

Swinburne's Next Generation Network – “ Enabling the Organisation “

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Agenda



- Swinburne Overview
- Building a standardised network architecture 4 years ago
- The Business Case to upgrade the entire infrastructure
- Swinburne's new network architecture
- Looking into the future – “ Enabling the Organisation “

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Swinburne University Overview



- Approx. 50,000 Students
- 6 Campus Locations in Victoria and an International Campus in Kuching, Malaysia.
- All Victorian Campuses have full wireless coverage
- Multi-sectoral University (TAFE & Higher Ed)
- Entrepreneurial University culture
- Flexible in Learning and Teaching
- Focused in Research
- Engaged in Industry and Community



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4 years ago.....



- Objective; “University Wide Standardised Architecture that enabled reliable and high performance delivery of Educational Services and other System Applications to students and staff”



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Network Infrastructure



Before 2001

- No real Server consolidation and centralisation
- Lack of redundancy
- Unreliable and numerous Network components
- Old and inconsistent cabling infrastructure
- Performance bottlenecks
- Disparate Networks

Network Infrastructure



After June 2001

- High Availability
- Scalable and Common Systems Architecture
- High Performance
- Minimal number of devices
- New Applications and Services
 - ☐ IP Telephony
 - ☐ Video Applications
 - ☐ Wireless Networking
 - ☐ Quality of Service

The Experience



Performance metrics

- ☐ Network Uptime – Now Averages 99.9+ %
- ☐ User experience – improved response time & overall confidence
- ☐ Integration of new technology – e.g. wireless, VOIP
- ☐ Lower support costs (maintain current costs through massive expansion)-PC numbers almost doubled but staffing constant
- Enabled the implementation of new applications (Blackboard, WebCT, etc..)



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Flexible Financing-Cisco Capital



- How do we upgrade our infrastructure to the latest and standardise across the whole University ?
- How do we manage cash flow but get all the benefits upfront?
- Lease Infrastructure via Cisco Capital at a highly competitive rate.
- Enabled “Big Bang” approach to gain the business and technology benefits quickly.



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Challenges facing us today



- Segregated Infrastructure
 - PABX (1000 Cisco IP Ends and 2500 Ericsson Handsets)
 - Video still ISDN based and off-net
 - Cost, Aging equipment, Additional management overhead
- Security Concerns
 - Internal security, audit capabilities, ever increasing concerns
- Increased number of devices driving port capacity (roughly, extra 1000 ports pa).
- Increased bandwidth
 - Internet usage continues to sky-rocket !
 - AARNet link has trebled in usage
 - Online Teaching and Learning Applications usage increases more and more.



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The Business Case in 2005



- Reaching end of 2001-2005 lease cycle
- Choice to sweat assets Vs new infrastructure
- What were the considerations ?
 - ☐ Security exposure with evolving security threats
 - ☐ Age of the existing equipment
 - ☐ Increase in Maintenance costs
 - ☐ Effective use of VERN
 - ☐ Downtime associated with PABX replacements
 - ☐ Wasted Investment in new PABX equipment
 - ☐ New applications driving additional bandwidth
 - ☐ Research Needs driving the need for IPv6

The Business Case



Cost Savings	Justification
PABX Upgrades	Upgrades not required, new network includes IP Telephony University wide
New Projects	Included in new network, costs absorbed into new network (VERN, JADE)
VoiceMail and PABX maintenance	Voicemail / PABX systems phased out as users cut-over to new network
Organic growth	New network has headroom built in to cater for growth (18000 ports)
Maintenance	Maintenance on new network equipment is lower
Network Support	Lower support costs internally not having to support ageing equipment

