

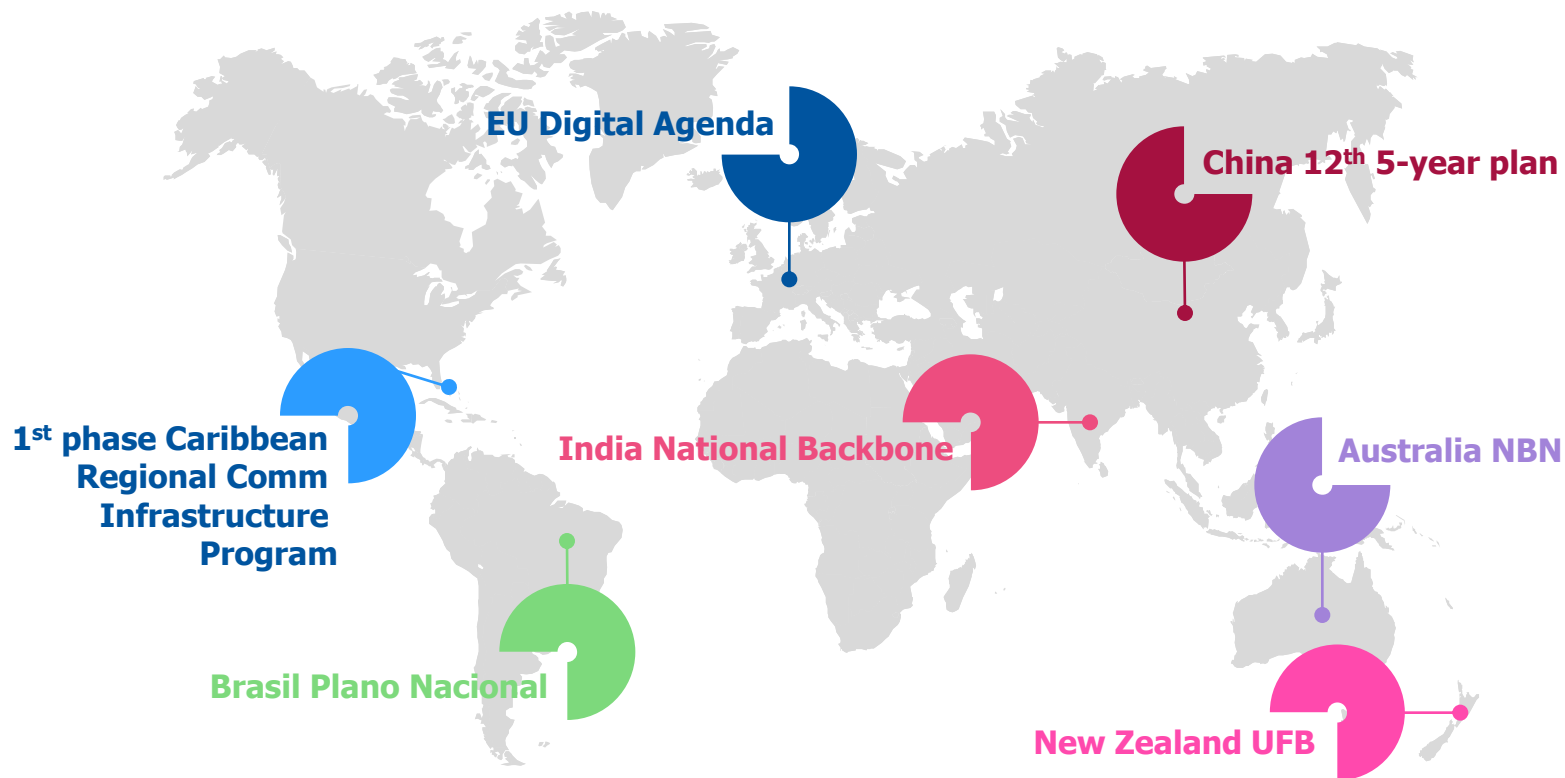


# SUBMARINE CABLE SYSTEMS IN THE PACIFIC

## OPPORTUNITIES & CHALLENGES

December 5, 2012

# THE UNIVERSAL BROADBAND CHALLENGE

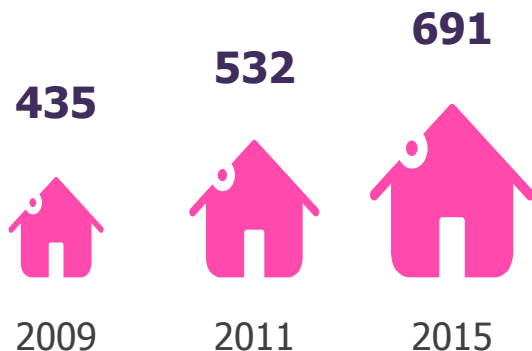


GOVERNMENTS SET NATIONAL BROADBAND TARGETS & TIMELINES  
FIBRE ROLLOUTS PROGRESS BUT TAKE TIME

# MAJOR DRIVERS

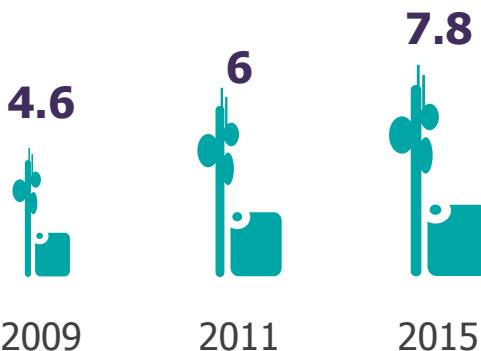
## SALES, INFORMATION, ENTERTAINMENT & COMMUNITY

### BROADBAND



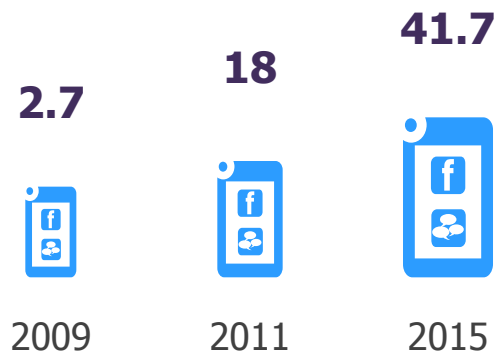
