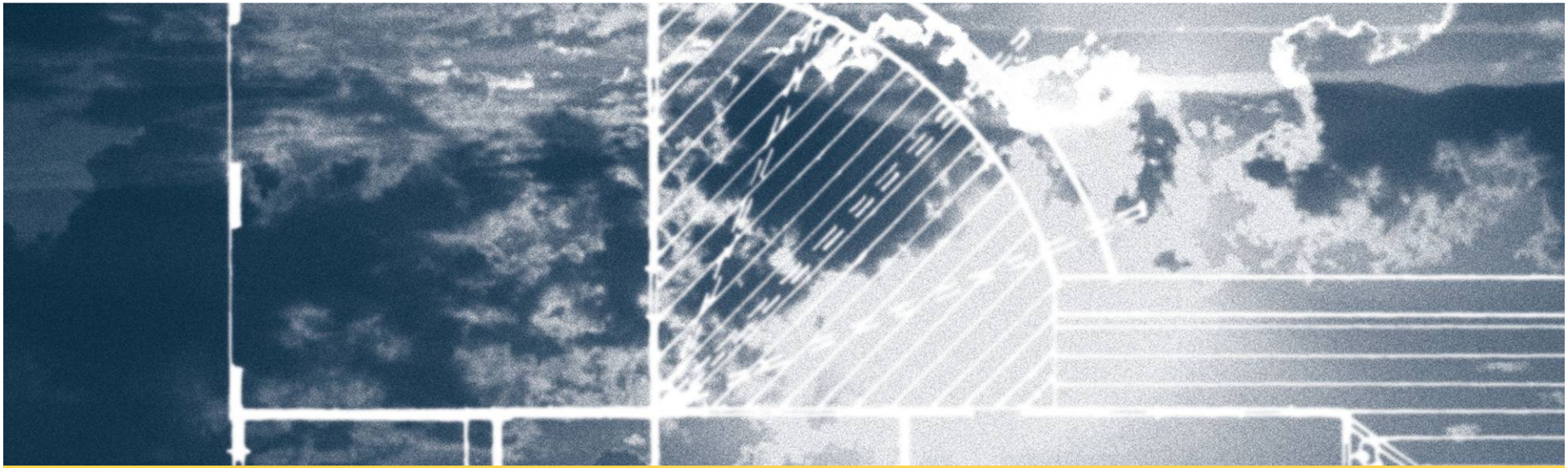


Use of satellite networks in the Pacific

Noelle Jones, Principal Consultant

Presentation for Pacific ICT Ministerial Forum
17 February 2009

NETWORK STRATEGIES
• Telecommunications Strategy •

Aim: to establish intelligence on the use and application of satellite networks in the Pacific

- Development of a primer on the satellite market in the Pacific region
- Analysis of issues experienced by Pacific Island countries
- Identification of strategies regarding the use and delivery of satellite services in the Pacific region

Report available for download:
http://www.dbcde.gov.au/communications_for_business/international/report_on_satellite_networks_in_the_asia_pacific_region

