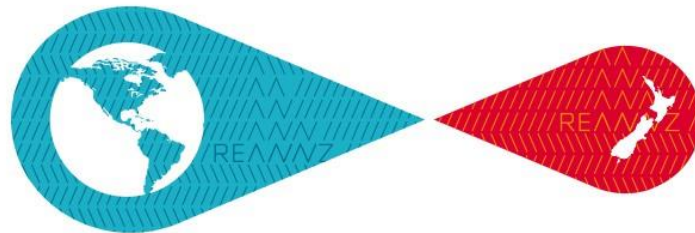


# Building a Modern Research Network using a Public-Private Partnership – the New Zealand example



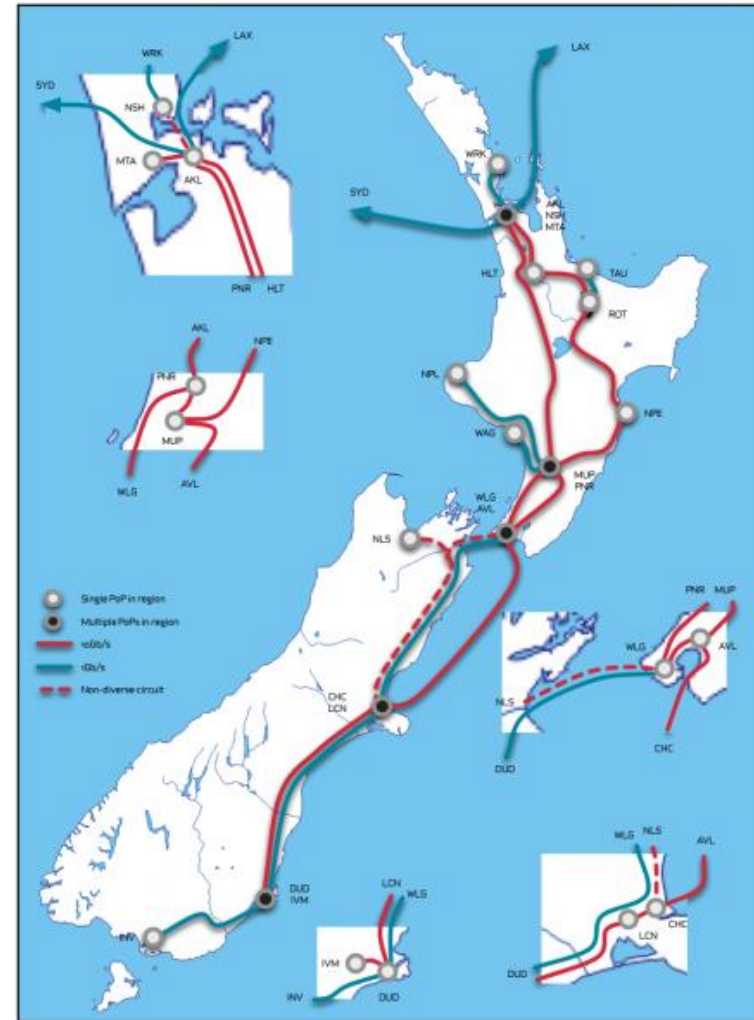
***Douglas Harré***  
***Government Relations Manager***  
***Research & Education Advanced Network New Zealand***  
***Ltd***



