

ICFA HEP Grid and Digital Divide Workshop

22-27 May 2005

Daegu, Korea



George McLaughlin
Director, International Developments
AARNet

Digital Divide
Australia and the
Pacific Islands

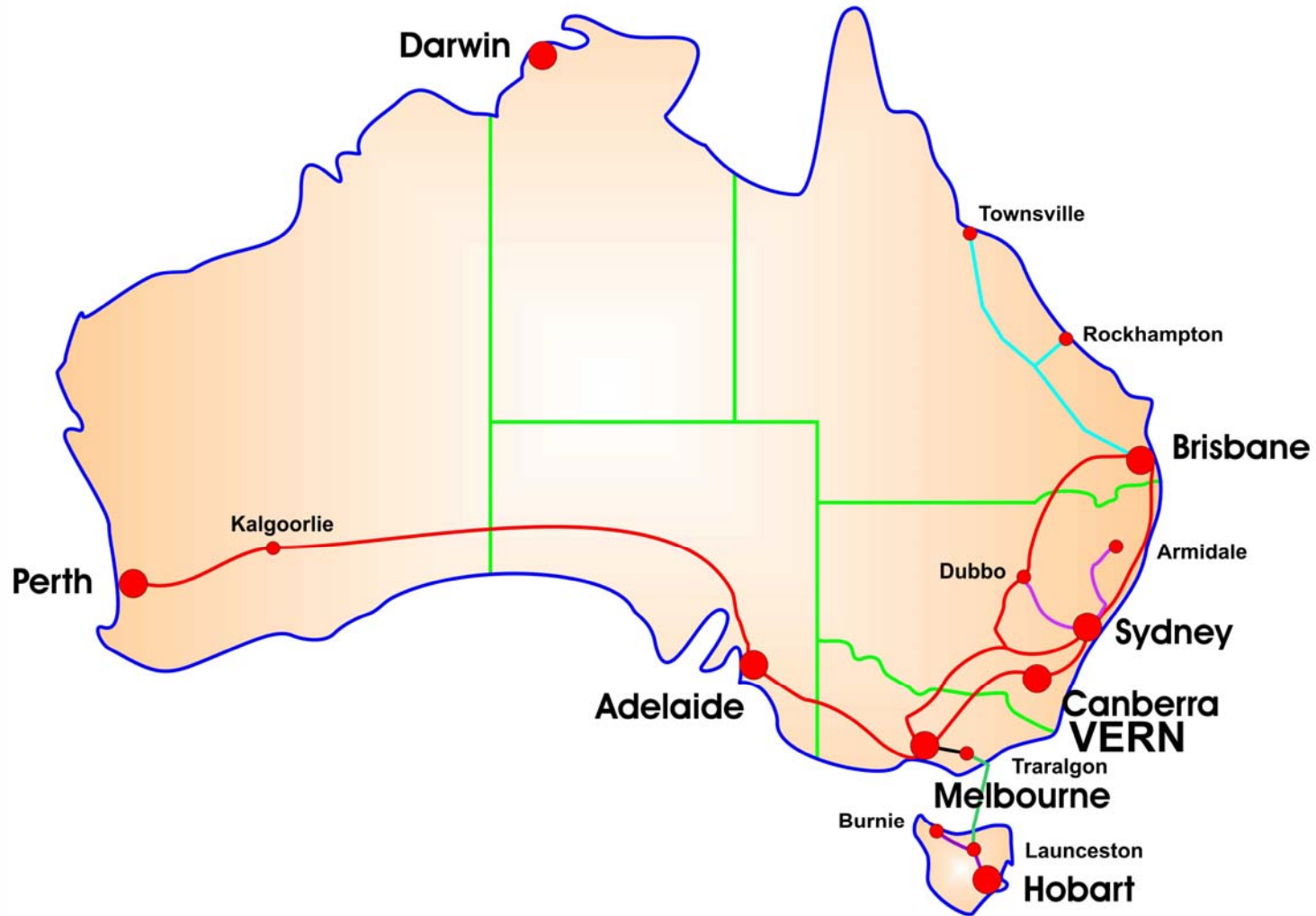
→ Overcoming the Digital Divide

- In Australia
- In the Pacific Islands
- In the nearby regions

→ Within Australia

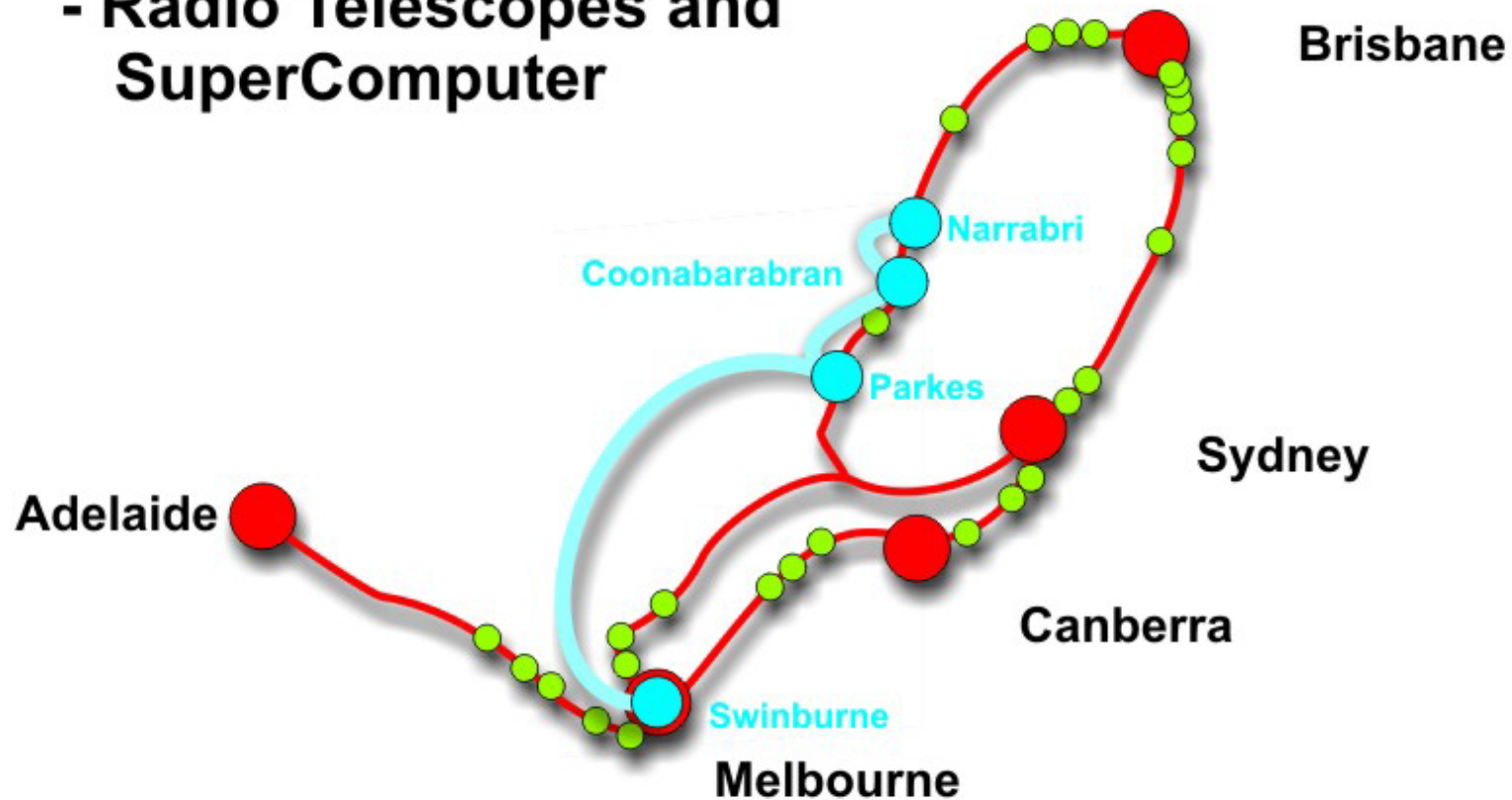
- AARNet acquired a carrier licence in 2000, after frustration of not being able to purchase dark fibre from traditional telcos
- With other organisations developed a condominium fibre deployment in Canberra
- Developed non-traditional alliances with power utilities rail and gas pipeline authorities to gain access to fibre in regional areas
- In 2004 secured access to two fibre pairs across Australia resulting from distressed assets

