



**Delivering the Connected  
Campus of the Future**  
The AI Imperative



Brad Howarth, Moderator



Mitch Davis, Dartmouth College



Jim Burke, Juniper Networks

Network connectivity is a vital element in providing an ideal campus experience, but meeting users' expectations can be a challenging task for CIOs. Creating a flawless experience means accounting for the complexity of physical environments and mitigating external threats, while always ensuring consistent and reliable service in the face of rising demand. In this roundtable discussion, hosted by **Juniper Networks** and **6 Degrees Media**, guests including the **Vice President and Chief Information Officer (CIO) at US-based Dartmouth College, Mitch Davis**, and **Juniper's Director of Sales and General Manager for Australia, Jim Burke**, together with a host of education CIOs and CXOs, discussed the strategies they were using to deliver high-performing and secure campus environments; and the role artificial intelligence could play in delivering the ideal experience.

---

**E**ach year, CIOs and CXOs at education campuses around the world have watched as the volume of data traversing their networks has grown at a rapid rate. Data networks are now a critical component of a functioning campus, and are relied upon by staff, students, researchers and other faculty members alike.

Most often connectivity is delivered wirelessly, to support the needs of thousands of users simultaneously moving across large areas with multiple buildings.

But while the volume of data those networks carry has grown rapidly, so too has the volume of data the networks themselves generate. And this data holds the key to ensuring the best network performance.

Modern data networks generate a treasure trove of information, such as who is using the network and from where, at what times, and for what purposes. And they can also generate data that describes how the network is performing, and most importantly, what kind of experience the users are having.

Delivering optimal wireless network experiences is a challenge that Mitch Davis is very familiar with, having spent many years heading up technology functions at several law firms and US higher education institutions, including Stanford University and Bowdoin College.

Now he is the Vice President and Chief Information Officer at Dartmouth College, an Ivy League School located in Hanover, New Hampshire. Davis joined Dartmouth in July 2017 with a mandate to act as a change agent for how it used technology.

"Dartmouth is an interesting place, in the sense that it's been around since 1769," Davis said. "And to give you an idea how long that is, the United States was founded in 1776.

"We have more patents than any other academic institution, and computing and technology has always been a part of it. And then in 1956 they held the first conference for AI between a bunch of mathematicians and scientists to talk about the future of integrated learning and machine learning."

## Putting intelligence into the network

Hence, it should not be surprising then that when it came to designing the ideal wireless networking environment for Dartmouth, Davis chose that AI should feature prominently. The network he deployed is based on Juniper's Mist technology, which is an AI-powered, cloud-based Wi-Fi 6 network platform designed to help users roll out smart, high-density wireless networks that are predictable, reliable and measurable.

During the roundtable discussion Davis praised the ease with which the Mist access points could be deployed and configured. But he said it was Mist's ability to both generate and analyse data regarding network performance which had proved to be its real value.

According to Juniper's Director of Sales and General Manager for Australia, Jim Burke, using AI gave administrators the ability to look at patterns and trends and use this information to make better decisions.

"We're seeing an explosion of customers wanting to understand what AI and machine learning and automation could mean for them," Burke said.

He cited the US retailer Gap as an example, where using AI in the network enabled problems to be found before they led to outages. This had resulted in an 85 per cent reduction in technicians needing to physically go on site to fix issues.

Burke said the key to bringing AI to life for network administrators within the Mist platform was Marvis, a search-style interface that gave network operators the ability to ask the network questions.

"It's as intuitive as you would expect from a Google search engine," Burke said. "You come into the service desk in the morning and type in something as simple as 'who are the troubled users?' Marvis will present that information up to you.

"It takes the whole experience from reactive to proactive. Marvis is out there dynamically looking for variances in what it knows is normal and serves that information to the people that need to see it."

## Exploring the possibilities of AI

The use of AI in campus network environments was a key area of interest for attendees, especially the need to balance the requirements of on- and off-campus students in a post-COVID world. As one attendee pointed out, this move towards a hybrid model would bring its own challenges.

"We need to look at all the issues around it, like privacy, and what happens if you have online bullying. There's a number of issues that have to be worked out."

But Burke said one advantage of bringing AI into the network was that it freed up administrators to focus on more important tasks.

"We see AI as a tool for our workforce, that will help take the more mundane tasks off their plates and instead allow them to focus on those higher value tasks that will make a real difference to the business," Burke said. "It's about moving people around and getting them working on different things. Our businesses need to go faster. So, our IT teams need to evolve with that, to keep ahead of what the consumers are wanting to consume."

**Burke cited the US retailer Gap as an example, where using AI in the network enabled problems to be found before they led to outages. This had resulted in an 85 per cent reduction in technicians needing to physically go on site to fix issues.**



“

**We had no online education at all – we were an onsite, private institution. We had to go online in two weeks, and we were able to spin up some 700 classes. My networking staff told me that would have been impossible with the old network.**

– Mitch Davis, Dartmouth College ”

Davis said that for Dartmouth, Mist’s open APIs meant it was easy to integrate the data it generated into other applications. One idea being considered was to tap into the network’s knowledge of users’ locations to do automated class attendance records.

However, Davis also expressed the need for caution, and the need to consider how users might feel about how data was being used.