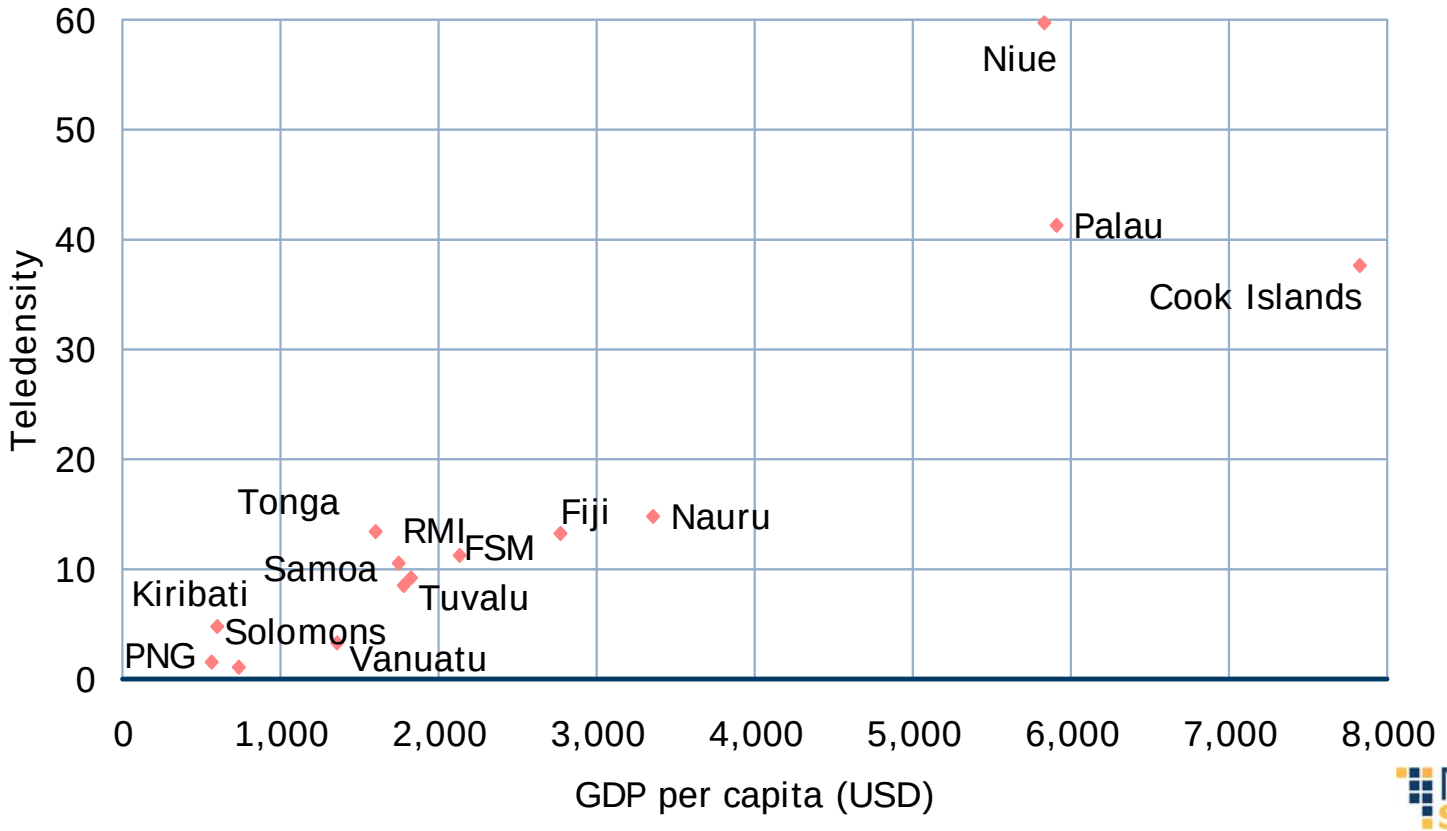
NETWORK STRATEGIES

We examined both demand- and supply-side issues

- We interviewed industry representatives in several Pacific Island countries:
  - Cook Islands, Fiji, Niue, Samoa, Solomon Islands, Tonga
- Interviews were conducted with regional providers:
  - Intelsat, REACH, SES New Skies, Telecom New Zealand

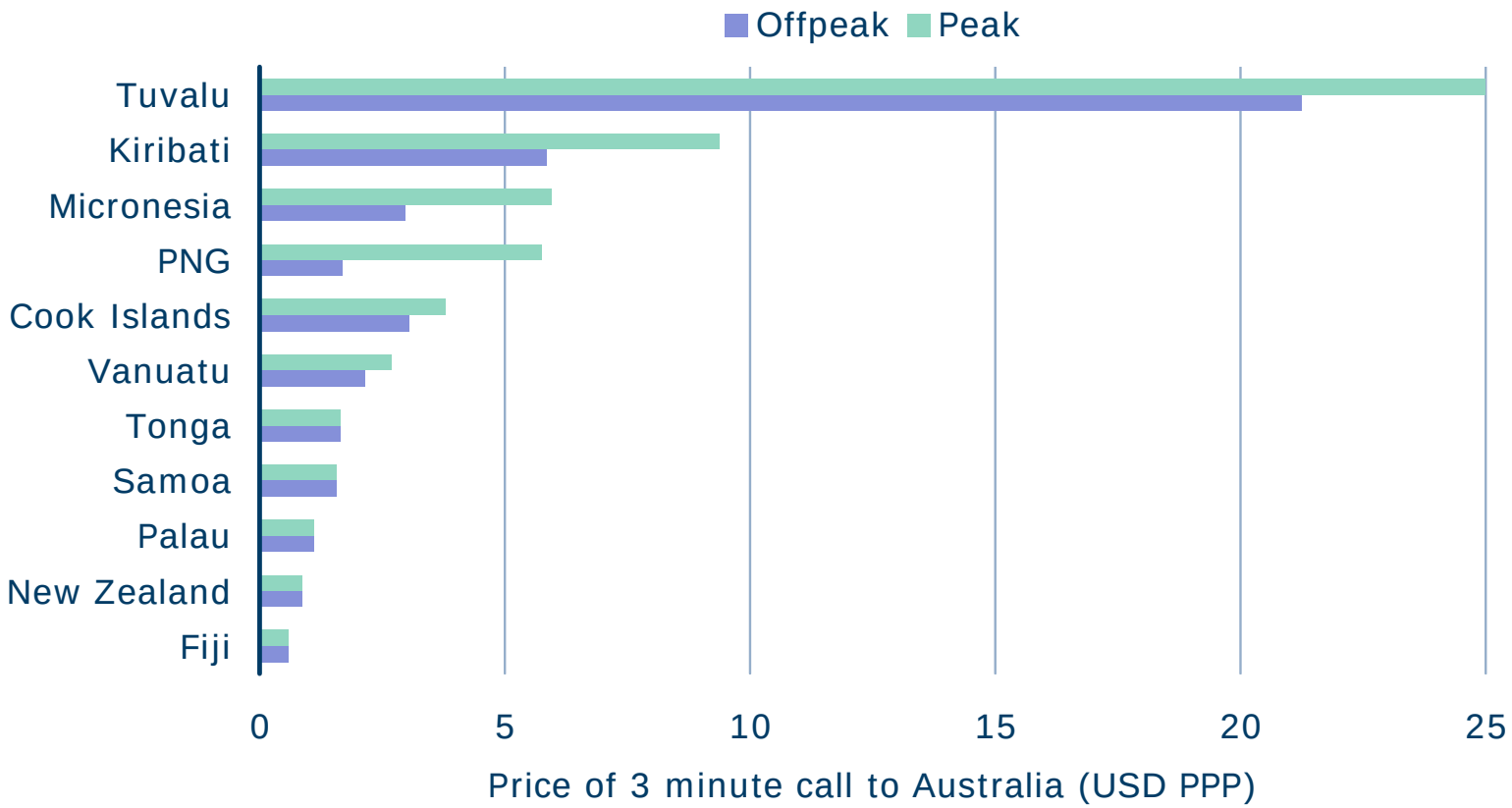
Capacity building must address accessibility and affordability in Pacific Island countries