Other benefits



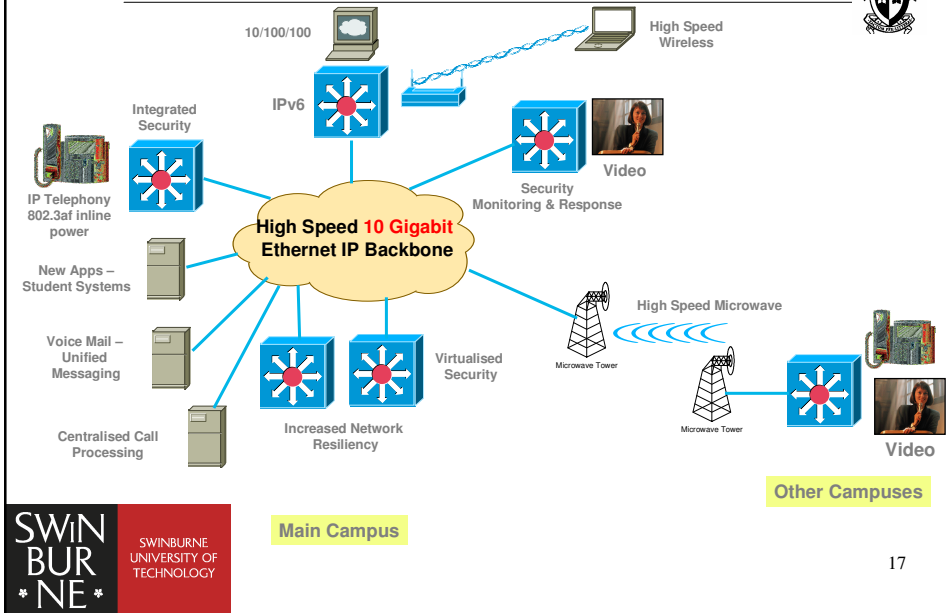
- Keeping Swinburne at forefront with regards to leading edge technology/resources
- Remove the disruption and downtime with PABX upgrades.
- Meeting the evolving security threat head-on taking advantage of new technologies that weren't available 4 years ago (CSA and MARS 200)
- Maintain “utility model” for connectivity
 - *Approx. cost per port = \$100 p.a including maintenance, support, installation, 10/100/1000 Ethernet, inline power, IP handset, UM, integrated security, platform for future growth & integration.....*

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Swinburne Infrastructure Re-refresh



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Technological benefits



- Increased Security
- Centralised Call Processing and Voice applications University wide
- Increased Performance
 - 10Gig Ethernet core
 - 10/100/1000 to every desktop (18,000 ports)
- Standards based 802.3af inline power to every port
- Increased network resiliency
- IPv6 in hardware
- Video Integration
- Advanced QoS
- Unified Messaging



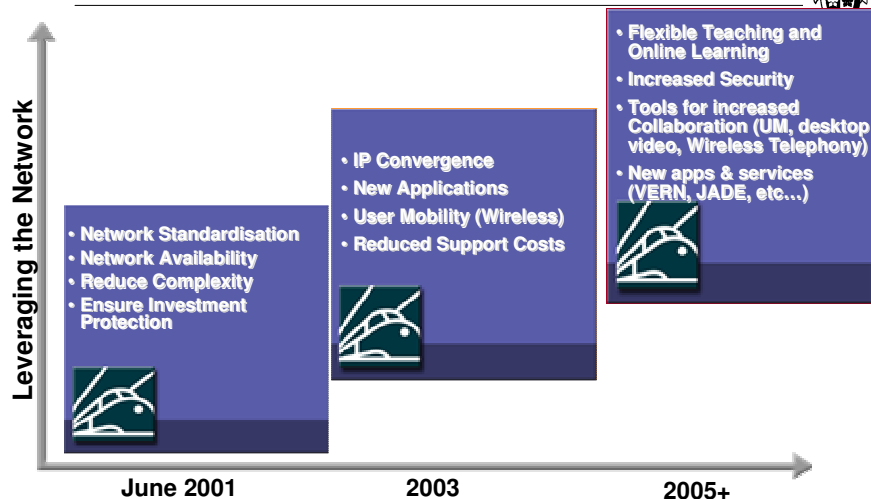
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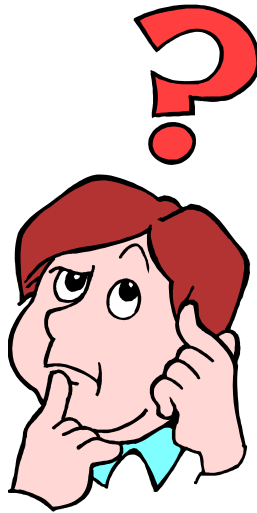


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Questions ?



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