

Dartmouth

Ivy League signs Mist platform for a campus network win

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Industry

Education

Region

AMER

Overview



“NAC solutions are known to be complex, but **Access Assurance is easy to set up and maintain.** Access Assurance just works.”

Bryan Ward
Lead Network Engineer,
Dartmouth

Digital foundation for academic excellence and innovative research

Dartmouth relies on Mist™, Juniper’s AI-native networking platform, to power its academic excellence, groundbreaking research, and administration through fast, reliable, and secure connectivity. The Mist platform has enabled Dartmouth to deliver better digital experiences, enhance network reliability, and proactively solve network problems, all with high operational efficiency.

Challenge

“Anything that can be connected will be connected,” said Bryan Ward, Lead Network Engineer at Dartmouth.

More than 11,000 students, faculty, and staff use the Mist network daily to access critical applications and data across campus. The Wi-Fi network connects nearly 30,000 devices each day—from mobile devices, classroom video live streaming and recording systems, and scientific and lab equipment—to gaming consoles, smart speakers, and robotic vacuums in residence halls.

To stay ahead of ever-evolving cybersecurity threats and the increasing diversity of connected devices, Dartmouth wanted to upgrade its network access control (NAC) solution.

“Our No. 1 priority for NAC was scalability,” said Ward. The goal was to deliver seamless, self-service connectivity to improve the experience for students and visitors, while strengthening cybersecurity.

Transformation

Dartmouth first deployed Mist wireless networking at its residence halls in 2019 to support students’ growing digital expectations. The IT team installed 2,000 APs in two days.

“If you shave one hour off the installation of 2,000 access points, that’s the equivalent of a full-time employee for a year,” said Felix Windt, Dartmouth’s CTO. “That’s time we can free up to serve our customers’ strategic needs, instead of screwing APs into the ceilings.”

Since that initial experience, Dartmouth has expanded its use of Juniper networking across its campus and data center to support academics, research, residence life, administration, facilities, and campus safety.

Most recently, Dartmouth added Juniper Access Assurance to bring a client-first experience to network access controls. With Access Assurance, Dartmouth can integrate security, visibility, and control to reduce silos and mitigate risks. “NAC solutions are known to be complex, but Access Assurance is easy to set up and maintain,” said Ward. “Access Assurance just works.”

Outcomes

Support education, research, and student life

30,000

Simultaneous Wi-Fi connections

Simplified secure network access

20

Minutes to create network access control policies

Proactive and prescriptive actions

9x

Reduction in network-related ticket escalations

Solution and implementation



[Juniper AP47 Access Point](#)

[Juniper EX Switch](#)

[Juniper Access Assurance](#)

[Juniper Wi-Fi Assurance](#)

[Juniper AP45 Access Point](#)

[Juniper QFX5200 Switch](#)

[Marvis® AI Assistant](#)

[Juniper AP12 Access Point](#)

[Juniper QFX10002 Switch](#)

[Marvis Minis](#)

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Felix Windt
CTO, Dartmouth

Mist: smarter, simpler, more secure

“Having a Juniper network has allowed us to turn up network services quickly, spend less time troubleshooting, and focus on strategic work,” said Ward.

The Mist platform and Marvis® AI engine assures that every connection is reliable, measurable, and secure, while streamlining network operations. Marvis® AI optimizes connectivity to meet the service level expectations set by the IT team and provides one-click root-cause analysis when issues arise.

Access Assurance provides secure network access control based on user and device identities, enforcing Zero Trust network access policies for student, faculty, visitor, and IoT devices. Cloud-hosted authentication simplifies IT operations by delivering a full suite of access controls within a flexible yet simple authorization policy framework.

Upgrading and maintaining a campus network with 7,000 APs and 900 switches can be a daunting prospect, but Mist’s unified visibility and control, templated configurations, and Zero Touch Provisioning simplified the initial migration and continued expansion.

Marvis® AI Assistant brings proactive insights and prescriptive actions to help the Dartmouth IT team stay one step ahead of user experience issues. “The Mist cloud portal and Marvis AI Assistant present information in a human way, so it’s easy to navigate,” said Ward. “Members of our helpdesk team can do basic troubleshooting and solve the problem.”

Watch the Webinar

Securing User Experiences at Dartmouth with Juniper Access Assurance

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Marvis Minis proactively simulate digital user connections without users being present and continuously feed data back into the Marvis AI engine to provide an additional source of insight for optimal AIOps responses.

Juniper switches deliver a high-performance, reliable, and scalable network fabric connecting more than 200 buildings across the historic campus. Juniper QFX switches are used for the spine and leaf of the data center fabric as well as for the campus EVPN/VXLAN. The data center supports Dartmouth's research, teaching, and administrative applications and data as well as AI research and innovation in health, medicine, and other disciplines.

Key takeaways and outcomes

"I hate it when Marvis is right. It means there's actually a problem."

Ward was once an AIOps skeptic. Now he says: "I hate it when Marvis is right. It means there's actually a problem."

Ward recalls an incident: "People were complaining the Wi-Fi was bad," he said. "The diagnostics showed the Wi-Fi was fine, but Marvis told us that an entire building couldn't reach the internet. We were able to quickly narrow the problem to the fiber in a specific building."

Marvis AI Assistant continues to be a valued team member. "Marvis has saved me hours of work because it can filter through all the data and see patterns that I wouldn't see at first glance," said Ward. "The work I'm doing is more challenging and less tedious."



Students give the Wi-Fi rave reviews

“Juniper Wi-Fi has improved our user experience,” said Ward. “Every student’s residential room has good Wi-Fi. Students can wear VR headsets and participate in international video calls from classrooms. Our guest Wi-Fi is fast and frictionless.”

The Juniper network can handle it all: lecture halls filled with attentive students, online assignments and exams, scientific research, AI advances, mobile payments, and everyday digital life.

Stronger access controls without a pain in the NAC

“Access Assurance works phenomenally well,” said Ward. “Setting up Access Assurance took about 20 minutes. We turned it on, and it scaled up to 25,000 users without batting an eye.”

The experience is better for users and IT alike: “Setting up policies in our previous NAC solution was so convoluted it was difficult to truly understand how the configuration aligned with our business policy. With Access Assurance, we only need 20 simple, plain English rules.”

AI-native operations and automation free up resources

“The Mist cloud-native architecture and API-first approach enables us to do much more work in less time,” said Ward. “We have greater agility in how we manage the network, and we can find the right solution to the problem whether we’re doing maintenance or something new.”

Ward advises other IT leaders to develop their own automation roadmap. “Even if you don’t use the Mist API on Day 1, it doesn’t mean you won’t use it in the future,” he said. “The feature set is ready for you, and when you’re ready, learn automation by taking Juniper’s Mist AI training classes.”

More information

The Mist platform: purpose-built with AI and for AI

To learn more about the Mist platform, visit our website at <https://www.juniper.net/us/en/campus-and-branch.html>

To explore how Juniper AIOps can optimize your IT, visit <https://www.juniper.net/us/en/solutions/artificial-intelligence-for-it-operations-aiops.html>

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