University Enables Smart Campus Ecosystem Through Wi-Fi Analytics

University of Melbourne

Size: More than 65,000
       students and 6500 staff
Industry: Education
Location: Australia

Solutions

- Offering fast wireless access to education—anytime, anywhere—with Cisco 802.11ac Wi-Fi

- Supporting bring-your-own-device (BYOD) programs, working with Cisco Identity Services Engine (ISE)

- Mitigating risks from malware and cyber threats with Cisco firewalls

- Ensuring reliable, high-speed digital learning over a Cisco Catalyst switching platform

- Enabling simple IT management with Cisco Prime Infrastructure

- Leveraging location-based analytics from Cisco Connected Mobile Experiences (CMX)

Smart Campus Living Lab Enabling Future Innovations

With more than 200,000 visitors a day the campus is the 5th largest city in Victoria.

Its Cisco flagship wireless infrastructure covers high speed, high density wireless services.

The University of Melbourne is ranked as Australia's leading research-intensive seat of learning and among the world's top 50. Guided by its pioneering spirit, the university's latest innovation is built on the compelling use case for location-based analytics available through Cisco® wireless technology.

The idea was driven by a thirst for fact-based decision making. Jan Dethlefs, Associate Director, Facilities Service Standards, explains: "With 65,000 students spread across multiple sites, we wanted to know how staff, students and visitors are experiencing our campus."

This insight would help answer tough questions, such as which buildings and services should be developed next? How can we progress faster on our way towards a more sustainable campus? How should the university engage with visitors and prospective students?

Automating the Network to Secure Access

As part of a long-term strategic relationship, the university depends on Cisco network technology for reliable, high-speed access to educational resources to enhance the connected learning environment.

With lots of different wired and wireless network users and devices, IT control is paramount. The Cisco Identity Services Engine (ISE) solution simplifies and automates secure access, while also ensuring network users have the right authorizations in place.

Cisco Prime® technology provides visibility into wired and wireless networks, helping IT staff proactively identify gaps in service and target areas for improvement. Other routine tasks, such as analyzing configurations and troubleshooting, are completed significantly quicker, too.

The campus has seen exponential growth in device usages from laptops to smartphones by students and staff. Protection against malware and cyber threats is enhanced by Cisco ASA 5500-X next-generation firewalls. With greater insight into users, applications, devices, and vulnerabilities, IT can automate security tasks and speed remediation.

With Cisco solutions the University of Melbourne benefits from:

Quality cross-campus mobility experience for occupants and visitors

Simplified, automated secure access enhances reliable teaching connectivity

Insightful, effective facilities decisions using actual traffic usage patterns

For the university, automating network security and simplifying IT management ensures a reliable teaching and quality information-access environment, as well as a positive guest experience. And IT has more time to focus on using the network to offer increasingly innovative services.

Greater Insight Solves Immediate Business Issues and Enhances Agility

Some of those time savings have been used to transform the university's Wi-Fi. With some 4500 Cisco access points covering 250 buildings, the WLAN runs on the latest 802.11ac standard for improved Wi-Fi performance. This approach means the university can serve more people with less access points, reliably and with the speeds they expect—ensuring a superior experience for students, staff, and visitors.

The next step of the transformation was to use the power of data analytics across the wired and wireless network. The latter easily supports 45,000 concurrent users, making it one of the world's largest Cisco Customer Mobile Experiences (CMX) education sector deployments to date. "Installation and configuration of Cisco CMX was easy and well documented. The analytics and integration capability was tested on over million devices a month inside the university ecosystem" says data engineer, Simon Wei.

Each day, around 20,000 people travel across Grattan Street, one of the main entry points to the campus. When the

state government announced a planned street excavation, the university had to minimize disruption to students and class attendance. With CMX, it was able to examine traffic patterns from multiple angles, such as day, time, and location.

Gianni Frigenti, wireless architect at the university, says: "CMX allowed us to gain an insight into traffic activities on campus through the wireless infrastructure and enabled plans to minimise disruptions. To get an accurate footfall snapshot we would have had to spend $15,000 per day on video-based traffic monitoring."

Furthermore, greater insight into footfall, dwell times, and other trends will help reduce congestion around the campus for a better occupant and visitor experience.

New Use Cases Help Shape the Future

With the addition of CMX analytics, the university can create graphs comparing forecasted and actual occupancy levels throughout the day. This is helping shape the university's five-year plan to offer a better on-campus experience.

"For us growth means managing more teachers and students within the same or even less space," says Dethlefs. "By identifying the most and least popular areas, we're able to better target building modernization projects."

Other use cases under consideration include employing location-based analytics to increase revenue generation. An example might be pinpointing best locations for advertising and social media during on-campus events.

Results

- Quality cross-campus mobility experience
- Reliable teaching connectivity
- Insightful, effective facilities decisions
- Revenue-generating and green initiatives

Like many institutions, the University of Melbourne is cutting carbon emissions and utility costs. Until now, these have been focused on automating building control systems to power down for hours of inactivity. With Cisco CMX, for the first time the university can link these systems to changes in building occupancy levels and drive savings throughout the day. This will help achieve the University's sustainability ambitions for the coming years.

Jan Dethlefs sums up: "We receive new requests every week from different departments asking how we could use the CMX data to improve the campus experience and provide supporting data for a wide range of business questions. It's great to have these exciting conversations."

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Dr. Jan Dethlefs
Associate Director for Facilities Service Standards
University of Melbourne

For More Information

To learn more about the Cisco solutions featured in this case study, visit

Customer Stories: www.cisco.com/go/customerstories

Wireless and Mobility: www.cisco.com/go/wireless

Cisco Prime for IT and Service Providers: www.cisco.com/go/prime

Security: www.cisco.com/go/security

Switches: www.cisco.com/go/switching

Products and Services

Management

- Cisco Prime Infrastructure

Routing and Switching

- Cisco Catalyst® 3650, 3750X, and 3850 switches

Security

- Cisco ASA 5500-X with FirePOWER™ Services
- Cisco Identity Services Engine (ISE)

Wireless

- Cisco Aironet® 1500, 3500, 3600, and 3700 Series Access Points
- Cisco 5500 and 8540 Series Wireless Controllers
- Cisco Connected Mobile Experiences (CMX) solution

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