UbuntuNet Alliance Conference Lusaka, November 2014

# Facts About New Zealand

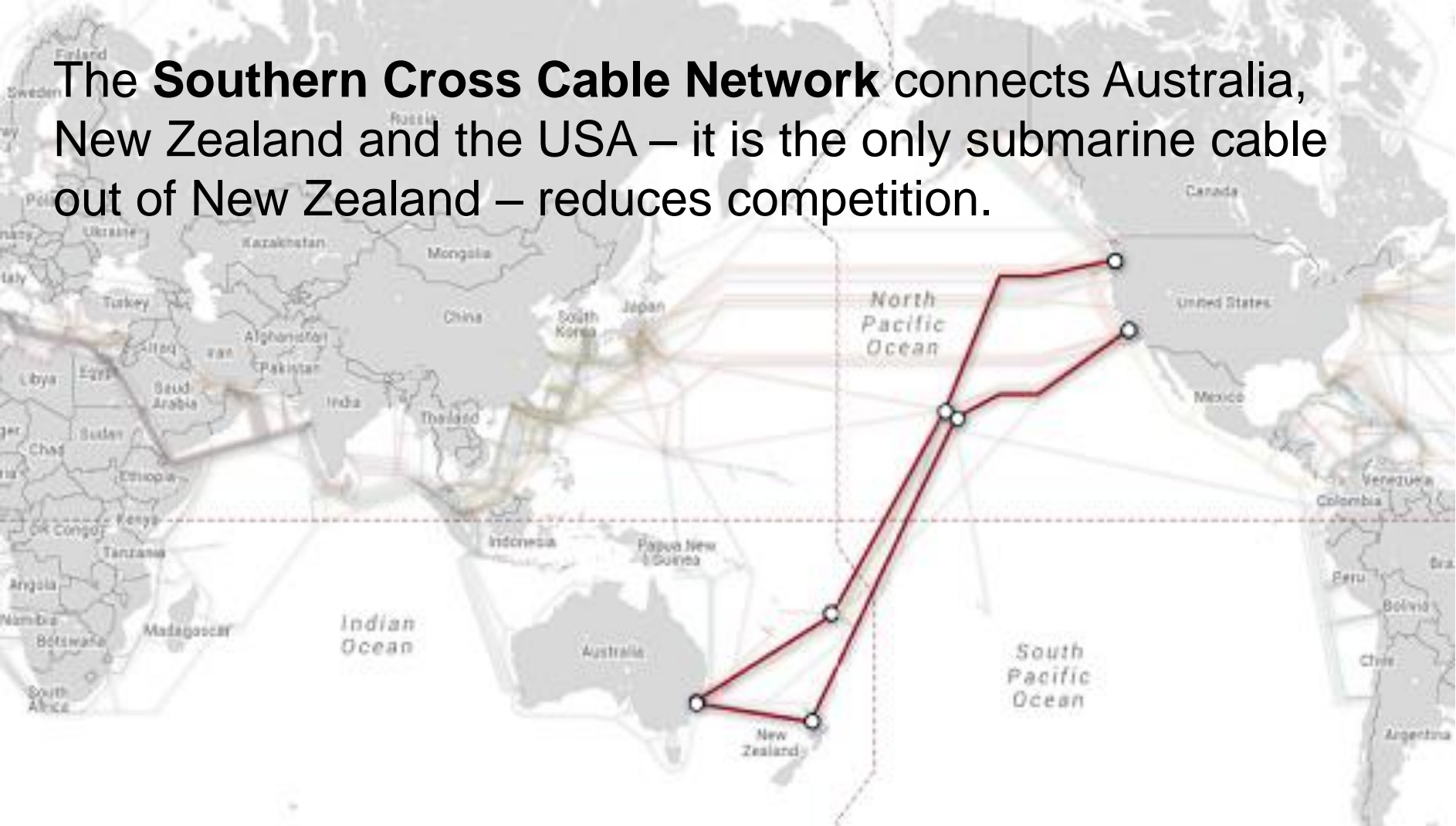
- 1600km long x 250km wide, about one third the size of Zambia
- Agriculture-based economy
  - Population 4.4M, 1.4M in Auckland
- Telecommunications Industry
  - Only 1 undersea cable out of NZ
    - Bandwidth costs between NZ-Australia are 10X Europe-US
  - 2 ISPs have 78% of ISP market
    - Next largest ISP has 9% market share
  - 3 companies own their own long-haul fibre
- Broadband penetration slightly above OECD average





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The **Southern Cross Cable Network** connects Australia, New Zealand and the USA – it is the only submarine cable out of New Zealand – reduces competition.



# Our 2 Main Industries



Agriculture – dairy/sheep/seafood



Tourism

# REANNZ – the NREN for New Zealand

- launched in 2006
  - 1/3 funding from govt, 2/3 from members
  - Connects all 8 universities, 8 main research institutes, 12 polytechnics, some tech companies
- High traffic growth
  - National: 28% in 2011 → 45% in 2014
  - International: 30% in 2011 → 95% in 2014

# Traditional Telco Model in 2006

- REANNZ had a leased wavelength model from a large NZ telco – 10Gb backbone
  - The telco imposed restrictions limiting commercial traffic, little flexibility, no access to dark fibre
- How to change this for the future needs of members?