Fixed broadband connections  
(Millions)

### WIRELESS



Mobile connections  
(Billions)

### CONTENT/APPS



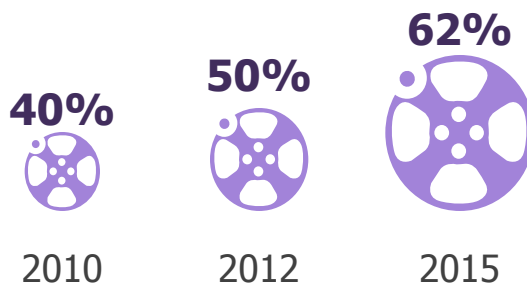
Applications downloads  
(Billions)

### DEVICES



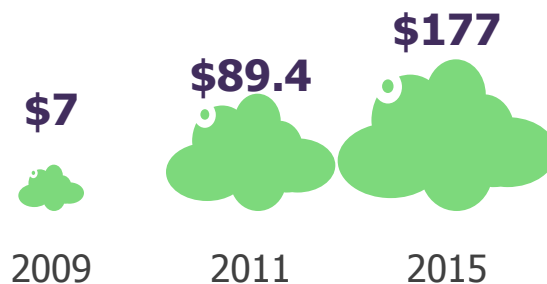
Smartphone Sales  
(Millions)

### VIDEO



Internet video share of  
consumer Internet traffic

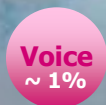
### CLOUD



Public cloud revenue  
(Billions)

