SCU and Huawei
A partnership for growth

THETA 2015
Gold Coast
School and Research Profile

More than 15,000 students
- School of Arts and Social Sciences
- School of Education
- School of Environment, Science and Engineering
- School of Health and Human Sciences
- School of Law and Justice
- SCU College
- The Hotel School

ERA 5 Star Rated in 6 Disciplines

Special Research Centres
- Southern Cross GeoScience
- Southern Cross Plant Science

Research Centres
- Centre for Children and Young People
- Centre for Coastal Biogeochemistry Research
- Centre for Gambling Education and Research
- Forest Research Centre
- Marine Ecology Research Centre
- Research Centre for Tourism, Leisure and Work
Growing campus footprint

- Lismore
- Gold Coast (~25% annual growth)
- Coffs Harbour
- National Marine Science Centre
- Sydney Branch (new in 2014)
- Melbourne Branch (new in 2015)
- The Hotels School Sydney
- The Hotels School Melbourne (October)
- Grafton (Learning Centre)
Growing

• We have an increasing number of geographically dispersed campuses and teaching activities that rely heavily on network infrastructure
• Our researcher’s data needs are growing and they need to move data around quickly
• The network is the most critical piece of IT infrastructure SCU has
• Our current one is old and needs upgrading – and it is not just the network that is old
75% of lecture attendances rely on the network

44.7% of domestic students study all units externally

Lecture Recordings

- Recorded Only
- Video Conferenced (& Recorded)
Current Network

- Generally 100Mbps to desktop, 1Gbps Campus backbone, WAN and Internet Connectivity
- Up to 9 years old, functioning however some elements are beyond their supported life
- Minimal LAN resilience/fault tolerance
- Numerous and complex firewall rules
- Approximately 12,000 switch ports
- Approximately 740 Wireless Access points
Aging and diverse Infrastructure

- Ageing CCTV, Video Conferencing and Telephony infrastructure also required replacement
- They all used different standards and management system
  - Some systems were OK, some - not so good
- And then there is the cabling....
Current Network
Current Telephony

- Approximately 2500 handsets mainly analogue and digital (but some IP) handsets
- Messy cabling with some underground cables unusable
- Replacement parts for PABX scarce
- Moves, adds and changes require external contractors
- Basic voicemail - no unified comms or email integration and no soft clients
Current Telephony
Current Security

• Mix of Analogue (lots of coax) but some IP
• Mainly standard definition
• Minimal recording redundancy leading to lost footage
• Low retention times
• Not “Smart”
Partnership

• After evaluating a number of proposals we partnered with Huawei

• This partnership enables SCU to modernise four critical infrastructure assets with high capability and integrated technology from a single vendor.

• The solutions remove long standing known risks around the network and associated services.
Deliverables

• The project has 3 main components
  – Network
  – Telephony (includes some Video Conferencing)
  – CCTV

• All upgrades completed by late 2016
**Project Approach**

- Design for now with scope to expand
- Fault tolerance built in from the ground up
- Huawei providing direct support to project including direct access to engineering and R&D
- Full support for hardware and software with no “100KM” clauses
Network

- All network hardware
  - Network core
  - Network edge
  - Wireless access points or “AP’s” and controllers
- Fault tolerant core and low touch edge
- Capacity to respond to SCU’s growing geographic footprint and an ever growing student and staff data demand.
High Speed & Fault Tolerant Design

- Use of EVN (Ethernet Virtual Network) across Data Centres
- Fully programmable network, flexible customization capability
- Easy management (single pane of glass)
Campus Network

- High bandwidth
  - Campus core devices with 27Tbps switching capacity
- 10GE Core
  - Upgradable to 40G or 100G;
- High speed edge
  - GE to desktop
  - 802.11ac AP’s
- Unified management for wired and wireless devices
- iPCA to monitor “perceived quality” of the entire network.
Telecommunications

• Telephone system replaced
  – 2500 Modern IP 2500 handsets
  – Unified communications to streamline staff communications
  – Virtual or “Soft” phones for increase staff flexibility
CCTV Security system

• Replace existing cameras with 450 high definition IP CCTV cameras at the Lismore, Gold Coast and NMSC campuses.

• Enhanced recording and incident monitoring capabilities

• No more Coax
Progress to date

• Like any project – a bit slower than we originally thought, but both parties recognise that success is more important than speed
• Technology is living up to promise and any technical issues go direct to engineering or R&D for speedy resolution
• Technical staff adapting to new platform with relative ease
Where are we now?

• Network High Level Design is complete
• Wide Area Network, Camus Cores and Data Centre network in staging and test
• Low Level Design validation under way
• Pilot building (greenfield deployment) Learning Centre fully operational
• Interoperability testing in progress
Pilot Site

• IT Intensive Lismore Learning Centre running entirely on Huawei switches and wireless
Pilot Site

• High profile project and had to work
Pilot Installation
Staging Environment
Staging Environment
Next Steps

• This year
  – Data Centre
  – WAN Links
  – Campus Cores
  – Edge and Wireless

• Next Year
  – UC (planning commenced)
  – CCTV
QUESTIONS