

MAYNOOTH UNIVERSITY

Secure, wireless network from HPE Aruba Networking creates new indoor and outdoor learning experiences for over 16,000 students

Overview

Maynooth University was formally established as an autonomous university in 1997. Yet, it traces its origins to the foundation of the Royal College of St. Patrick in 1795, drawing inspiration from a heritage that includes over 200 years of education and scholarship.

Today, Maynooth University is a place of lively contrasts – a modern institution, dynamic, rapidly-growing, research-led and engaged, yet grounded in historic academic strengths and scholarly traditions.

With over 16,000 students from more than 100 countries, Maynooth University offers a range of programmes at undergraduate, Master's and PhD level in the humanities, science and engineering, and social sciences, including business, law, and education. The university also offers a range of international programmes and partnerships.

Maynooth University is recognised among the top 500 universities in the world and in the top 250 European universities.

Business Challenge

The impetus for the current project stemmed from the Covid pandemic, and the realisation that the university needed to be able to provide blended learning to students.

The ability to deliver lectures remotely as well as offer students the ability to work outdoors in safer, more airy spaces, became an important element in the university's mitigation strategy for Covid. It was recognised that a major network upgrade was required.

In parallel to this, the opening of the new TSI building provided an opportunity to create a blueprint for how secure networking services could be provided to the entire staff and student population to deal with the new norm. This also recognised the potential of outdoor spaces as viable classrooms.

Following a competitive tender, Agile Networks together with its partner, HPE Aruba Networking were chosen for the project.

Next generation Wi-Fi for Indoors and Outdoors

Providing next generation Wi-Fi services for the campus not only meant covering exterior parts of the university across the North and South campus, but also the new TSI building.

This state-of-the-art facility, spanning 10,500m² with teaching spaces ranging from a 500-seat lecture theatre to tutorial rooms of 30 seats needed a corresponding high-performance Wi-Fi network to guarantee the type of digital learning experience students have come to expect.

In indoor spaces, the Agile Team deployed HPE Aruba Networking AP515 Wi-Fi 6 access points. These devices provide high-performance connectivity, with a combined peak data rate of up to 2.69 Gbps and deliver the speed and reliability needed for any educational campus.

"We're very proud of the relationship we have with Maynooth University in pioneering what we've done. It actually goes right back to work we did with Harvard University a number of years ago around some of the technology that we're deploying across education globally."

Raymond O'Connor, Country Manager,
HPE Aruba Networking

"It's the fact that on a sunny day, you can choose to sit outside and work outside. It has revolutionised the campus. It has made every outdoor area of the campus a viable classroom. You can walk from one side of the campus to the other and not drop a Microsoft Teams call. It's just completely changed the student experience for the better."

Peter Gaughran, Senior Infrastructure Specialist, Maynooth University

In outdoor spaces, the AP575 and AP577 access points were installed offering high-performance outdoor Wi-Fi connectivity. Specifically designed to survive in the harshest outdoor environments, the devices can withstand exposure to extreme high and low temperatures, persistent moisture and precipitation, and are fully sealed to keep out airborne contaminants.



Technology At A Glance

Outdoor Wi-Fi

AP-575

- Built in Omni Directional Antennas
- 5 GHz Antennas 5dBi
- 2.4GHz Antennas 3.4dBi
- BLE/Zigbee: Integrated omnidirectional antenna and the peak gain of 6dBi

AP-577

- Built in 90°H x 90°V Directional Antennas
- 5 GHz Antennas 5.6dBi
- 2.4 GHz Antennas 6.8dBi
- BLE/Zigbee: Integrated omnidirectional antennas with peak gain of 8.4dBi

HPE Aruba Networking AP 575 and 577



Weatherproof and temperature hardened, HPE Aruba Networking 570 Series access points deliver the highest Wi-Fi 6 performance in outdoor and environmentally challenging locations.

