Satellite Systems and their Benefit in the Pacific (Vanuatu Experience)

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The Government
of The Republic
of Vanuatu

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Telecommunication &
Radiocommunication
Regulator

Agenda

- The Issue
- The Need
- The Solution

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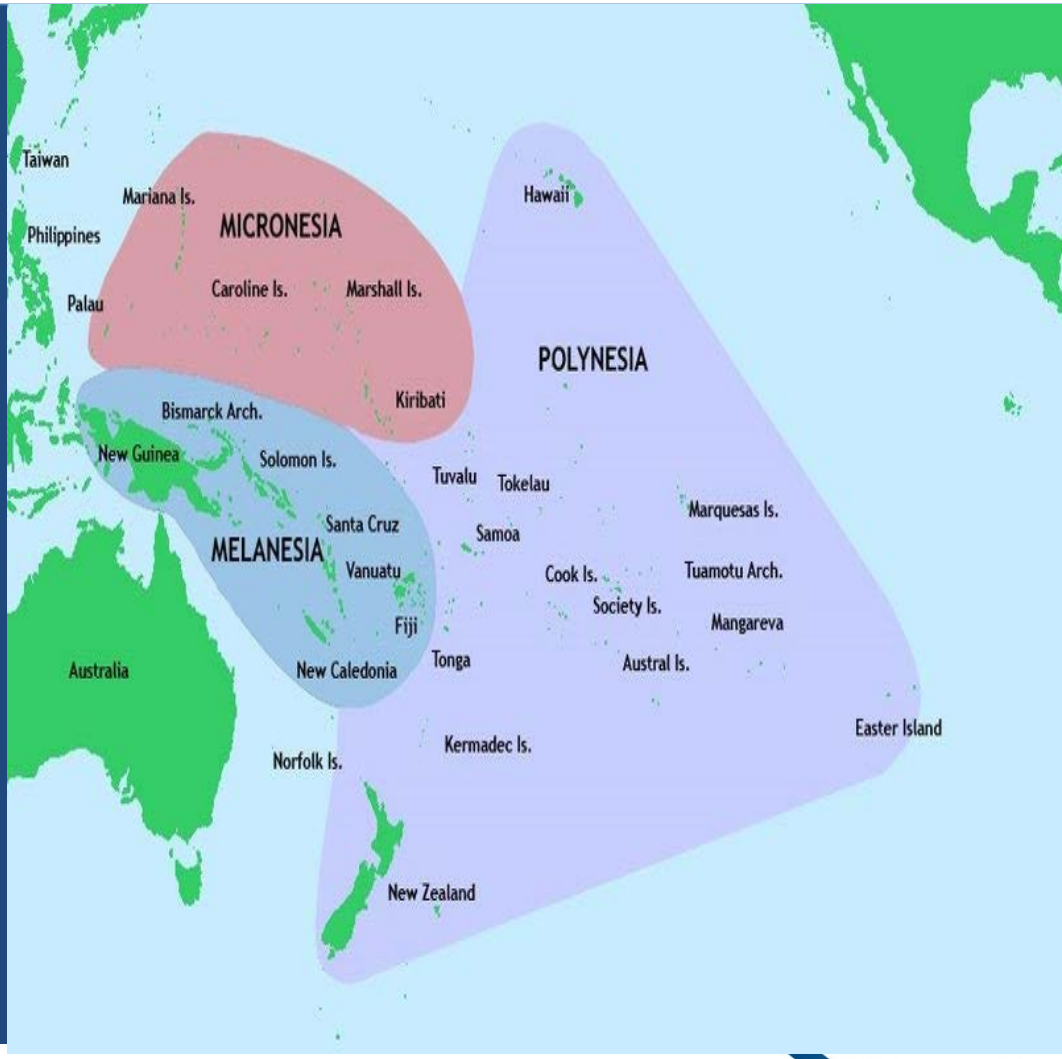
The Pacific – Overview

- The Pacific covers an area of 165 million square kilometres
- There are over 25,000 islands split into 3 groups, Melanesia, Micronesia and the largest group Polynesia
- Population of approximately 2.3 million
  - A large proportion are under 18
- Challenges
  - Climate change
  - Economic growth
  - Reach of services into remote or low population areas
  - Cost of Services in the rural communities



