HIGHER EDUCATION

# JAMES COOK UNIVERSITY

Townsville and Cairns | Queensland | Australia

**UNIVERSITY STRENGTHENS WIRELESS CONNECTIVITY** with a Meru virtualized wireless LAN.

"Meru Networks' offering is the only fully scalable solution that is flexible and ready to adapt to changes in the framework – a very important factor for a big university."

**Kevin Lane** | Network Engineer, Information Technology and Resources (ITR) Communications department, James Cook University

## Meru Products Used

- MC4100 Controllers
- Meru AP320 Series Access Points
- E(z)RF Network Manager

## Challenges

- Proliferation of wireless devices required network flexibility.
- Existing wireless network could not support surge in online usage.
- Monitoring and managing existing network across the wide coverage area was time consuming.

## Results

- Simplified installation and management by eliminating need for channel planning across the large coverage area.
- Students and staff able to connect wirelessly with various devices and operating systems.
- Management platform provides centralised management of the network at both campuses.

## Challenges

James Cook University (JCU) is Queensland's second oldest university.

The multi-campus university has 17,500 students, with main campuses located in Townsville and Cairns, an international campus in Singapore, JCU Brisbane, and smaller study centres in Mount Isa, Thursday Island, and Mackay.

The JCU Townsville campus is located in the suburb of Douglas and has around 11,000 students. The JCU Cairns campus is located near the northern beaches in the suburb of Smithfield, and has more than 3,500 students.

Students and staff at JCU Townsville and Cairns have full access to the online resources at the university via laptop, smartphone or other similar radio devices with an Ethernet or a wireless network adapter.

To support this demand for network access, both campuses must provide a stable and strong wireless network that is easily managed across the large areas, and open to changes in building, campus size and student body.

While wireless access has been available on the campuses for some time, the technology supporting this wireless network needed a major upgrade. All of the wireless access points were individually managed, as they were all independent entities using 802.11a/b/g. Monitoring and managing these access points across the wide coverage area was very time consuming for the small IT team at JCU.

Kevin Lane, Network Engineer with James Cook University's Information Technology & Resources (ITR) Communications team said, "We needed a new wireless LAN upgrade for our old wireless framework. The upgrade had to be executed without disturbing too much of the university's original infrastructure. It was important for us to choose a provider that could offer scalability, without redesigning the entire layout, but still able to maintain decent network coverage."

As a university, the new network also needed to work on different radio devices, whether they supported 802.11 b/g/a or n, as well as on various computer operating systems.

## Solution

JCU reviewed a number of solutions in response to its request for proposal for a new WLAN service provider. While several market leaders offered their solutions, JCU's evaluation was that they were either too complicated or time consuming to install, manage and maintain.

After reviewing all proposals, JCU decided to implement a Meru Networks 802.11n virtualized wireless LAN on the Townsville and Cairns campuses.

Kevin said, "We realised that there was a very good chance other service providers would need to conduct a new site survey every time a new access point was required. Only Meru Networks can forgo this time-consuming practice. Meru's offering is the only fully scalable solution that is flexible and ready to adapt to changes in the framework – a very important factor for a big university. We can't spare the time to review or change the entire layout each time we need to add an access point."

Meru Networks' virtualized WLAN solution uses unique architecture that enables all access points to operate from a single, seamless channel, eliminating the need for complex coverage surveys and channel planning. Meru's unique approach also supports much higher densities of wireless users than traditional microcell vendors, making it ideal for a busy and changing university environment.

Wavelink managing director, Ilan Rubin, "Meru Networks' approach represents the industry's most complete 802.11n WLAN solution from air to core, addressing JCU's need for over-the-air coverage, high user density and scalability."

The service was implemented by Meru Distributor Wavelink Communications through one of its resellers, CCNA. With the support of Meru's technical team, Wavelink and CCNA also worked with the ITR Communications team to provide strategic counsel on the campus' building design, such as where to place access points for maximum coverage and efficiency.

To ensure that the Meru Networks virtualized WLAN was able to support the high student density, JCU first entered into a pilot phase.

The six-week trial was conducted on the Townsville and Cairns campuses, offering wireless Internet access to the two library buildings and one building in the medical precinct in Townsville. Wavelink and CCNA provided advice on the placement of all access points at each location.

The testing period was chosen to coincide with the start of the final examinations at the university.