# MARKET DRIVERS

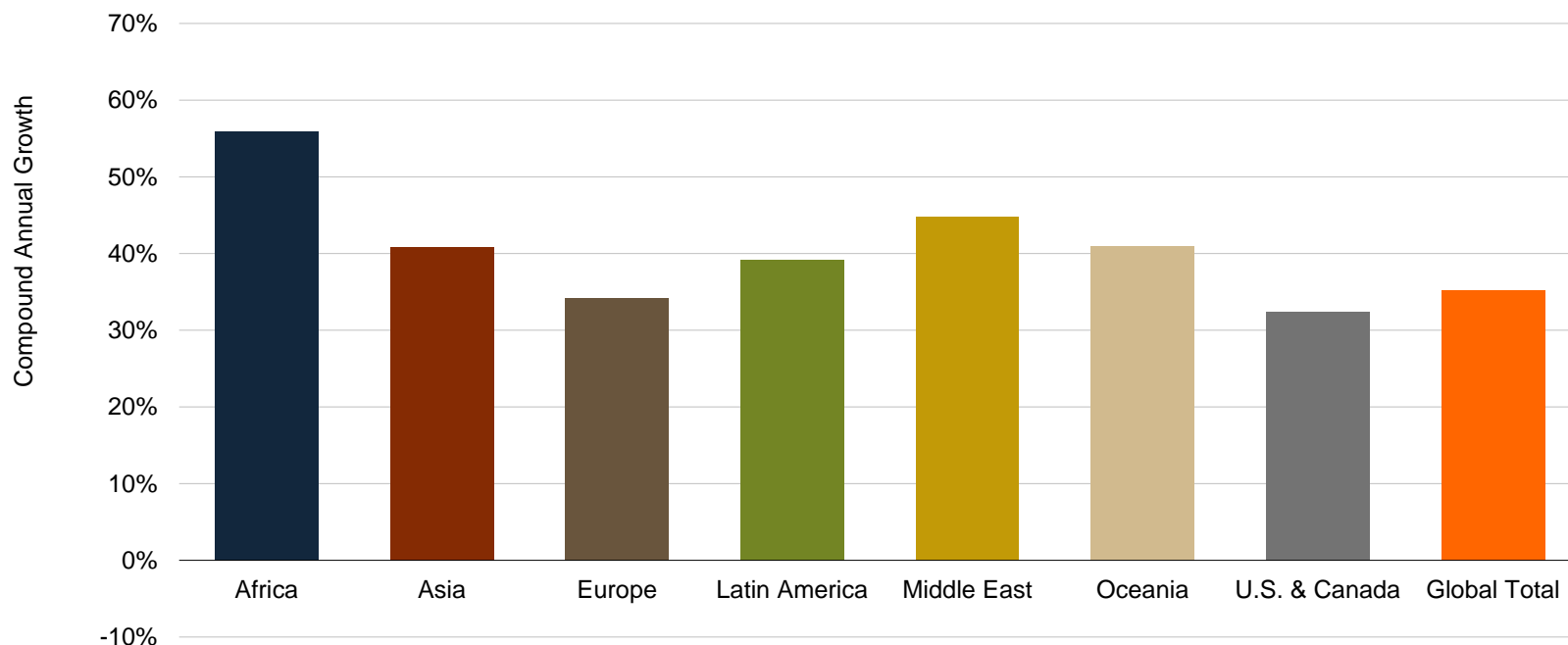
## INTERNATIONAL TRAFFIC GROWTH



*\*Source TeleGeography 2011*

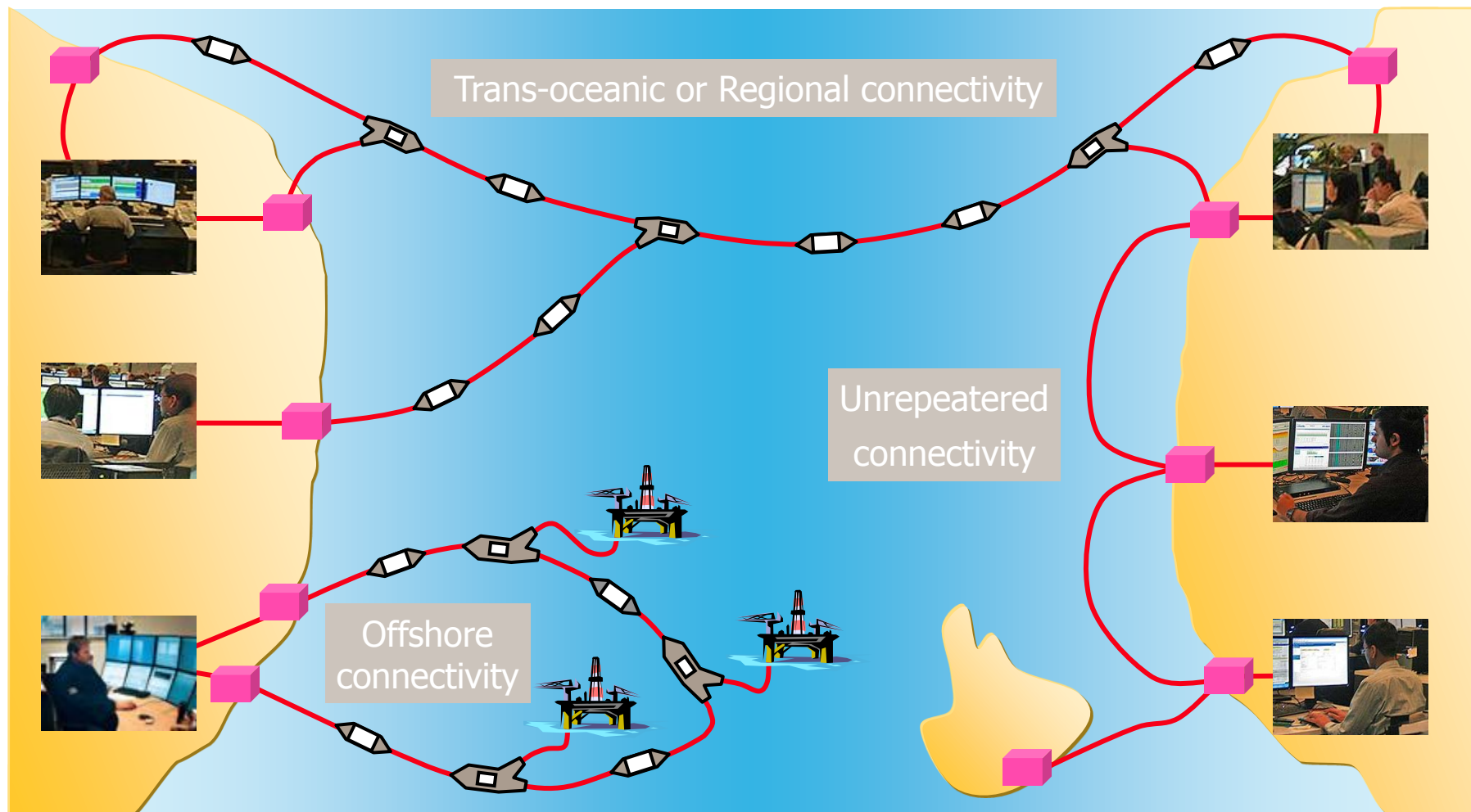
# USED INTERNATIONAL BANDWIDTH

## THE **BIG** PICTURE 2011-2018



Source: TeleGeography

# SUBMARINE CONNECTIVITY SOLUTIONS FOR ALL APPLICATIONS



# CABLES ARE CRITICAL INFRASTRUCTURE

90% COMMS ARE CARRIED ON SUBMARINE CABLES

## TO INCREASE CONNECTIVITY

for users' access to content

## TO MEET GROWING TRAFFIC DEMANDS

Internet Annual Growth >60% 2010-2016 (\*)

## TO INCREASE CABLE ROUTE DIVERSITY

to ensure always-on connectivity

## TO BUILD "OWN" INFRASTRUCTURE

to be independent from service providers

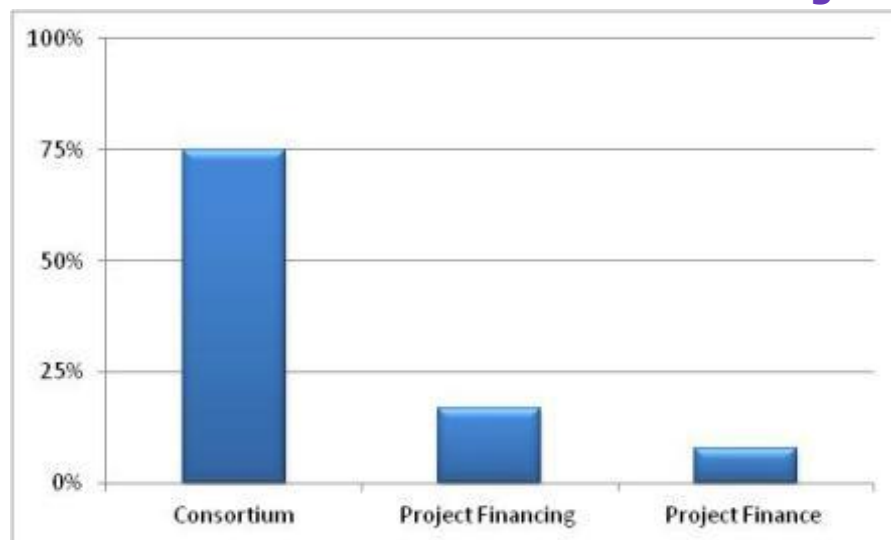
\*Source: TeleGeography

# SUBMARINE NETWORKS

## ACCELERATE SOCIAL & ECONOMIC DEVELOPMENT

- Ensuring open access to high speed, cost-effective broadband connectivity
  - \$10B investment estimated for new submarine cable projects since 2008
- 21 nations and territories remain isolated from fibre optic connectivity
  - A few Pacific countries are getting Internet via submarine cables
  - The majority maintain international connections via satellite
- Projects now underway in some countries but **financing is a major concern** preventing a number of projects going ahead
- Governments can play an important role along with Financial Institutions and other private financing models.