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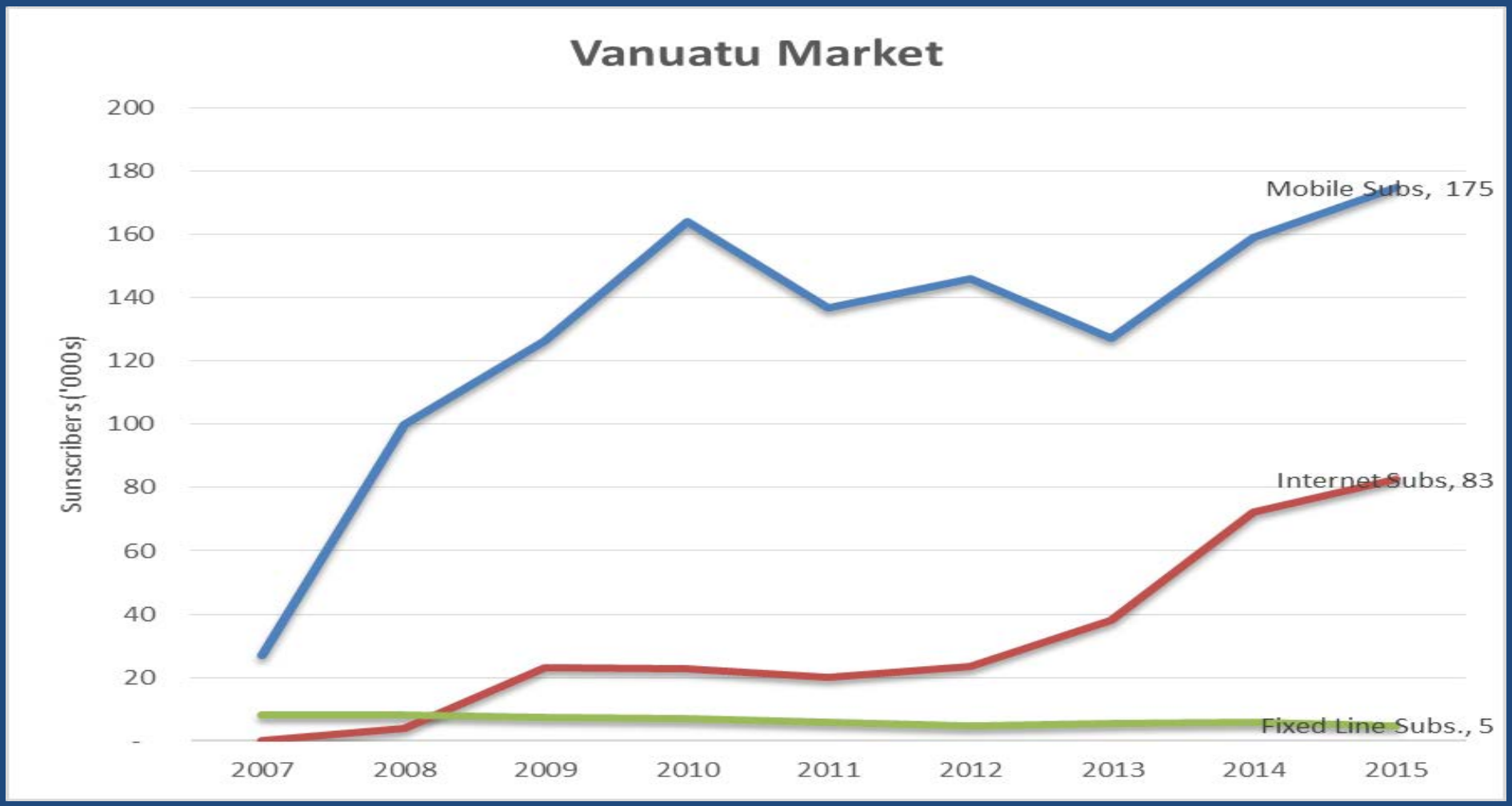
The Issue

- Large number of islands spread over a large area, with large distances between islands
- Linking these islands can be difficult and expensive
  - Internationally fibre optic is the preferred solution
  - Domestically and dependent on distance microwave solutions are used
  - Domestically where distances are beyond that for microwave, either no solution or a satellite solution is used
- Once within the landmass boundaries we need to link sites and localities
- This is achieved via microwave solutions
  - Costs are escalating as the edge is reached
  - Limitations to the capacity is also an issue
  - Coverage Gaps will always remain
- These technologies are prone to failure in disasters hindering relief efforts
  - Cyclone PAM 2015, both carriers northern and southern trunk routes destroyed