→ AARNet Australia – fibre coverage



→ Overlay networks

10Gbps Research Network - Radio Telescopes and SuperComputer



→ Results

- Remote universities in North Queensland and outback NSW now have gigabit capacity on power utility fibre lit by AARNet
- Tasmanian institutions will have gigabit capacity as a result of laying fibre along the new undersea gas pipeline
- Remote telescopes will be directly connected at gigabit and multi-gigabit capacity, capable of participating in global e-VLBI initiatives
- Basis for hosting the Square Kilometre Array in Australia

→ University of the South Pacific, Suva, Fiji

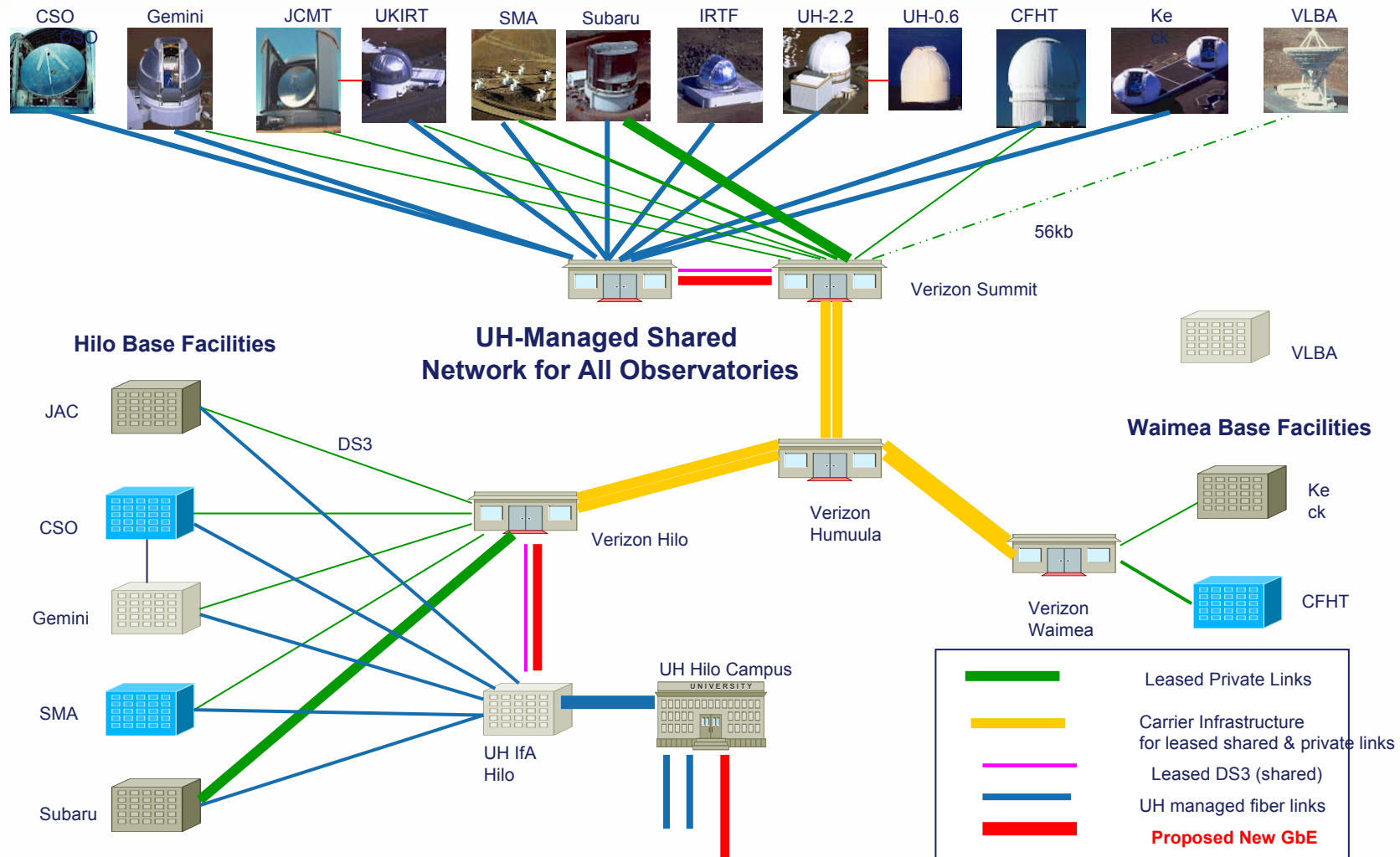
- Legislated monopoly carrier situation
- Expensive 1Mbps capacity, flat-lined
- AARNet able to “drop” a 155Mbps circuit in Suva
- Joint effort with AusAID, AARNet and USP made representation to Fiji Govt
- Exemption granted (but for USP only)
- Within days of connection, daily use peaked at 22Mbps (instead of the flatline 1Mbps)
- JICA will build a new ICT centre in Suva
- Other Pacific Island campuses of USP to benefit from new satellite connections
- French interest in connecting their Pacific Island interests

