

James Cook University

Wireless Network Upgrade Project Overcoming Challenges On A Budget

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JCU Demographic

- Campus spread across North Queensland, Brisbane and Singapore
- 16,000-17,000 Students
- Just over 4,000 Staff



Growing with Technology



- University Student and Staff Numbers Increasing
- Greater need for Enhanced Video and Data on both Wired and Wireless
 - Most Wired Networks Fast and Reliable
 - Wireless is no longer a nicety
- Emerging Technologies in Medical Field
 - Strong JCU Research and Teaching Area

Learning on the Go



- More Lectures are being Recorded
- Multimedia Becoming Standard in Lectures
- Smartphone/Tablet Revolution
 - Lightweight and more mobile
 - Web Browsers/Multimedia Clients

JCU Wireless 1 Year Ago



- Autonomous Access Points
- Limited Management/Reporting
 - Individual Configurations for each AP
 - Limited Channel Management
- Leaky Coax
 - High Coverage
 - Low Density
- Data Focused
 - No QoS, WMM Support, etc
- Inefficient Roaming Support
- A/B/G Support

Where We Wanted to Be



- 802.11n with WPA2
- Centralised Management
- High Density
- High Coverage
- Rogue Detection
- Better Roaming Capabilities
- QoS, WMM, Reliable Voice over Wireless
- Simpler Channel Planning

Getting More for Less



- Limited Budget
- Need to Maintain Current Coverage
- More Infrastructure, Fewer Services
- Require Ongoing Support

The Basic Requirements



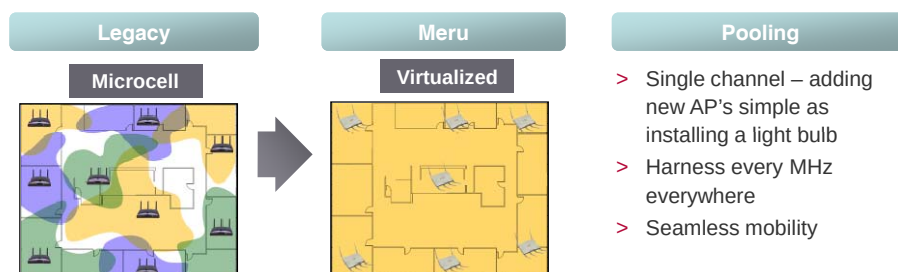
- 802.11n on both 2.4 and 5GHz
 - All Vendors Supported
- Centralised Management
 - All Vendors Supported for Thin Aps
- Rogue Detection
 - All Vendors Supported to Some Degree
- QoS
 - All Vendors Supported to Some Degree

Coverage Planning

- Lecture Theatres for 200 Students
- Multiple Access Points in One Area
- Multiple Lecture Theatres Nearby
- Reusing Data Points for Existing Wireless
- Expanding without Redesigning
- Meru Networks Wireless Solution

Meru Networks Channel Planning

- Single Channel Architecture
 - All Access Points Work on Same Channel
- Add Coverage Without Conflict



Replacement and Expansion



- One for One Replacement
 - Some Areas Covered but not All
- Many for One Leaky Coax Replacement
 - Typically Resulted in Proper Coverage
- Lecture Theatre Expansion
 - One to Two APs in a Theatre
 - Can Expand as Needs Grow

JCU Wireless Today



- Most Lecture Theatres Covered
- Every Building in Medical Area Covered
- Outdoor Coverage in Many Areas
- 802.11n/WPA2 on Eduroam
- 802.11abg/WPA on Walkabout

JCU Wireless Tomorrow



- Every Area with Wireless will be Total
- Every Student Area will be Covered
- Single SSID (Eduroam)
- 802.11n/WPA2

JCU Wireless Five to Ten Years



- Complete Coverage Across Campus
- Full VoWLAN Support