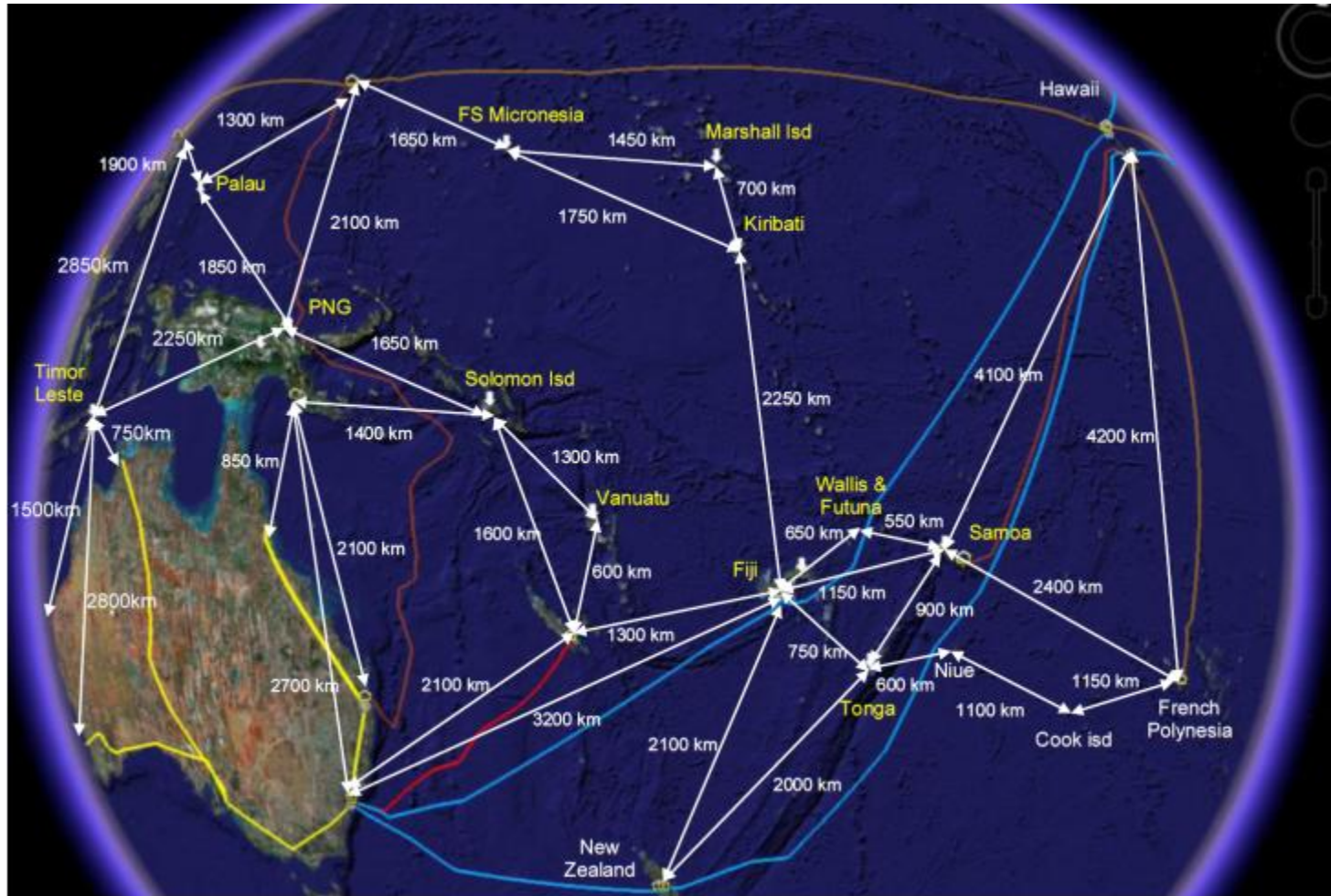
Contracts into force in 2012 - Financing





# THE PACIFIC

## A LOT OF BLUE



Extracted from "Regional telecoms backbone network assessment and implementation options study" conducted by Polyconseil for the World Bank – January 2009

# CHALLENGES

## FOR ISLAND COUNTRIES

### REACH

#### CONNECTING ISLANDS

between each other and to international arteries

### ACCESS

#### TO INTERNATIONAL ROUTES AT LOW PRICE

to justify the investment

### SEABED NATURE

#### ENSURING CONTINUITY OF SERVICE

Network reliability, engineering, route definition, installation model etc

### PACIFIC OCEAN

#### INVESTING / LOOKING AT INVESTING

Tonga, Vanuatu, Solomon Islands, territories/former territories of Australia, New Zealand, France, USA, ...

