallowed history is a state-of-the-art campus network that ensures both students and faculty have access to the most modern digital learning resources, academic research, and experiences.

William & Mary has relied on Juniper routing, switching, and security for its campus network and Internet connectivity for more than a decade. Most recently, the university extended that experience to include Juniper Mist Wi-Fi Assurance.

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- Norman Elton, director of IT infrastructure, William & Mary

RENOVATIONS ALLOWS EXPERIMENTATION

When William & Mary renovated the Alumni House to create one of the largest social gathering places on campus and in Williamsburg, VA, it was an opportunity for the IT infrastructure team to explore the benefits of a modern, cloud-managed wireless LAN.

"With the expansion of the Alumni Center and other new buildings on campus, we knew it was time to look for next-generation Wi-Fi," says Norman Elton, who is both director of IT infrastructure at William & Mary and an alumnus. "We had the opportunity to install Wi-Fi in the new building before doing a full campus refresh." The IT infrastructure team was deeply experienced with cloud-based wireless LANs, but they were intrigued by the possibilities of using AI to optimize user experiences, simplify troubleshooting, and automate network operations.

The Juniper® Mist™ Wi-Fi Assurance Platform, with an integrated I engine and a modern microservices cloud architecture, makes the network predictable, reliable, and measurable. Wi-Fi is optimized in real time, delivering superior user experiences for all kinds of mobile and IoT devices. Time-consuming manual tasks are replaced with AI-driven automation and self-healing actions.

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After evaluating the top cloud-managed wireless LAN vendors, the IT infrastructure team ultimately chose Juniper Mist Wi-Fi Assurance for the newly renovated Alumni House and several academic buildings.

"We've had a good experience with Mist," Elton says.

"With Juniper Mist, operational information is clearly laid out. But the dashboard isn't just a pretty picture that shows a good experience or bad experience. The Mist reporting bubbles up useful information so that we can troubleshoot issues when they occur."

- Norman Elton, director of IT infrastructure, William & Mary

SIMPLIFIED NETWORK OPERATIONS

"We like Mist's dash boarding and reporting," Elton says.

The Juniper Mist Platform dashboard is intuitive, but the network team also appreciates the ability to dig into the details.

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The Juniper® Series of High-Performance Access Points brings together enterprise-grade Wi-Fi, Bluetooth® LE, and IoT so the university can also offer personalized location services such as wayfinding in the future. Virtual BLE (vBLE) technology means that no battery beacons or manual calibration will be required.

CONNECT CAMPUS, CONNECTED LIFE

The first computer arrived on campus in 1967. Today, William & Mary's network connects more than 5,000 devices, both traditional and IoT. Students may bring a half dozen devices from home, including gaming consoles, video streaming boxes, smart lightbulbs, and of course, phones, tablets, and laptops.

"Students have an expectation that all of their devices will work on the network," Elton says.

Students, faculty, and staff can count on ready, secure access to their applications and data, whether in the cloud or the campus data center. The campus network is vital for delivery of academic content from its learning management system and lecture video recordings. Student information systems, financial aid, human resources, and other administrative applications are essential every day. Phone calls, broadcast television, and, of course, lots of streaming media run over the network.

Students use mobile apps connected to smart washers and dryers to pay for laundry and keep tabs on progress. They use the same access cards to open the door to their residences, get a quick snack from a vending machine, or pay for a full meal in the dining halls.

To continue to deliver exceptional digital experiences, William & Mary refreshed its campus core and access switching with Juniper Networks® EX4600, EX3400, and EX2300-C Ethernet Switches.

"We are big fans of the EX2300-C, which is a small, fanless switch," Elton says. "Sometimes we need to mount a switch above a sink or a cabinet, and the EX2300-C gives us that ability."

William & Mary uses Juniper Networks MX960 and MX240 Universal Routing Platforms for its core network. The core is designed to be highly redundant, so users have ready access to their applications and data. Juniper Networks SRX Series Services Gateways protect the campus network edge and securely connect remote offices and labs, as well as cloud services.

As part of the core network refresh, the IT infrastructure team is exploring the use of Ethernet VPN (EVPN)/Virtual Extensible LAN (VXLAN) for the overlay network. Virtualizing the network and using EVPN/VXLAN would enable efficient Layer 2/Layer 3 connectivity with greater scale, simplicity, and agility. "With EVPN/VXLAN, we could extend large Layer 2 networks across multiple buildings," Elton says.

AUTOMATION SPEEDS SERVICE DELIVERY

The IT infrastructure team has long relied on automation and the programmability of the Junos® operating system to make the most of finite resources. The team created custom automation tools that tap into the Junos API to speed the configuration of and updates to 850 campus switches.

ABOUT COPPER RIVER INFORMATION TECHNOLOGY

Serving in an elevated capacity as both an Elite and as a "by invitation only" Enterprise+ Juniper Networks Partner, Copper River IT delivers extraordinary engineering, design and professional services expertise to craft a complete, end-to-end technology solution. Since our inception, Copper River IT continues to transform the way our clients do business. As a Federally Recognized Alaskan Tribal Small Disadvantaged Business, owned by the Native Village of Eyak (NVE), we deliver high-performance IT solutions and services based on our unique advantage of holding elite-level partnerships with today's most innovative technology manufacturers. Some of the innovative solutions and services we offer enable Cybersecurity, Data Center & Cloud Architectures, Enterprise Networks, and Mobility for Federal, SLED and Commercial customers alike.

AT A GLANCE

- Federally Recognized, Alaskan Tribal Owned Disadvantaged Business
- Founded in 2006
- ISO 9001:2008 Certified
- SBA 8(a) Graduated | 2015

CONTRACT ROSTER

- State, Local & Education Vehicles
 - Virginia Higher Education Procurement Consortium (VHEPC)
 - Maryland Department of Information Technology (DoIT)
 - Maryland Education Enterprise Consortium (MEEC)
 - Virginia Information Technologies Agency (VITA)

"With our automation tools, a field engineer can walk away once a switch is cabled," Elton says. "The engineer can push out the configurations remotely, and our automation tool discovers and configures the switch."

The promise of automation has delivered.

"With automation, we saved 850 hours of work in deploying the new campus switches," Elton says. "We can do deployments and make changes quickly. Even one small change across all of our switches could take 30 or 40 hours of manual work."

Automated configuration and validation also eliminates manual errors. "If we want to roll out a new feature, we can test it, then hit 'go' and the change is automatically rolled out," Elton says. "We can make a change in the middle of the day, because the way Junos OS works is you can make changes without rebooting the switch."

Elton plans to take advantage of the automation and programmability of the Juniper Mist Platform as the university continues to refresh its wireless LAN service. "One of the big reasons for choosing Juniper Mist was its very strong API," he says. "We can use the API to upload floorplans and populate the dashboard."

Students are always connected, and they expect their university campuses to be always connected too. William & Mary has delivered on that expectation for more than a decade with its highly reliable campus network from Juniper. Now, Juniper Mist Wi-Fi Assurance enables that superior experience to be extended.