Celebrating AARNet’s 20th Birthday
See how far we have come!

Don Robertson
In the beginning.....

- AVCC meeting in July 88 – development of a national network
- Networkshop at USyd in December 88 Geoff Huston outlines proposal
- AVCC hires Huston as Network Technical Manager, March 89
- Named AARN, later Robert Smart suggests AARNet
- Peter Elford joins in December 89
- Cisco routers running TCP/IP, DecNet & X.25
- 56kbps to Hawaii
Then to now.....

- Microwaves to Dark fibre
AARNet Book

- Book celebrating 20 years of the Internet in Australia
- Any photos or related information please don’t hesitate to send to us
- Will be launched by Governor General in late November
National Broadband Network

- AARNet has expressed its support for the vision of an NBN
- Network needs of the research and education sector dwarf the rest of the community

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2009</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td>Most homes:</td>
<td>40-800 Kbps</td>
<td>1-20 Mbps</td>
<td>25-500 Mbps</td>
</tr>
<tr>
<td>Leading-edge homes</td>
<td>4-8 Mbps</td>
<td>100-200 Mbps</td>
<td>2.5-5.0 Gbps</td>
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<tr>
<td>Businesses</td>
<td>4-8 Mbps</td>
<td>100-200 Mbps</td>
<td>2.5-5.0 Gbps</td>
</tr>
<tr>
<td>Research centres</td>
<td>40-400 Mbps</td>
<td>1-10 Gbps</td>
<td>25-250 Gbps</td>
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- R&E growth projected over the next 8 years, ie the period covered by the NBN.
- State by State approach to the NBN development will diminish the value to the nation
There is a direct parallel to railways

• There is a direct and relevant parallel to the history of rail in Australia, which is most eloquently set out on the Australian Governments own web site: http://www.infrastructure.gov.au/rail/trains/history.aspx

• Sadly planners gave little thought to connecting their railways with the other rail systems.

• were 'linked' by rail and more than 20,000 km of track had been laid. Sadly, those who envisaged a nation had not contemplated a national rail network.
AARNet has responded to:

- Digital Economy Future Directions Consultation Paper; a future directions paper include the role of stakeholders in ensuring that the Government's digital economy initiatives are maximised.
- Regulatory Reform for 21st Century Broadband;
- Regional Backbone Blackspots Program; a $250 million investment to immediately address backhaul blackspots throughout regional Australia
- Public Interest Criteria for the re-issue of Spectrum Licences
Regional Backhaul Blackspots

The initial priority locations to receive investment are:

- Emerald and Longreach, Queensland.
- Geraldton, Western Australia.
- Darwin, Northern Territory.
- Broken Hill, New South Wales.
- Victor Harbor, South Australia.
- South West Gippsland, Victoria.
- Competitive tender – construction to start by September
- Geraldton and Darwin are of interest to research and education
Recent Natural Disasters
Each ‘dot’ on the diagram is a repeater hut or Controlled Environment Vault (CEV)
Threat to the Network - Bushfire
Threat to the Network - Bushfire

Would a repeater-hut (CEV) survive a firestorm?
Threat to the Network - Flood

Would a repeater-hut (CEV) survive a flash-flood or a long-term flood?
Threat to the Network - Flood

• CEV and equipment might not be touched by floodwaters, however…

• As was the case at Calrossie, near Goondiwindi
  – Mains power failure – not restored for more than 40 hours
  – Backup batteries only last so long (about 40 hours)
  – Mobilise a portable generator, but…
    • Safe access impossible until the floodwaters subside

• Nextgen fibre cut at Kempsey on 24 May
  – Un able to repair due to flood water.
  – Rerouted optical circuits Nth & Sth
International Update

• TEIN 3 In production
  – Upgrade Perth to Singapore from 4x STM-1s to 1x STM-4 & 2x STM-1s
  – Decommissioned Frankfurt PoP
  – Moved Singapore PoP from Kim Chuan into Global Switch
  – Expand commodity and peering in Singapore

• TEIN3 next phase tender released
  – Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka
  – Capacities from 45 Mbps to 2.5 Gbps

• TEIN Task Force - Australia, Korea, Japan & Malaysia
  – No TEIN 4 without major change to current arrangements
National Update

• Tasmanian & NT STM-1 capacity extended till 12/10
• Melbourne/Adelaide/Perth back up link about to be upgraded from STM-4 to STM-16
• Continuing domestic peering success
  – Microsoft connected
  – 10G upgrades to Equinix, Akamai & a BIG content source
  – Improved performance
  – Very large savings on international transmission
• 10G customers
  – ANU, UNSW x2
• 10G pending
  – ANU 2nd, UQ, CSIRO/iVEC Perth, UniMelb
• 10G DWDM Optical ring in Sydney
• 1st Stage of 10G DWDM Mitchell link – Parks/Orange/Bathurst
• 10G Optical circuits
  – CSU x 2, CSIRO
  – 10GEN4R CSIRO
• Continuing major fibre civil works projects
AARNet Charging for 2009 & 2010

• Fixed Option due to commence on July 1\textsuperscript{st} no longer offered.
• Instead, no Excess Traffic be levied for the remainder of 2009.
• Trial of unmetered Off Peak conducted from July 1\textsuperscript{st} to the end of 2009.
• Depending on the outcome of the trial, consideration be given to extending unmetered Off Peak traffic in 2010
• Off Peak trial will be between 8:00pm and 8:00am each day
• Off Peak traffic wont contribute to 2010 Off Net Subscriptions
Un-metered Off Peak Traffic

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# AARNet – Draft Carbon Emission Strategy

## 1 - AARNet Carbon Emissions Strategy

1. Measure (& Audit)
   - Measure AARNet’s Carbon footprint
   - Understand impact of legislation & regulatory requirements
   - Implement ongoing reporting & audit process

2. Reduce
   - Plan and implement practical carbon emission reductions and ongoing policies

3. Offset?
   - Evaluate the use of carbon offsets for the balance of AARNet’s carbon emissions to achieve “Carbon Neutral” status.

## 2 - Enable our Member Strategies

- Collaborate with our members and other stakeholders, using network as an enabler of carbon emission reduction.
- Participate in selected projects in the sector

## 3 - Innovative Network Applications

- Identify opportunities to deliver significant GHG reduction projects, domestically or internationally, using innovative network applications
APAN 29 Sydney 7-11 Feb 2010

- AARNet hosting APAN 29
- Asia Pacific Advanced Network Conference
- Intercontinental Hotel Sydney
- Great opportunity to attend APAN for ‘local’ cost

www.apan.net
Thank you

Questions?

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