The Need

- Fixed Wireless Access (FWA) and mobile can only go so far
  - 3G is currently being implemented
  - 4G will take time to rollout
  - FWA has serviceability issues and limited reach, mainly due to environmental factors (ie rainforest)
  - Costs to extend the network via terrestrial means are higher than the returns
- There is latent demand to access information
  - Experience in Vanuatu shows 19 sites downloading 5 Terabytes per month
  - Content creation will see data demand grow – but this could be domestic (ie government moves to an online delivery model)
- Alternative Communications in Disaster Situations
  - Reliance on microwave terrestrial networks can see failures of the communications network
  - Areas that have no communications may be heavily impacted by disasters
  - Alternative methods such as satellites can assist in providing a conduit for information flow as a secondary path

Subscriber Growth



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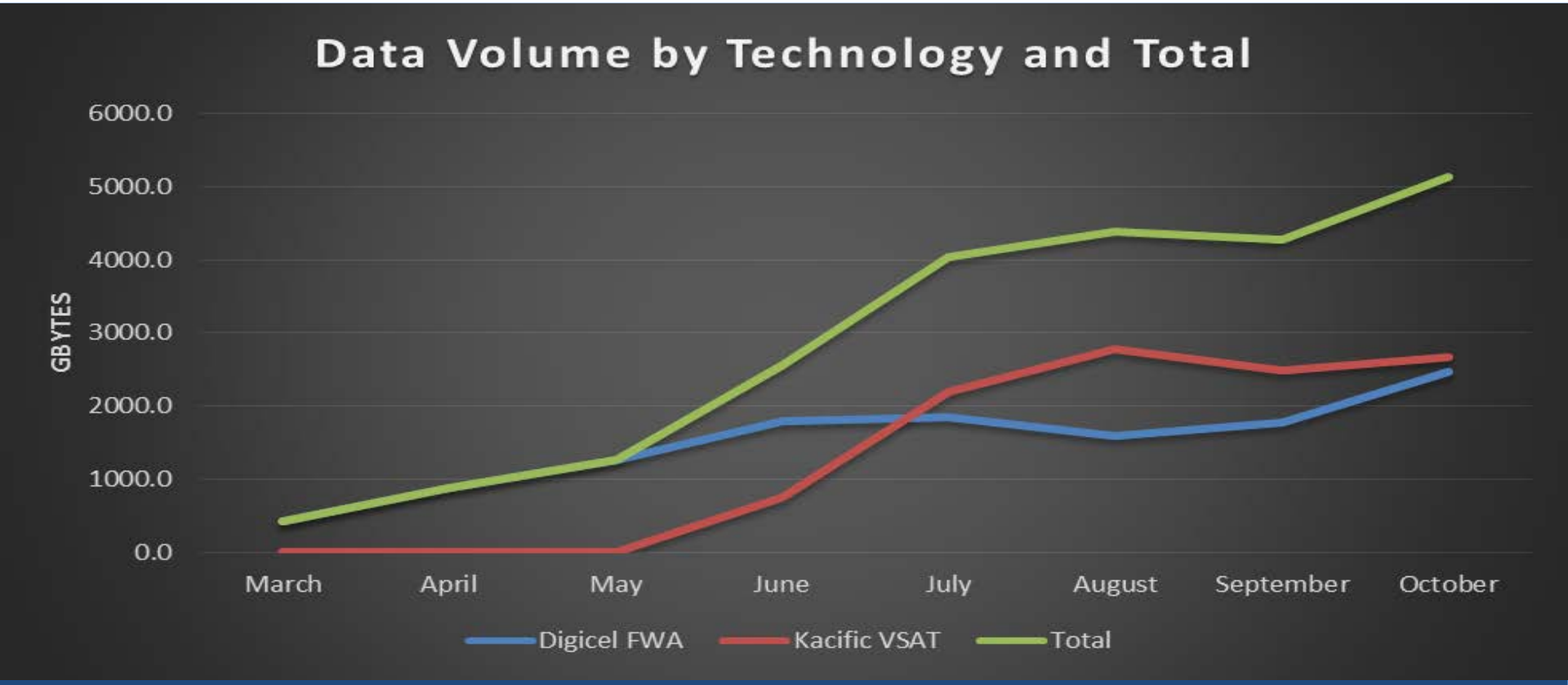
Demand: Data Volume Growth