Kevin said, "We expected a surge in online activity at the onset of examinations, and trialling the Meru Networks solution in the libraries and in the medical building gave us with the best data for evaluation of the WLAN. This was the perfect opportunity for us to verify whether the Meru Network solution could handle the surges in user activity – and to our satisfaction, it did."

Kevin illustrated his satisfaction with the Meru Networks offering by citing an example at the lecture theatre in the medical building. According to Kevin, the theatre previously required nine access points using the old infrastructure, but with the Meru Networks solution, the theatre now requires one access point to handle all traffic.

The decision to select the Meru Networks solution for JCU was cemented as a result of the pilot trial of the service. The implementation of the Meru Networks 802.11n wireless LAN provides a comprehensive wireless coverage for the Townsville and Cairns campuses at James Cook University, and now supports the student body with dual radio a/b/g/n access points. Over 350 AP320 series access points are running across these two campuses.

## Benefits

As Meru Networks WLAN solution enables all access points to operate from a single, seamless channel, the university's IT administrators, who may not be wireless experts, can easily compensate for any other coverage holes by simply adding additional access points, without any channel planning.

Today, students and staff on laptops, notebooks, iPhones and other smartphone devices are able to connect to the university's wireless Internet via different operating systems.

Kevin said, "Students come to university with all manner of operating systems. As a university we have taken a flexible approach to operating systems, and we make it a point to support most configurations. Most operating systems that support DHCP (dynamic host configuration protocol) are generally able to connect to the JCU

network. These include Microsoft Windows XP and Vista, Mac OSX 10.3, 10.4, and 10.5, iPhones, with Windows 7 under trial."

As a busy university with campuses in different locations, it is essential for Kevin and the ITR Communications team at JCU to stay on top of the WLAN performance at all times. Meru's E(z)RF Network Manager is a comprehensive management platform for Meru's 802.11 networks that lets the ITR Communications team at JCU monitor the performance of the wireless network. Running on Meru's plug-and-play service appliance, it provides centralised management of the network at both campuses through radio frequency (RF) visualisation, wireless performance dashboards and fault management for the wireless LANs in all wireless-enabled buildings at JCU.

The E(z)RF Network Manager gives JCU a new approach to WLAN management, as it offers instant access to real-time and cumulative historical performance metrics.

Kevin said, "The E(z)RF Network Manager gives us the flexibility to manage and monitor the network by simplifying the process with an easy trouble-shooting management tool and reporting functionality. The Network Manager makes it easy for us to access network performance data at all levels, whether it's the entire network or a single application."

The E(z)RF software uses continuous event recording, data mining and a knowledge-based inference engine to reduce troubleshooting time – and user downtime – from days to minutes. With the stable RF environment provided by Meru's Virtual Cell™ architecture, JCU's network managers can "rewind" the WLAN, recreating past event sequences to pinpoint quickly the causes of a problem days after it has occurred, even if the problem was between the client and network.

And with the OnTheGo iPhone application, the E(z)RF Network Manager is readily accessible wherever, and whenever. Designed for use with smart phones and devices such as the iPhone and iPod touch, the E(z)RF OnTheGo application provides quick and easy access to Meru's virtualized WLAN anywhere and anytime. It lets the ITR Communications team at JCU keep a finger on the pulse of the wireless network, remotely repairing faults as they occur and offering peace of mind when everything is running smoothly. When a problem occurs, E(z)RF OnTheGo doesn't just issue an alert; it begins diagnosis immediately, isolating faults and telling network staff exactly what has gone wrong.

Kevin added, "We are thrilled with this iPhone app for its ability to provide more insight into the network remotely. This is very important for JCU as we have to monitor and manage a number of campuses. With this app, we can make a timely response to any issue, no matter where we are."

## Next Steps

JCU now provides wireless Internet connectivity to more than 50 buildings, and is already looking to connect more buildings to the network with Meru Networks simple, single-channel approach for widening the coverage area.

The IT team plans to expand coverage across the Townsville campus with more Meru Networks access points in phase three of the project, while the Cairns campus follows Townsville's lead in phase two, which is to swap and replace the old technology with the new Meru Networks solution.

Kevin said, "The Meru Networks WLAN offered the easiest implementation solution over other vendors. Unlike other suppliers, there was no need to hire additional consultants to conduct a site survey before deploying the product."

**For more information about Meru Networks wireless networking solutions, visit** | www.merunetworks.com |
**For more information about James Cook University, visit** | www.jcu.edu.au |



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