# SUBMARINE CABLE PROJECTS

## PROJECT MODELS

### ***Consortium***

- A number of owners jointly own and operate the network

### ***Private***

- Privately owned and operated network

### ***Special Purpose Vehicle (SPV)***

- A Company specifically created to own and operate the network

### ***Hybrid***

- A Consortium Project where one or more of the owners is a SPV

# SUBMARINE CABLE PROJECTS

## PUBLIC-PRIVATE PARTNERSHIP



### *Mixed Ownership – Open Access Model*

- Funded by Carriers and Development Financial Institutions
- Developmental Objectives:
  - Open Access
  - Competition
  - Non-discriminatory bandwidth pricing in line with market rates
- Carrier involvement guarantees financial success as customers and traffic are guaranteed
- Governments can play an important role (TEAMS, SEAS, WACS etc.)



# SUBMARINE CABLE PROJECTS

## FUNDING

 ***Private Equity***

 ***Operating Income***

 ***Bank Debt***

- Can be backed by Export Credit Agencies
- Max 85% of the construction contract
- Min 15% down payment
- Business Case / Information Memorandum
- Environmental Studies Required

 ***Combination of capital from different sources***



# SUBMARINE CABLE PROJECTS

## FUNDING



### ***Operators directly financing projects***

- ACE: France Telecom and its affiliates (part funded) + World Bank
- ASH: American Samoa-Hawaii + SAS: Samoa-American Samoa
- Gondwana/Picot: OPT New Caledonia



### ***Government***

- State owned or partly state owned “Special” companies
- WACS (Infraco – Ministry of Public Enterprises Republic of South Africa)
- Government Funds
  - TEAMS (Government of Kenya – Transfer to Kenyan Operators)
  - SEAS (Government of Seychelles)