- Low teledensities reflect lack of accessibility and affordability of telecoms services



NETWORK STRATEGIES

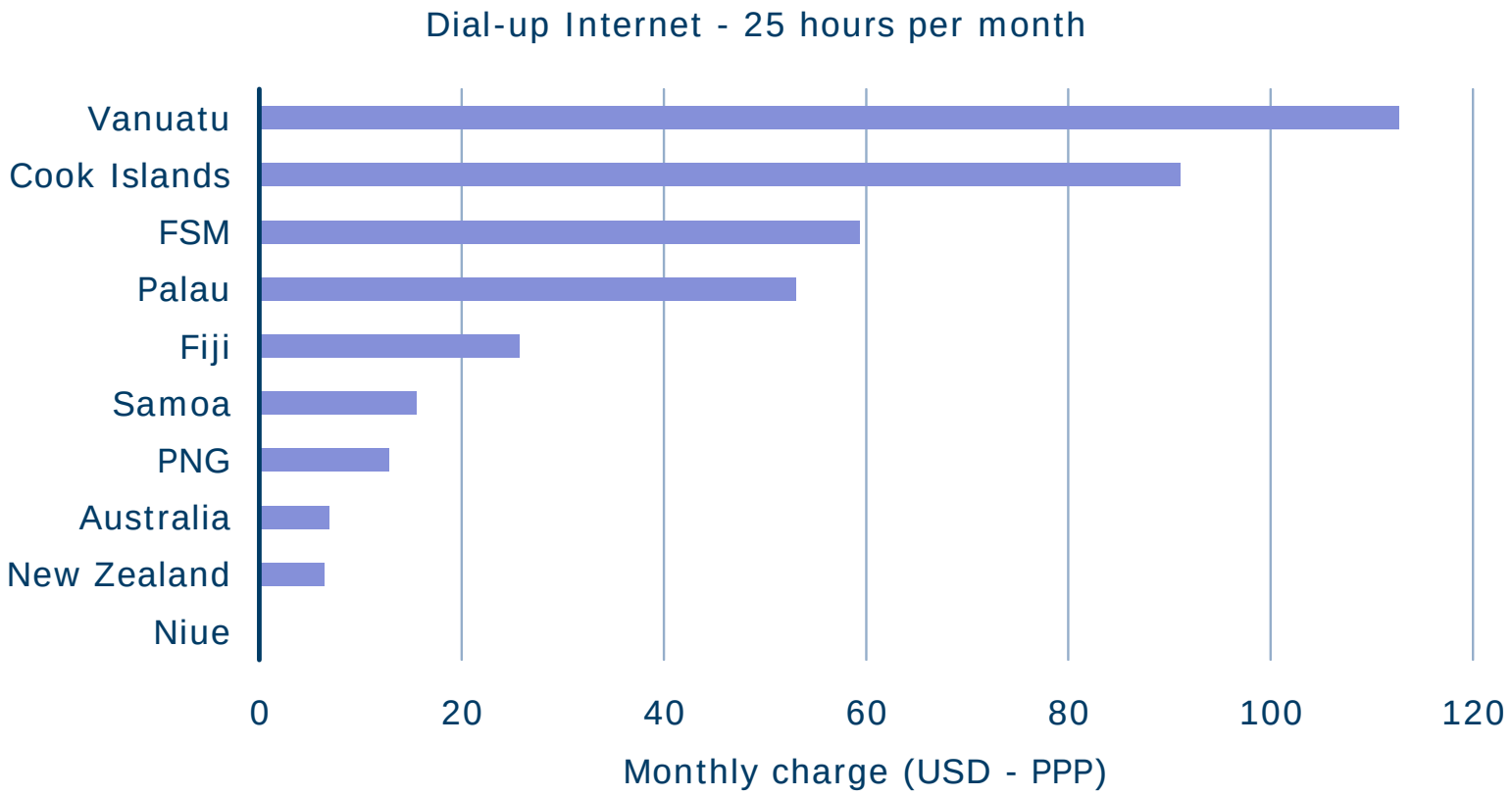
Cost of satellite connectivity is a key factor driving the high prices of international calls...



