



Strategic Overview

- Tasmanian Research & Education Network (TREN)
 - Partners
 - Bandwidth
 - CBD dark fibre
- UTAS Network
 - Current Status
 - Upgrades Planned
 - Wireless
- Project Office
 - UTAS Project Methodology
 - Applicable to what size projects?
 - Resourcing & Staff
- Review of Corporate Systems



Management Information Systems

- **SCAPSE** (Student & Client Administrative Processes & Systems Enhancement)
 - Student Record System (USRS)
 - CASMAC, iSIS, BPR
 - 2 parts
 - Course & Unit Management
 - Fees Redevelopment
 - Authoritative source of Course and Unit information
 - Developed in-house, using Oracle XML Db structures and Oracle Portal



MIS Projects

- ID Card System

- Phase 1 complete

- Phase 2: Library Photocopiers, PUPS integration

- Future Phases: Security access, TUU & SA payments, etc



- Tender UTAS0401
 - Why go out to Tender
 - Term of Contract
 - Standard Configurations – Desktop, Notebook, Server
 - Evaluation Process
 - Ability to provide warranty/maintenance solutions within required timeframe
 - Product life cycle
 - Conformity with minimum system configuration and specifications including cost and asset tagging
 - Ability to provide on-line processes
 - Demonstrated capacity on delivery timeframes and reporting
 - Capacity to provide value added services to the University's strategic and tactical objectives



Computing & Distributed Systems

- **Mac OS X**
 - **MacWorld Conference**
 - Apple going after mid-sized enterprise market
 - Server solutions

 - **Mac OS X on Campus**
 - Authentication to Novell
 - Recognition of replica servers
 - Password expiration problems overcome
 - Home directories can be local or roaming
 - Client management via Mac OS X Server
 - Software distribution via Apple Remote Desktop



Computing & Distributed Systems

- Enterprise Backup – Server backup service
 - Definition of a ‘server’
 - Commissioning: June 2004
- Anti-Virus
 - Internet Gateway & Desktops
 - External machines connecting to corporate network (wired or wireless)
 - Emergency Response Team
- SPAM Filtering
 - Testing underway since mid-February
 - Header corruption issue
 - Policy development (what is blocked at gateway?)
- LDAP project – Phase 1
 - ‘Go Live’ 15th March 2004



Computing & Distributed Systems

- LDAP project – Phase 2
 - Identity Management infrastructure
 - Metadirectory (bi-directional feeds to/from applications)
 - Single username & password – Same Sign On (SSO)
 - Commence: Late April
- Enterprise Email/Calendaring Project
 - Identified Need
 - Web based, iCal compliant calendaring
 - Leverage LDAP infrastructure
 - Commence: Late April
- Dynamic DNS
 - Automate host registration
 - Link in with other ITR management databases
 - Commissioning: May 2004



Computing & Distributed Systems

- Service Level Agreements
 - Commerce, AgScience/TIAR, TAFI, SciEng Faculty Office
 - Two proposals currently under consideration
 - Services offered: server hosting to full IT management



Computing & Distributed Systems

- Mini Projects (DMS)
 - PDA Standards (inc. server synchronization infrastructure)
 - Zen 4 (+)
 - Remote Audit function through Zen
 - Active Content Management
 - Development of SOE for Macs
 - XP compatibility with Corporate systems
 - ADSL provider
- Completed
 - Login procedure for staff to logon to student machine
 - MacAfee Antivirus software
 - Global Roaming ISP



Communication Technologies

- VPN
- Wireless
- Authentication Wireless/Wired
- Switch Security
- AppleTalk
- IPv6
- Newnham Subnets



Communication Technologies

- VPN
 - New equipment seems to be working well
 - IP Address range 131.217.244.x not 131.217.240.x at the moment. Will change.
 - Old system to be closed by Easter – handful of users still
 - Capacity of 1500 users, average 25, peak 40 at the moment
 - Capacity of 100Mbps+, Internet connection only 15Mbps!
 - Other purposes like BRT connections
 - Growth (more/faster ADSL users)



Communication Technologies

- **Wireless**
 - May 2003 US Laptop sales exceed Desktops (54%)
 - 9 “private” departmental access points
 - 2 “public” access points (Libraries)
 - Security is paramount. IEEE 802.1x overcomes most concerns. Rogue access points will not be tolerated. This includes creating ad-hoc networks with wireless cards.



