

Mission Possible! – an integrated approach to the provision of broadband to schools, VET, universities and research organisations in Australia

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Objectives of the Presentation

- Improve HE understanding of school & VET bandwidth needs
- Inform on sector and jurisdiction broadband strategies
- Explore synergies between NBSIG, HE, Schools and VET initiatives
- Encourage multi-sector collaboration.

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The National Broadband Strategy

- Partnership between Australian and state and territory governments
- Provides an “agreed by all” policy framework for broadband development
- A coordinated approach to regional priorities and the needs of education & health.

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The National Broadband Action Plan

- Three Australian Government programs
 - CCIF \$23.7m
 - HiBIS \$107.8m
 - Demand Aggregation Broker Program (\$8.4m).
- Other Initiatives
 - AREN (\$69m plus \$30m from stakeholders)
 - Schools and VET Bandwidth Action Plans
 - State/Territory Initiatives.

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Demand Aggregation Broker Program

- National broadband advisers – education and health → multi-jurisdictional focus
- State & territory based brokers → work with governments & communities
- Community broker projects → assist communities with specific broadband projects.

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National Broadband Adviser for Education's Role

- Promote multi-jurisdictional demand aggregation initiatives in education
- Pursue opportunities for whole of education sector collaboration & investment
- Work with the sector, governments and national organisations to accelerate investment in regional networks
- Advise DEST and DCITA on state of demand & supply and demand aggregation proposals.

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Comparison of Education Sectors

	HE	VET	All Schools	Govt. Schools	Catholic Schools	Other Schools
Sector	42	85	9598	6930	1689	979
Campuses	>500	>1460¹	>9598	>6930	>1689	>979
Students	0.93m	1.69m	3.3m	2.2m	0.7m	0.4m
Staff	89,370		306,000			
Govt. Funding	\$4.95b	\$4.4b	\$19.9b			

1. TAFE campuses only. Also 890 community education and 3400 private providers

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Bandwidth Targets – HE & Research

Networked Computers	Research Staff & Students	Research Intensity	Minimum Target Capacity
<100		Low	Out of scope
100+	<200	Small	10+Mbps
500+	200+	Medium	100+Mbps
2000+	400+	Very high	1+Gbps

Ref: HEBAC Report November 2002

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Estimating Bandwidth – Schools

- Number of students and staff
- Ratio of general courses to online courses
- Computers per classroom and no. of computer labs
- Percentage time bandwidth required during computer use
- Number concurrent video conferencing and video streaming sessions
- Access to corporate systems
- Use of bandwidth management tools.

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Bandwidth Sizing – Schools

Bandwidth per Student	Small School (200 students)	Large School (1000 Students)
10Kbps	2Mbps	10Mbps

Issues for State Education Departments:

- Equity of access
- Cost of connectivity and downloads
- Reluctance to adopt public bandwidth targets
- Poor statistics on bandwidth usage
- Influence on State ICT procurement processes.

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Education Networks' Status (1)

	Structure	Bandwidth
Queensland	TAFEs de-centralised, 1364 schools	Largely 256K ADSL >500 and 64K ISDN ~600
NSW	2600 sites (180 TAFEs)	Links to 1 Gbps. Targets: 256Kbps min 47% with 2Mbps, 45% with 10Mbps.
ACT	One TAFE Institute	Transact broadband network plus AARNet for Internet access
Victoria	5 TAFEs in Unis. Two large regional TAFEs.	VicOne (AAPT) State contract June 2002 Schools: 1278 with 64Kbps, 311 with 128Kbps. Some 512K BDSL from local ISP

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Education Networks' Status (2)

	Sites	Bandwidth
Tasmania	>220 public schools	Metro TAFEs 20M -100M Regional/rural TAFEs 0.5M to 2M BDSL
South Australia	8 multi-campus TAFEs, 578 schools	\$20m contract - up to 2M BDSL. Telstra, SPT, Internode, AirNet, TLS TV multimedia broadcast equipment
Western Australia	12 TAFE Institutes (6 reg), 300 regional schools	Telstra GWIP (2M to 10 M) with Telstra Ethernet to aggregate regional centres with > 3 sites.
Northern Territory	> 155 schools, 80% TAFE in CDU	CDU investigating Telstra GWIP links.