Hawaiin Islands

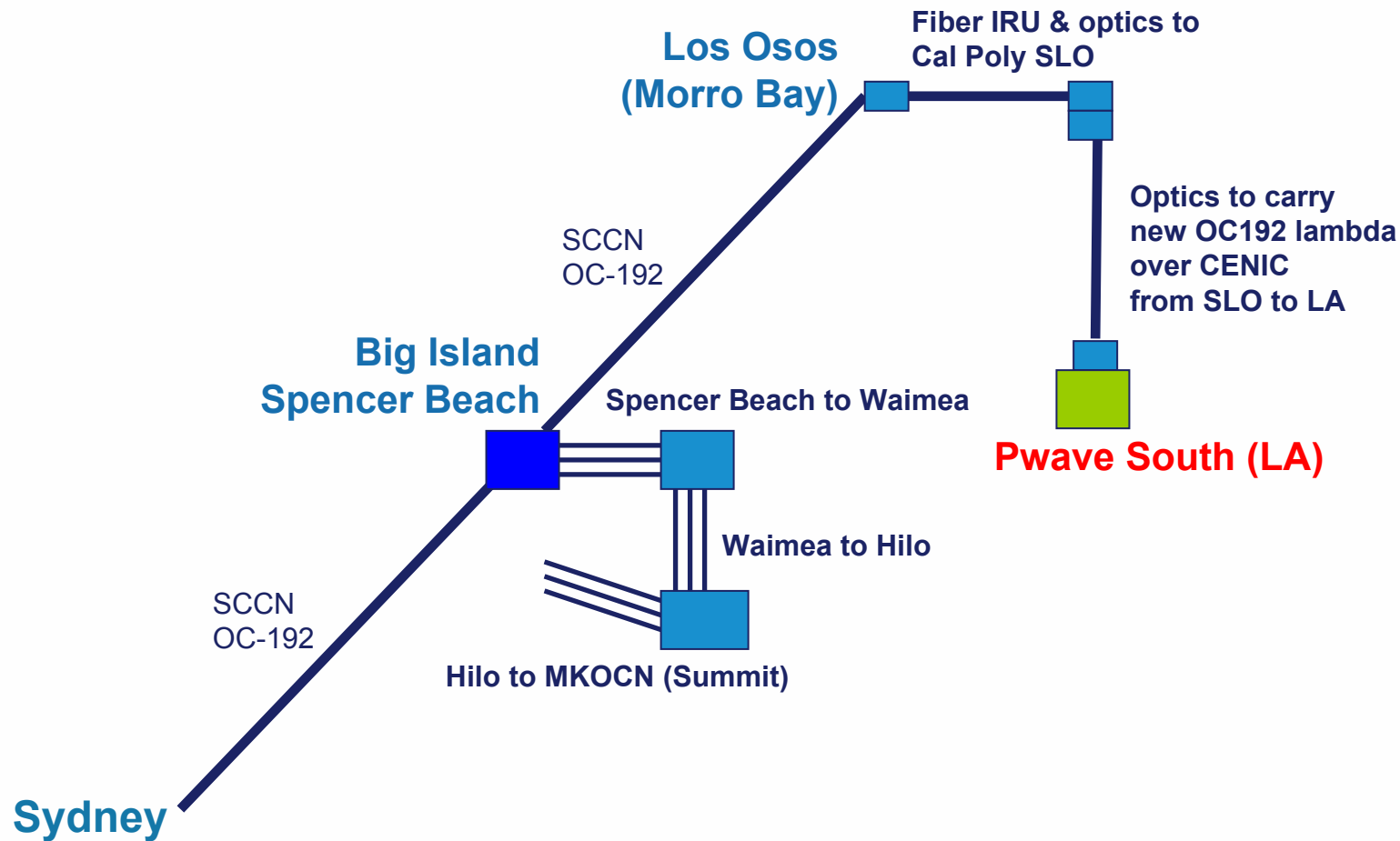
→ Global Astronomy Initiative - Mauna Kea Observatories