In-Built Security From the Outset

HPE Aruba Networking's approach to architecting education networks is heavily based on security and network management, and in particular the need for flexible roaming capabilities. Role-based security facilitates this approach and centres on defining the user type and the services and/or applications they are allowed to access.

In the new TSI building for example, it was decided to deploy what's called 'colourless ports'. This means the network is able to identify what has been plugged into it and dynamically assign a configuration to that particular user. Having the ability to lock down ports and deny access to those without a username and password introduces a high level of security to the network infrastructure and actively blocks unwanted devices with potentially malicious code. Colourless ports not only increase security but also provide increased visibility of all devices on the network.

Thanks to HPE Aruba Networking's AirWave software, Peter and his team are presented with a unified view of applications across the stack, wired and wireless, and this facilitates the configuration and monitoring of the campus network at scale.

"The network security we have currently applied is permissive enough to allow our students to arrive on campus and to connect to Wi-Fi and get what they need done, done. But we're secure enough that we can mitigate against the likes of malware attacks or ransomware attacks."

Peter Gaughran, Senior Infrastructure Specialist, Maynooth University



"If the Maynooth network team are alerted to something happening on a certain part of the campus, they can immediately drill into it and see the route cause. Even if the issue relates to non-networking related services such as DHCP or DNS, an intuitive interface gathers up the information and presents it in a single pane of glass for swift resolution."

Owen Mulcahy, HPE Aruba Networking Sales Specialist

Technology At A Glance

HPE Aruba Networking - Clearpass Network Access Control

Identifying who and what connects to the network is the first step in securing it. Control through the automated application of wired and wireless policy enforcement ensures that only authorised and authenticated users and devices are allowed to connect. Clearpass helps Peter Gaughran and his team to manage the network within the context of Zero Trust.

For example, ClearPass Device Insight acts as an on-premise device discovery and profiling solution while ClearPass Policy Manager provides authentication, authorisation and centralised policy definitions that follow the user throughout the network and are applied uniformly across wireless, wired and VPN connections.

Agile Networks has the only Aruba-certified ClearPass expert in-country.

Clearpass delivers:

- Anytime, anywhere connectivity without sacrificing security and maintaining visibility and control without impacting user experience
- Full spectrum visibility across the network
- Role-based access and policy enforcement
- Detects threats before they can do damage

Taking Students to the Art of the Possible

The future potential of the network is really exciting and this is being realised thanks to the rollout of a student app from Modo Labs. The no-code Modo app building platform allows non-technical staff to create native applications using data and content from back-end systems.

The app leverages the power of the in-built location services in the HPE Aruba Networking Access Points to deliver a host of student or staff services.

"The possibilities for integration between the student app and the Wi-Fi network are endless. We will be in a position to offer location-based services, to offer real time location services to students, turn by turn navigation indoors and outdoors, as well as emergency alerting and emergency response services via the app."

Sean Nolan, Business Development Manager, Agile Networks

In the case of Maynooth University, it will soon mean that students can use the app for wayfinding, helping new arrivals to navigate the many individual buildings on campus at ease.

With future developments on the horizon, students will be able to access all the tools and resources they need to navigate campus life and complete coursework, in live or remote learning environments. These personalised learning experiences promote productivity, build culture and support wellness, one tap at a time.



Benefits At A Glance

- High-performance, reliable and resilient networking service for students and staff
- Security as standard thanks to role-based user profiles and blocking of unauthenticated users and devices thereby reducing risk of malware and other malicious network traffic
- Learning experience now extended to exterior campus spaces creating new open-air classrooms
- Easy management and maintenance of the network thanks to tools such as AirWave and Clearpass
- Network futureproofing through in-built location services that power mobile student apps for wayfinding, student welfare and improved productivity

"The HPE Aruba Networking kit has great in-built location services. It will eventually enable us to allow students to open an app and they'll be able to navigate via the wireless and get them to where they need to go on campus."

Peter Gaughran, Senior Infrastructure Specialist, Maynooth University