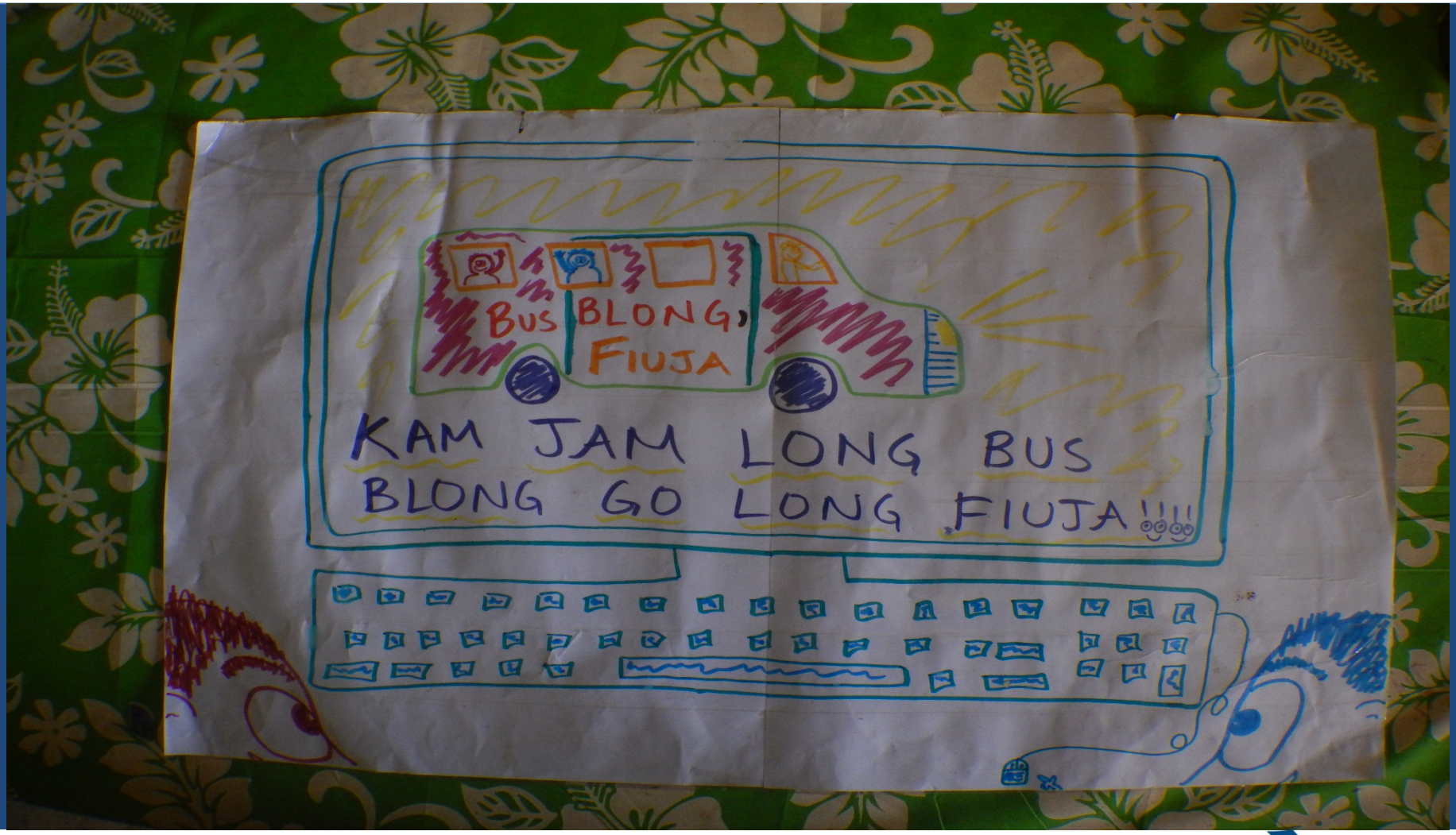


- 19 sites all schools
- 7 remote sites supported by VSAT

A Solution

- In order to reach areas that terrestrial services are unable to reach an alternative solution is required
  - This is generally provision via satellite infrastructure
- Satellite services/infrastructure should be seen as COMPLEMENTARY to terrestrial infrastructure/services
  - Terrestrial, both microwave and fibre, will not provide ubiquitous coverage
- Sharing of bandwidth can be economic and may push prices below that for FWA with enough support
  - The satellite site in remote areas can become a hub for the provision of services
  - Satellite infrastructure allows multiple sites to utilize and share the bandwidth making connectivity to remote sites economic
- Utilising new technologies may allow carriers to cost effectively provide mobile telephony services via small cells and satellite backhaul
  - Extends universal access further

Tankyu Tumas



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