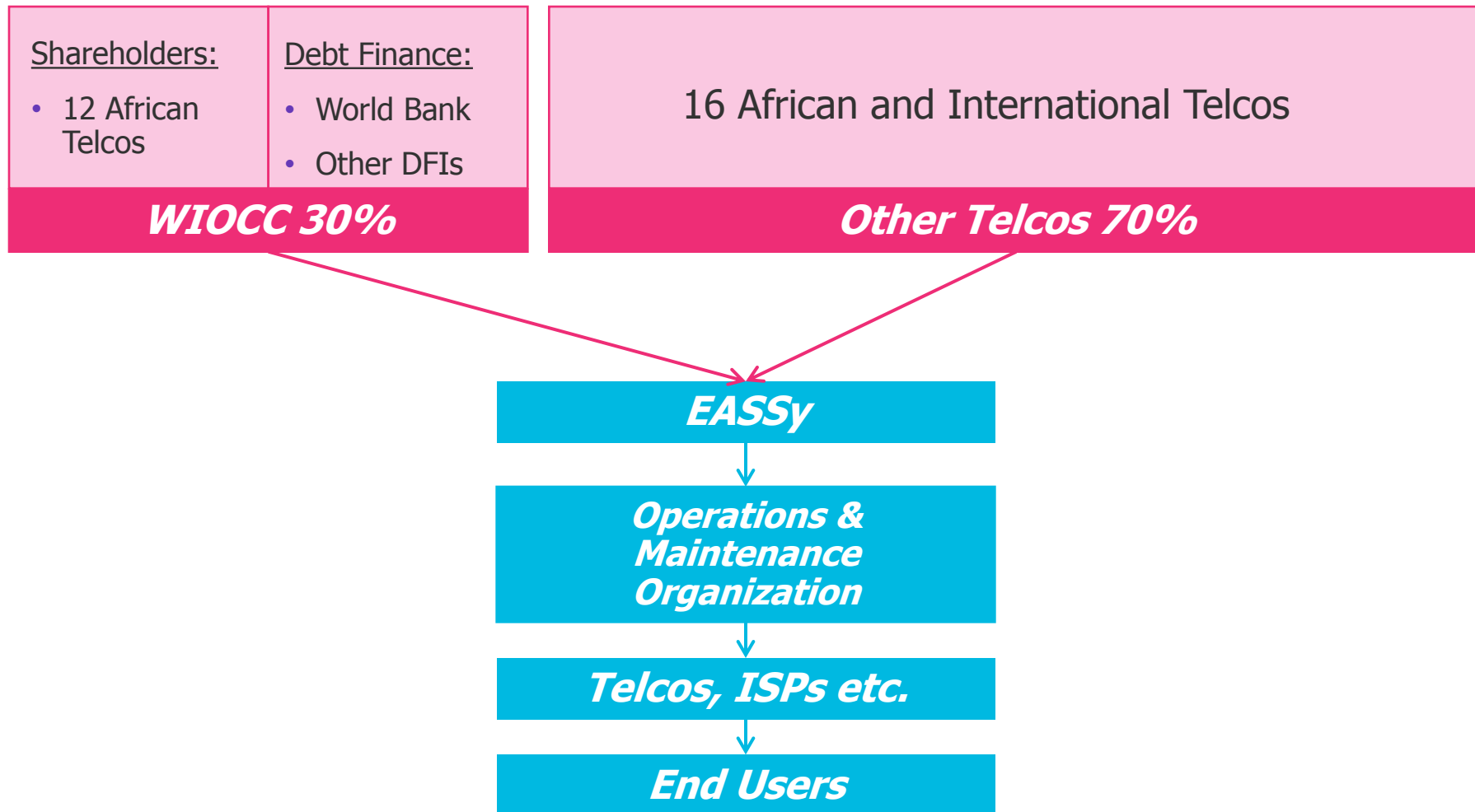


### ***Development Banks***

- World Bank, ADB, IFC, EIB, KfW, Proparco, DBSA, IDFC, AFC Private Equity
- Example: Tonga-Fiji

# BENEFITS OF PUBLIC-PRIVATE PARTNERSHIP

## EASSy EXAMPLE



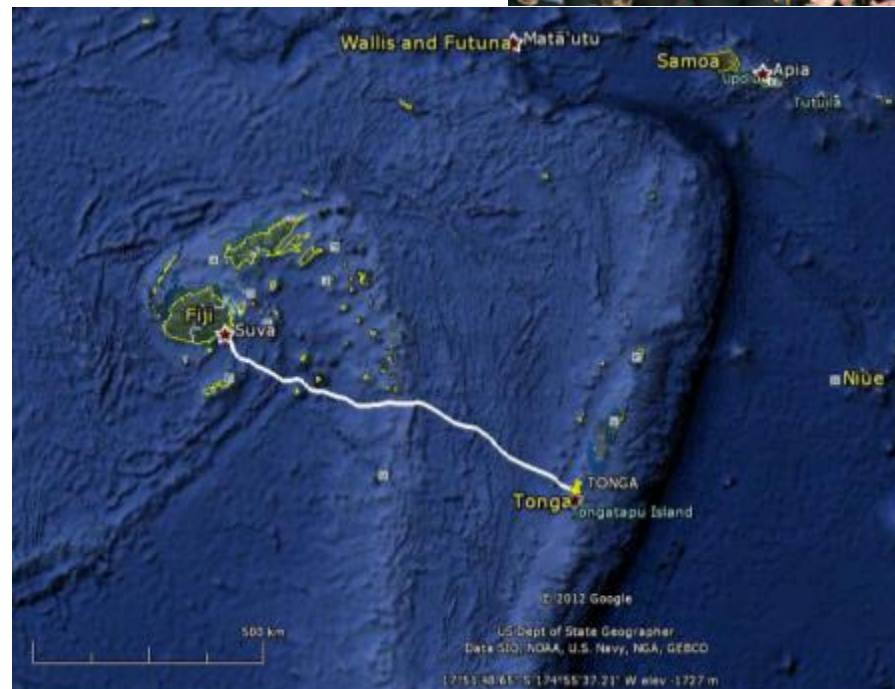


# TONGA CABLE

## NUKU'ALOFA (TONGA) – SUVA (FIJI)



- The Tonga-Fiji link is part the regional connectivity project to connect all Pacific Islands with fibre optic cable
- **First connection to Tonga**, boosting local and international connectivity
  - 837 km link
  - Access to the Southern Cross Cable in Suva
    - Main trans-Pacific link between Australia, NZ & US
- **Financed by World Bank, Asian Development Bank & Tongan Government**
- Will underpin development of broadband services and high-speed Internet for businesses, government, residents and tourists in the Tongan islands
- Program aims to substantially increase the **availability and affordability** of international services & broadband services for Tonga's 100,000 residents and to help spur economic growth.