“With COVID, we could have done a sort of tracking app,” Davis said. “The network allowed us to know where people were and what they were doing, and we could do a histogram of where everybody had been. But it was a little bit too much and people didn’t like that.”

### Supporting rapid change

Davis said one of the unintended benefits of the Mist rollout was that it helped facilitate Dartmouth’s rapid transition to online learning that took place in 2020 in response to the COVID-19 pandemic.

“We had no online education at all – we were an onsite, private institution,” Davis said. “We had to go online in two weeks, and we were able to spin up some 700 classes. My networking staff told me that would have been impossible with the old network.”

For Davis, the imperative to introduce online learning quickly was also backed by a demand from the college’s dean that online learning needed to be better than what was offered onsite.

“We sent VR goggles home to some classes,” Davis said. “One of our professors was on the Mars rover project and she had all the topography data from Mars. We planned on ingesting the data into the Unity game engine and then the students would be able to meet on the surface of Mars from home. Meeting on planet Mars in VR was so cool. I started wandering around and actually got lost.”

As a result of these experiments, Davis said Dartmouth was now working with various education and commercial organisations to build out their hybrid education program.

### Preparing for success

Davis said the network rollout undertaken at Dartmouth was made easier by the college’s existing appetite for change. But he said he still ensures that he continues to build engagement with key stakeholders across the college, including researchers and deans – something he advocated that all attendees should do if they hoped to succeed with their transformation agendas.

“Working more closely with the board, working more closely on strategy, is a great place to be, and I think that that’s the role for the future of the CIO,” Davis said. “If anybody is going to be agile and move things forward at speed, it’s probably going to be somebody in tech.”

The change process was also made easier by Davis’ own imperative to operate as a consultant within the college. As a result, he said he was able to view the network’s users as his own customers and treat them accordingly. “We go through a process of first asking what a perfect client for us is,” Davis said. “And then we go through a process of turning all our clients into perfect clients, so that we can actually execute a lot quicker.

“People are leaning into change, because they expect something exceptional, rather than resisting something we’re giving to them.”

Burke said implementations such as those at Dartmouth were typical of those undertaken by organisations that first stopped to think about how well technology could enable their business.

“From what you have today and from where the business is wanting to get to, are you seen as an enabler to that, or are you seen as someone that’s going to slow that down?” Burke asked.

“As an IT business, are you able to execute and deliver? And how long does it take for the IT organisation to develop and deploy these new initiatives and features and functionality enhancements? Are you focused on the end user experience in real time?”

It was only when a CIO had answered all of these questions that they could then say they were ready to progress with a change agenda.

### Maintaining the digital imperative

While 2020 was a challenging year, it proved to many CIOs just how agile and responsive they and their teams could be, while also elevating their importance in the eyes of their peers.

Davis suggested that attendees should use the heightened status they had gained through 2020 to push forward with an accelerated change agenda, to capitalise on goodwill and learnings and use those as the foundations for driving technological renewal on campus.

“(At Dartmouth) we are now invited, at the very highest levels, to be part of the strategy as to where the College is going, and those meetings weren’t taking place before,” Davis said. “We’ve got a group of people capturing everything that made us successful during COVID and trying not to lose that going forward, so we can continue the level of success that IT has had.”

“When people say we just want to get back to where we were, I say no, that’s not what we want to do. We want to go forward from where we are.”

Davis said taking a stance like this would be vital for CIOs in education institutions that wished to help their organisations more readily adapt to the changing market forces that surround them.

“I have told people that education is changing very quickly,” Davis said. “We’ve prepared ourselves to do that – to be a much different organisation and be able to respond to the market much more quickly than we were in the past. If you have a group of people who can be agile in their thinking and be able to implement against that, all of those things can happen at speed.”

“But if you’re not responsive and you’re constantly falling back on old ideas and ways of working, you’re not going to be leading. The worst that you can do in higher education is to be following people. Because the ‘newest’ thing is what is going to grab students.”

“That means you’re going to have to come up with something more innovative than what you’re doing today.”

**Davis suggested that attendees should use the heightened status they had gained through 2020 to push forward with an accelerated change agenda, to capitalise on goodwill and learnings and use those as the foundations for driving technological renewal on campus.**



## About Juniper Networks

Juniper Networks challenges the inherent complexity that comes with networking and security in the multicloud era. We do this with products, solutions and services that transform the way people connect, work and live. We simplify the process of transitioning to a secure and automated multicloud environment to enable secure, AI-driven networks that connect the world. Additional information can be found at Juniper Networks ([www.juniper.net](http://www.juniper.net)) or connect with Juniper on Twitter, LinkedIn or Facebook.

---

## About 6 Degrees Media

6 Degrees Media was established by Angela Horvat, former Editor and Publisher of award-winning publications including *Computerworld*, *Information Age*, *My Business*, *The Who's Who of Financial Services* and Founder of FST Media; and Emma Charter, one of Australia's most connected and respected media and events strategists with more than 15 years' experience in delivering C-Level engagement strategies for clients in Australia and the UK. Together, they lead a team of Australia's most talented and driven conference producers, technology and business journalists and event managers to create content-driven experiences across C-level roundtables, custom events and large-scale conferences. For more information, please visit [6DegreesMedia.com.au](http://6DegreesMedia.com.au)