UH 0.6	UH 0.6-m telescope	0.6m	University of Hawaii
UH 2.2m	UH 2.2-m telescope	2.2m	University of Hawaii
IRTF	NASA Infrared Telescope Facility	3.0m	NASA
CFHT	Canada-France-Hawaii Telescope	3.6m	Canada/France/UH
UKIRT	United Kingdom Infrared Telescope	3.8m	United Kingdom
Keck I	W. M. Keck Observatory	10m	Caltech/University of California
Keck II	W. M. Keck Observatory	10m	Caltech/University of California
Subaru	Subaru Telescope	8.3m	Japan
Gemini	Gemini Northern Telescope	8.1m	USA/UK/ Canada/Argentina/ Australia/Brazil/Chile
Submillimeter			
CSO	Caltech Submillimeter Observatory	10.4m	Caltech/NSF
JCMT	James Clerk Maxwell Telescope	15m	UK/Canada/Netherlands
SMA	Submillimeter Array	8x6m	Smithsonian Astrophysical Observatory/Taiwan
Radio			
VLBA	Very Long Optical/Infrared		
UH 0.6m	UH 0.6-m telescope	0.6m	University of Hawaii
UH Baseline Array		25m	NRAO/AUI/NSF

→ Mauna Kea Observatories



→ SXTransPORT - global astronomy initiative



→ What didn't go well

- Papua New Guinea
- Indonesia – Tsunami follow-through

→ TEIN2 Project

An initiative of the European Commission with the stated objective of improving connectivity in certain developing countries of the Asia Pacific region