Source: operators, rates current as at February 2009

NETWORK STRATEGIES

...and Internet services



Source: ISPs, rates current as at February 2009

NETWORK STRATEGIES

Operators anticipate significant additional capacity will be required

- Main driver is Internet traffic
- Our forecasts suggest that demand for international bandwidth in most countries will increase by 50-200% from 2007 levels

Projected increase in demand for international bandwidth from 2007 to 2012	
Cook Islands	150%
Federated States of Micronesia	50%
Fiji	138%
Kiribati	83%
Nauru	50%
Niue	50%
Palau	31%
Papua New Guinea	90%
Republic of the Marshall Islands	57%
Samoa	77%
Solomon Islands	192%
Tonga	56%
Tuvalu	100%
Vanuatu	77%

Source: Network Strategies

NETWORK STRATEGIES

Satellite services will be essential for the foreseeable future

- Submarine cable deployments will be bringing increased bandwidth to some nations
  - operators still require domestic transmission to outlying islands
  - many initiatives are single-thread cables
    - ➔ no back-up in outages
- For nations without access to submarine cable, satellite remains the only option

More satellite capacity is coming

- SES New Skies launching NSS-9 on 12 February 2009
  - C-band circular polarisation
  - replacement for NSS-5
  - increased power & capacity
- Intelsat launching new satellite in 2011
  - C and Ku bands
  - replacement for IS-701
  - increased capacity

Satellite connectivity is very expensive for low income countries

- Global annual benchmark prices for a full transponder USD5,000 to USD27,000 per Mbit/s depending on modulation technique used
- Some Pacific operators are paying prices comparable to benchmarks

Satellite service cost per Mbit/s can be reduced,
in some cases significantly,
but will still be a barrier to capacity building

NETWORK STRATEGIES

Infrastructure in many countries limits flexibility & capacity for connectivity options

- Earth station antennae in many countries can only access C-band beams with circular polarisation
  - used only by Intelsat and SES New Skies
  - currently spare capacity is more limited than on beams with linear polarisation
  - multi-beam antennae are available
- Typically earth stations have only one antenna that accesses a single satellite
- Many countries have not implemented latest modulation techniques in their earth station equipment

NETWORK STRATEGIES

A range of strategies is essential to facilitate both accessibility and affordability

- Applicable strategies address technical, regulatory, commercial and educational aspects
- Successful strategies for all areas are essential for both accessibility and affordability to be improved
- Regional cooperation offers potential for significant additional benefits

Technical strategies

- Diversify earth station equipment to enable simultaneous access to multiple satellites and transponders (polarisation, frequency band, multiple antennas, inclined orbit capabilities)
  - will also enable access to alternative suppliers
- Implement latest modulation techniques to extract maximum bandwidth
- Consider less than carrier-grade VSAT services for smaller population centres

Regulatory & educational strategies

- Continue market liberalisation
- Support for regional cooperation
- Capacity building
  - engineers and technicians
  - regulatory experts
  - user and community education

NETWORK STRATEGIES

Commercial strategies

- Aim is to minimise the use of international bandwidth
- Mirror Internet sites
  - popular download sites
  - commercial content sites (eg movies)
  - information sites (eg real-time sports results)
- Pricing of bandwidth usage
- ‘Freezones’

Regional cooperation strategies

- Benefits
  - cost minimisation
  - increased commercial negotiating power
  - regional harmonisation
  - community of expertise (technical, regulatory, commercial, social)
- Concerns
  - ceding of power to cooperative

NETWORK STRATEGIES

Thank you!

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