*Robert Bolouri, Managing Director of Tonga Cable Limited:*  
"This cable link with Fiji will create a gateway to the global economy and community, and we are confident that it will provide great benefits to Tonga's citizens and the many visitors we welcome each year. With the help of Alcatel-Lucent, we will be able to bring a much broader range of communications services to people throughout the country"



# VANUATU – FIJI

## PORT VILA (VANUATU) – SUVA (FIJI)



- 1230 km link - First connection to Vanuatu, boosting local and international connectivity
- Access to the Southern Cross Cable
  - Main trans-Pacific link Australia-NZ-USA
- Will underpin development of broadband services and high-speed Internet for businesses, government, residents and tourists
- Aims to substantially increase the **availability and affordability** of international services & broadband services for Vanuatu's residents and help spur economic growth
- Financed by private seed capital, supported by Vanuatu government, equity investment by a regional provident fund plus commercial debt financing



*Interchange CEO, Simon Fletcher said: "This submarine cable will open new growth opportunities for the local economy. Vanuatu's current satellite connectivity is relatively expensive, with high latency and is capacity constrained. Interchange believes telecommunications infrastructure, via submarine cable systems, is the most cost effective and reliable means to bring high bandwidth capacity and technologies to Vanuatu facilitating growth in tourism and other industries."*

# GONDWANA-1

## SYDNEY - NOUMEA

### Gondwana – 2100 km regional submarine project

- Regional solution linking Nouméa to Sydney
- Delivering a capacity of 320Gb/s
- SDH domestic network in New Caledonia



# ASC INTERNATIONAL

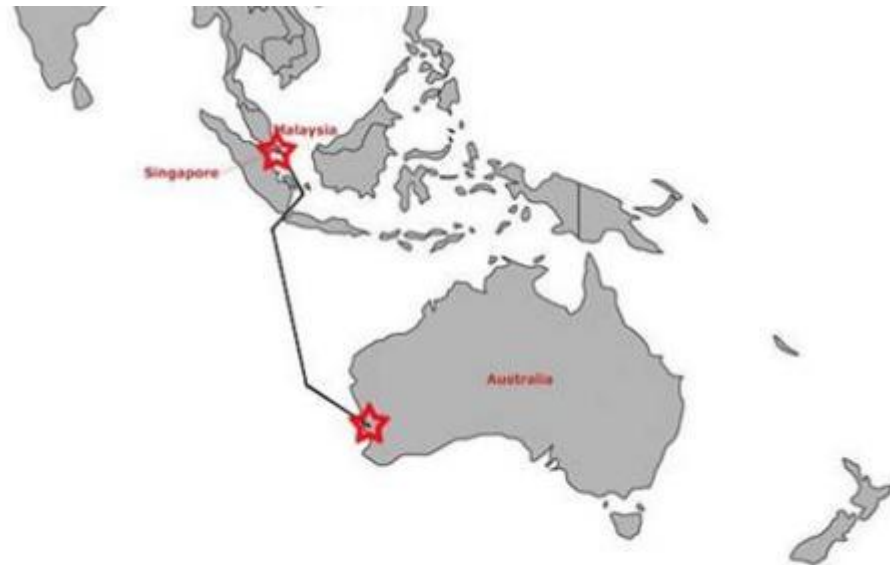
## AUSTRALIA-SINGAPORE CABLE SYSTEM (ASC-1)

### 4,800 km multi-terabit regional link

- Ready for 100G
- Multi-terabit capacity
- 8 times more capacity than similar regional routes
- Equipped with Advanced Coherent technology
- Privately financed

### Benefits & Services

- First open access high-speed connection from Australia to South East Asia
- Meeting bandwidth demands for data networking, cloud computing, government & business



*"This is a landmark project as it represents our first investment in a submarine cable network," said Peter McGrath, Chairman ASC International and Executive General Manager of Leighton Contractors Telecommunications division. "We are delighted to be undertaking this venture with Alcatel-Lucent and taking a new step forward in delivery of up to the minute, high-capacity bandwidth to our customers."*

# SOLUTIONS FOR PACIFIC TECHNOLOGY, FINANCE & HUMAN FACTORS



1

## NEEDS EXIST & ARE INCREASING

- Breaking down the Digital Divide
- Social & economic benefits – health, government, education, commerce, tourism, ...
- In addition to basic communications

2

## DURABLE TECHNICAL SOLUTIONS ARE AVAILABLE

- Proven technologies, 25 year design life
- Reducing cost per unit of delivered capacity
- Leverage of submarine cable installation & maintenance ship in South Pacific

3

## LONG TERM STRATEGY

- Connection of island nations to hubs on major trans-Pacific routes (e.g. Fiji)
- Optimization of CAPEX & OPEX
- Best use of funding from Development Financial Institutions and/or PPP structures
- Open Access to ensure affordable services

# AT THE SPEED OF IDEAS