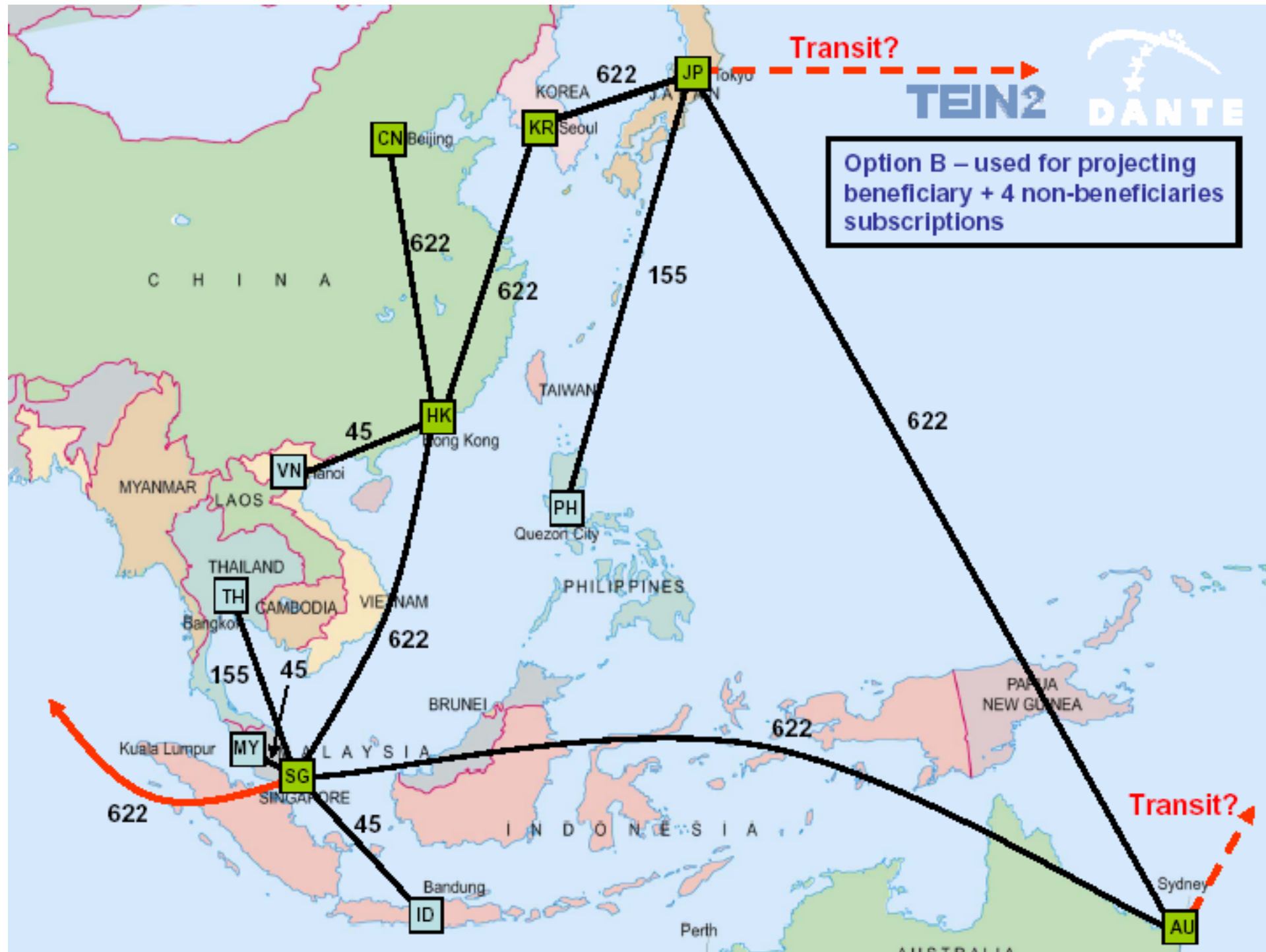
Partners:

- China (CERNET)
- Indonesia (ITB)
- Malaysia (MDC)
- Philippines (ASTI)
- Thailand (ThaiREN)
- Vietnam (MOST)
- Korea (KISDI)
- Singapore (SingAREN)
- Australia (AARNet)
- France (RENATER)
- Netherlands (SURFnet)
- UK (UKERNA)

Managed by DANTE

→ TEIN2 development

- Network procurement underway:
 - Connectivity tender closed
 - NOC tender closed
 - Equipment donation sought
- Contracts Q2/3, operational Q4 2005 (to end 2007)
- Exploring collaborations with existing and planned initiatives



→ What to do next

- Enhance cooperative arrangements between R&E network organisations and Aid and Development agencies:
 - TEIN2, ALICE – Europeaid/DANTE
 - USP – AusAID/JICA/AARNet
 - World Bank now a member of Internet2 – synergy between R&E networks and Global Development Learning Network
 - NSF Africa project
- Learn from experiences of others – what worked, what didn't and why
- Focus on applications and benefits – emerging infections, education delivery, telehealth, astronomy to schools

The image features a sunset over a body of water. The sun is partially obscured by a large, dark cloud, creating a bright glow. The sky is dark blue with scattered clouds. The water in the foreground is dark, reflecting the light from the sun. The logo 'aarnet3' is overlaid on the image. 'aarnet' is in white lowercase letters, and '3' is a large, blue, stylized number.

aarnet3

A NEW DAWN IN NETWORKING