Communication Technologies

- | <u>Standard</u> | <u>IEEE</u> | <u>Wi-Fi Alliance</u> |
|------------------|-------------|-----------------------|
| • 5 Ghz 54Mbps | 802.11a | 802.11a |
| • 2.4 Ghz 11Mbps | 802.11b | 802.11b |
| • 2.4 Ghz 54Mbps | 802.11g | 802.11g |
| • Security | 802.11i | WPA, WPA2 |
| • QoS | 802.11e | WME |



Communication Technologies

- 802.11a still provides best flexibility in deployment (8 channels vs 3 and cleaner spectrum)
- 802.11g devices slow down with 11b devices around, but b/g has the market penetration.
- Throughput:
 - 802.11a 25 Mbps
 - 802.11b 6 Mbps
 - 802.11b/g 7 Mbps (legacy - mixed mode)
 - 802.11g 22 Mbps (no legacy clients)



Communications Technologies

- UTas Security using IEEE 802.1x standard
 - Closely related to WPA Enterprise
 - Authenticated by Username/Password, not certificates. Same authentication system as the VPN.
 - Biggest difference is the use of PAP not CHAP or MS-CHAP for password transport. Needed for comparison to NIS/LDAP password repositories. Not using LEAP, PEAP, OTP. Makes it different to most other enterprises. Could be a problem longer term.
 - Rotates the 40 or 104 bit encryption keys after a time period or data volume to prevent brute force attacks. Protects the initialisation vector, tunnels username and passwords encrypted.



Communication Technologies

- Wireless at UTas requires:
 - OS-X 10.3 Inbuilt client software (Internet Connect Application)
 - OS-X 10.[1-2] Upgrade to 10.3
 - Purchase Aegis software from Meetinghouse
 - Upgrade to 10.3 is probably cheaper
 - Instructions will appear on <http://www.utas.edu.au/itr/wireless>



Communication Technologies

- Windows 9x – Purchase Odyssey from Funk or upgrade to 2000/XP.

- Windows 2000/XP
 - Install latest SP, then **free** software from Alfa+Ariss
 - **www.alfa-ariss.com/EN** (tiny download)
 - “SecureW2” applet enhances the integrated XP/2000+SP4 wireless support to work with PAP.
 - Put it in your standard images desktop and laptop.

- Instructions will appear on <http://www.utas.edu.au/itr/wireless>



Communication Technologies

- **Wired Connections**
 - Can use 802.1x authentication too.
 - Need Cisco 2950, 3550, 3750 series switches.
 - Not 1900, 2900XL, 3500XL
 - Works thru the port on back of IP phone if 3550 switch used.
 - Logging and accounting is less than for a wireless AP at the moment.



Communication Technologies

- Cisco Wireless Enterprise Features
 - Wireless LAN Solution Engine
 - Cisco Compatible Extensions (CCX)
 - Intel, IBM, Dell, Toshiba, HP, Netgear, Fujitsui, LinkSys
 - Detects Rogue Access Points (AP). Maps
- We are an Enterprise, not a hobby farm
 - Need enterprise class management and security features
 - Cisco AP start at \$600 for 802.11g with fixed aerials.
 - Around \$1200 for 802.11g with antenna choices and optional simultaneous 802.11a radio.



Communication Technologies

- Cisco Network Admission Control
 - Cisco Security Agent
 - Cisco Trust Agent
 - When network access attempted, agents liaise with Policy server to ensure client has correct AV definitions and patches before network connection can be activated.
 - Network Associates, Symantec, Trend Micro.
 - Q2 CY04
- Cisco host based IDS



Communication Technologies

- Plans to tighten the switch port security:
 - Prevent more than 1 device being plugged in at a time
 - Stops machines with NIC and Wireless acting as a gateway to Uni network.
 - Prevents Hubs/Switches from being used. Too hard to disable a single host if unmanageable device in the way.
 - Prevents switches/hubs from interfering in spanning tree topology, possibly causing instability.
 - Departments can request port security on labs. Stop random cable moving, or disabling of dept machine so private laptop can be plugged into wall instead.



Communication Technologies

- Appletalk
 - Demise is coming
 - Costs are prohibitive to continue to provide support in network equipment.
 - Affect AT between buildings/subnets, not within.
 - Zones will disappear from Chooser.
 - Will be phased out as QoS upgrade is installed.
 - NWC first to lose it.



Communication Technologies

- IPv6
 - University has been allocated IPv6 addresses by AARNet. AARNet3 (July 04) IPv4 and IPv6
 - 64,000 subnets of 2^{64} hosts.
 - Entire existing IPv4 Internet is 2^{32} .
 - Equipment being purchased with future IPv6 needs in mind. Firewall code gets IPv6 support late 2004.
 - DNS server upgrades to support IPv6 needed.
 - Can assist departments with some IPv6 internally if needed for legitimate research.
 - IPv6 being deployed in developing markets
 - Enquire with vendors about IPv6 support for your apps.



Communication Technologies

- Newnham Subnets
 - Mixed because of historical equipment limitations.
 - Happy to allocate new subnets for departments to move all hosts into to vacate shared subnets to provide clear division of responsibility. Need good documentation of which outlet/switch port used.
 - Sandy Bay will be broken into 4 sub-campus over the next 12 months. No IP address portability between sub-campus, much like Newnham vs Sandy Bay vs NW Centre is today.



Questions ?