# New Innovative Model for 2013

- Members provided basis for business case
  - Projected bandwidth requirements, data sources/sinks/LHC/SKA/bioinformatics
  - Needed visibility into all network layers
  - Modeled architecture - \$\$
- What we found
  - Needed the benefits of optical network, but only 25% of one
  - Needed a more competitive telecom marketplace
  - Only 1 of 3 fibre networks would sell dark fibre

# Our Initial Strategy

- Made sure we knew exactly what we needed
  - Technically, operationally and business model
- Fully understood the commercial market
  - Business drivers, financial situation, corporate culture of the various players
  - Decided best approach was to find a **'hungry' upstart** that a deal with us would strengthen their position in the market
- Issued Request For Information (2012)
  - took concept of Shared Network to market
  - Requirement to purchase long-haul fibre for research purposes and future growth

# What is a PPP?



# 2 Main Fibre Owners said “no thanks”



# Smallest fibre owner said “yes please”



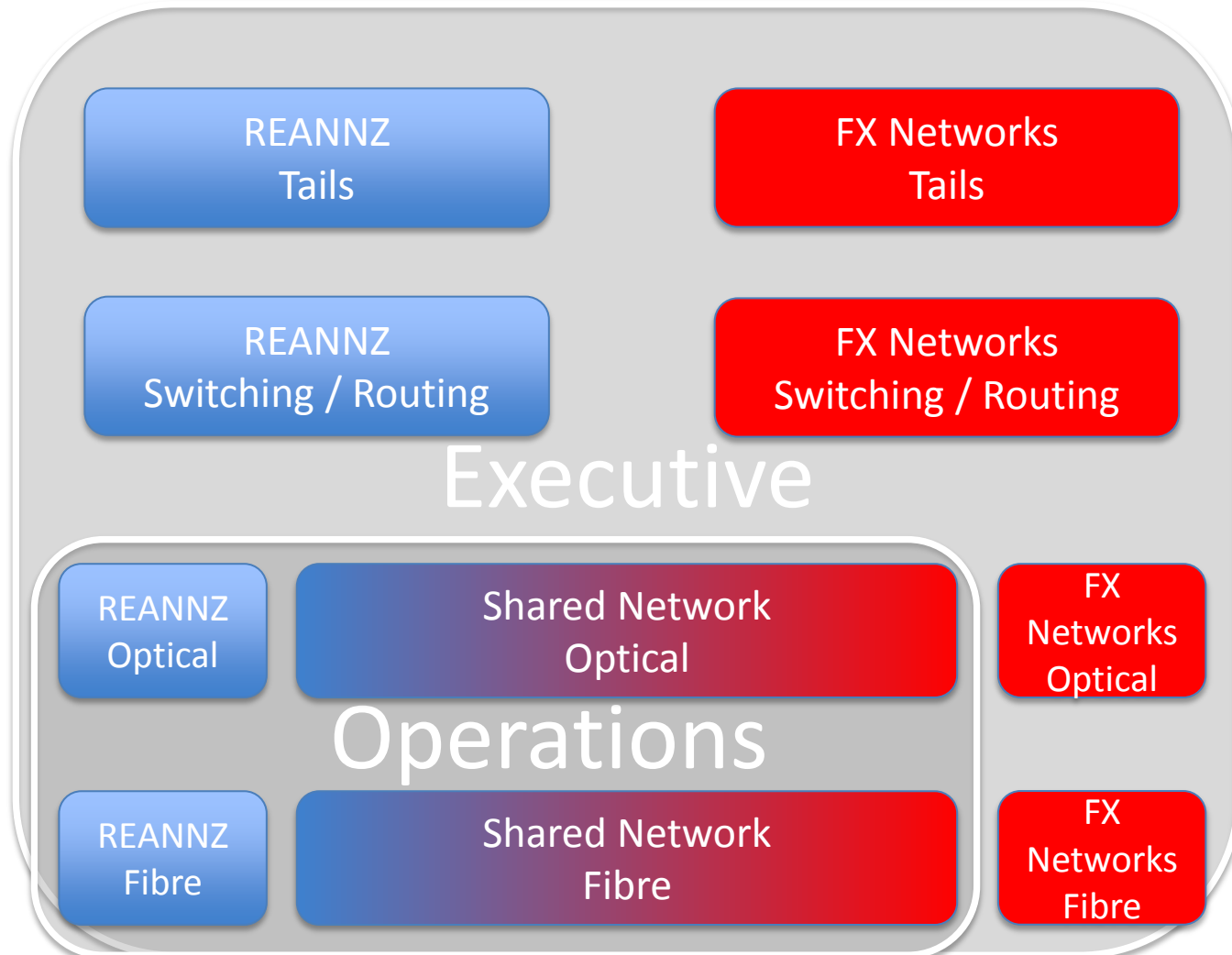
# How we “sold” the idea

- **Capital:** we (govt) had it, they (private company) needed it
- **Network:** they were going to build one, we needed it
- **Operations:** by working together, we could improve network reliability/decrease costs
- **Services:** R&E networks are testing grounds, we offer an ‘early adopter’ marketplace
- **Non-compete:** we could ‘divide up’ the marketplace and drive business to one another

# Negotiations

- **Joint Operating Agreement used as basis for contract**
  - Trust was critical
  - Both sides agreed this would be a ‘win-win’ deal
    - Willingness to concede issues met with concessions elsewhere
    - Key clauses negotiated without lawyers
  - **Commitment from operations and exec levels**
    - Monthly / quarterly meetings detailed