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Key School Requirements

- Broadband IP network to all sites to minimum data bandwidth requirements
- Secure & safe Internet access for all students
- Centralised network services
- Gateways to the Internet and the department's corporate network
- Delivery of educational content and applications
- Videoconferencing and multimedia delivery services.

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Key VET Requirements (1)

1. Affordable ubiquitous broadband access to the Internet for students from home & work
2. System-wide electronic identity, user login, email
3. State of the art ICT infrastructure at each campus
4. Commercial grade connection to public Internet
5. Centralised and/or regionalised ISP and cache
6. WAN linking all campuses of an Institute for voice/data/video/Internet.

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Key VET Requirements (2)

7. Comprehensive network & bandwidth management
8. Statewide broadband/ wideband WAN and centralised data centre open to all Institutes
9. Room style video-conferencing system
10. Multi-party PC-based video-conferencing
11. National wideband WAN, centralised data centre and Internet pipe.

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Education Sector Bandwidth Plans

- Bandwidth action plan: learning in an online world 2003 (all schools)
- Access to Bandwidth for Connectivity A2B4C Oct-2003 (VET)
- A Framework for an Australian Research and Education Network – Nov 2002 (HE & research).

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Schools Bandwidth Action Plan

1. Adopt a coordinated cooperative approach
2. Establish appropriate governance arrangements
3. Invest in a better understanding of existing & future needs
4. Assist schools become informed users
5. Establish a small national unit
6. Adopt a sector wide approach to content transaction costs
7. Strengthen competition through targeted initiatives.

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VET Bandwidth Strategy

- Lower network costs for states integrated in a national VET network for interstate traffic
- Reduced Internet download costs with collaborative content peering
- Reduced costs for accessing nationally accessible e-learning and e-business content & services
- Reduction in costs due to coordinated approach & economies of scale.

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VET Next Steps

- Develop bandwidth aggregation and collaborative content peering blueprint
- Identify number of pilot States in an initial implementation of aggregated services
- Develop implementation plans for each Pilot including model, schedule, budget and assessment framework
- Commission and conduct pilot operations
- Assess the validity of the pilot operations.

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International Collaboration: Internet2 Program

- SEGP targeted at developed and emerging state-based education networks
- Internet2 university members in the same state act as sponsors
- Connectors take overall fiscal and operational responsibility for SEGP
- Periodic progress updates required.

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Internet2 SEGP Participation

- 62% state education networks access the Internet2 at >155 Mbps;
- Late 2002, 25 state networks connecting ~ 9800 k12-20 institutions –
 - 7173 schools
 - 1482 public libraries
 - 551 community colleges
 - 526 four-year colleges and universities
 - 102 museums, zoos, aquariums, and science centers.

For more information:

<http://k20.internet2.edu/segp/stateconnect/segpsurvey.shtml>

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Climate for Cross Sector & Jurisdiction Engagement

- NBS Implementation Group promoting state and Commonwealth cooperation
- AICTEC Bandwidth Sub-committee re-activated
- School sector has a Bandwidth Action Plan approved by state and federal Ministers
- VET sector has a national bandwidth strategy approved by the ANTA CEOs
- AARNet well placed with headroom capacity to support the wider education sector.

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Possible Opportunities for multi- sector Engagement (1)

- Leverage AARNet as a supplier of connectivity for schools/ VET in regional towns on AARNet3 routes e.g.
 - Nextgen 8400km, 80 major & regional sites (inland & coastal)
 - Sunshine Backbone (Brisbane to Cairns)
 - VERN/ VicTrack fast rail fibre
 - Bass Link & gas pipeline fibre – Tas. Govt
 - SA and WA metro fibre backbones.

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Possible Opportunities for multi- sector Engagement (2)

- Use AARNet to provide Internet connectivity for aggregated state education traffic
- Explore a flat fee for school jurisdictions on-net traffic over AARNet3
- Promote benefits of AARNet's direct links to cultural organisations, EdNA Online, and other hosted content
- Advisory services – e.g. advanced applications over Wideband IP, SLAs

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Possible Opportunities for multi-sector Engagement (3)

- Develop regional precincts encompassing university sites and schools and TAFE colleges
- AREN to provide leadership to the wider education sector (e.g. Internet2 and JANET programs)
- Greater cooperation across sectors and jurisdictions and open sharing of information.

Conclusion

"The Internet will break down national borders and lead to world peace"

"...children are not going to know what nationalism is"

Nicholas Negroponte

MIT

1997

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