    - Development of a ‘Shared Network Playbook’
  - **Protections in contract**
    - In case our relationship fell apart or FX Networks are bought out
    - Clarity on operational expectations
  - **Agree to share costs 25% / 75% in exchange for 25% capacity**

# Shared Network Concept



# Post Negotiations

- **Ministerial approval** - most difficult part of whole process
  - *Bureaucrats* had trouble grasping the ‘shared network’ concept
  - *Competitors* voiced concerns about “unfair competition”
- **Building the network**
  - Is now underway
  - Have written a ‘Shared Network Playbook’
- **Financial and operational benefits have exceeded expectations**
  - FX Networks now paying REANNZ to be their SDN R&D arm
- **Carrier’s improved financial position has made them target of takeover**

# NREN improvements

- **Shared Optical Platform**
  - *Infinera DTN-X* deployment – 8TB/sec if fully deployed
  - REANNZ (public) pays 25% of cap/opex costs, gets access to 25% of their fibre network to do as we wish with (2 Tb/sec) – we have access to their PoPs
  - FX (private) can then use this new technology to win new commercial customers – they could not have afforded that before – 2 big players now worried.. 😊.

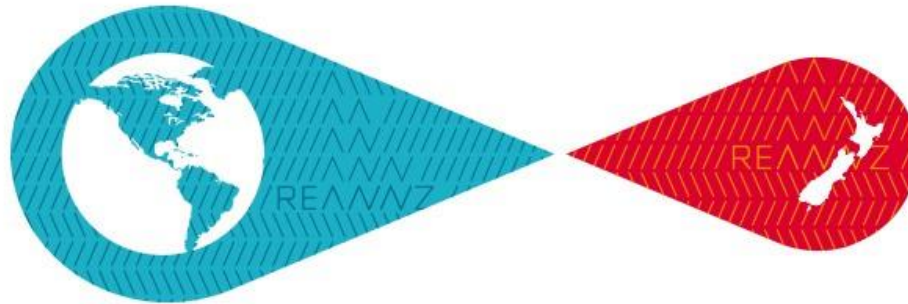
# Summary #1

- The shared network allows REANNZ to grow national network capacity from 10Gb/s to 2000 Gb/s over next 8 years.
- REANNZ now has **all the advantages of a wholly-owned infrastructure model**, with less capital investment (est. \$5.3M less) and lower on-going opex costs (est. \$127,000/year less) **compared to completely owning our own network.**

# Summary

Through this PPP approach the new network provides **200 times** the capacity of the old network, at **60% of the previous annual operating cost.**

# Thank you!



[douglas.harre@reannz.co.nz](mailto:douglas.harre@reannz.co.nz)