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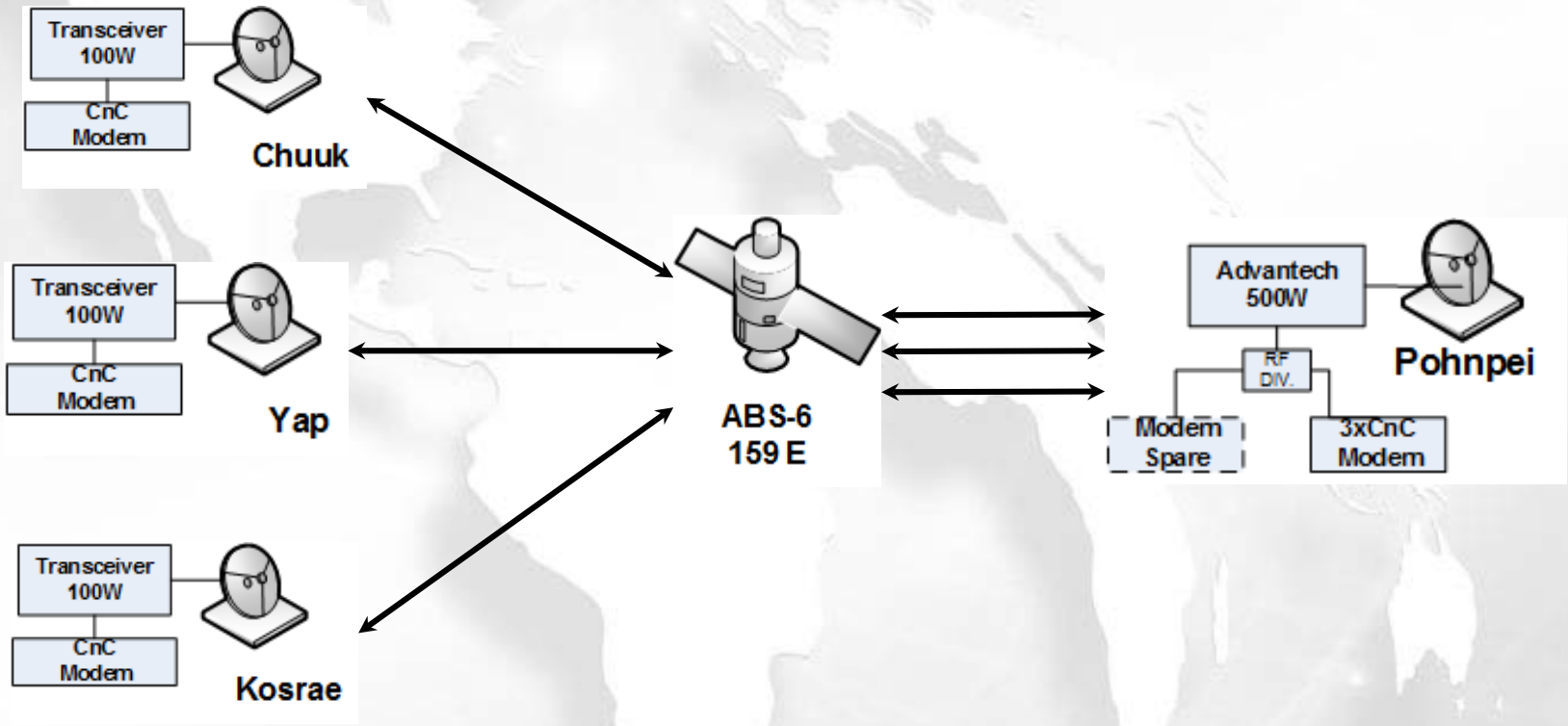
SATELLITE CAPACITY FOR REDUNDANCY PLANNING AND EMERGENCIES

Satellite Connectivity Forum

25th April, 2017

Migration Plan for HANTRU1 Submarine Cable Maintenance and Repair Works

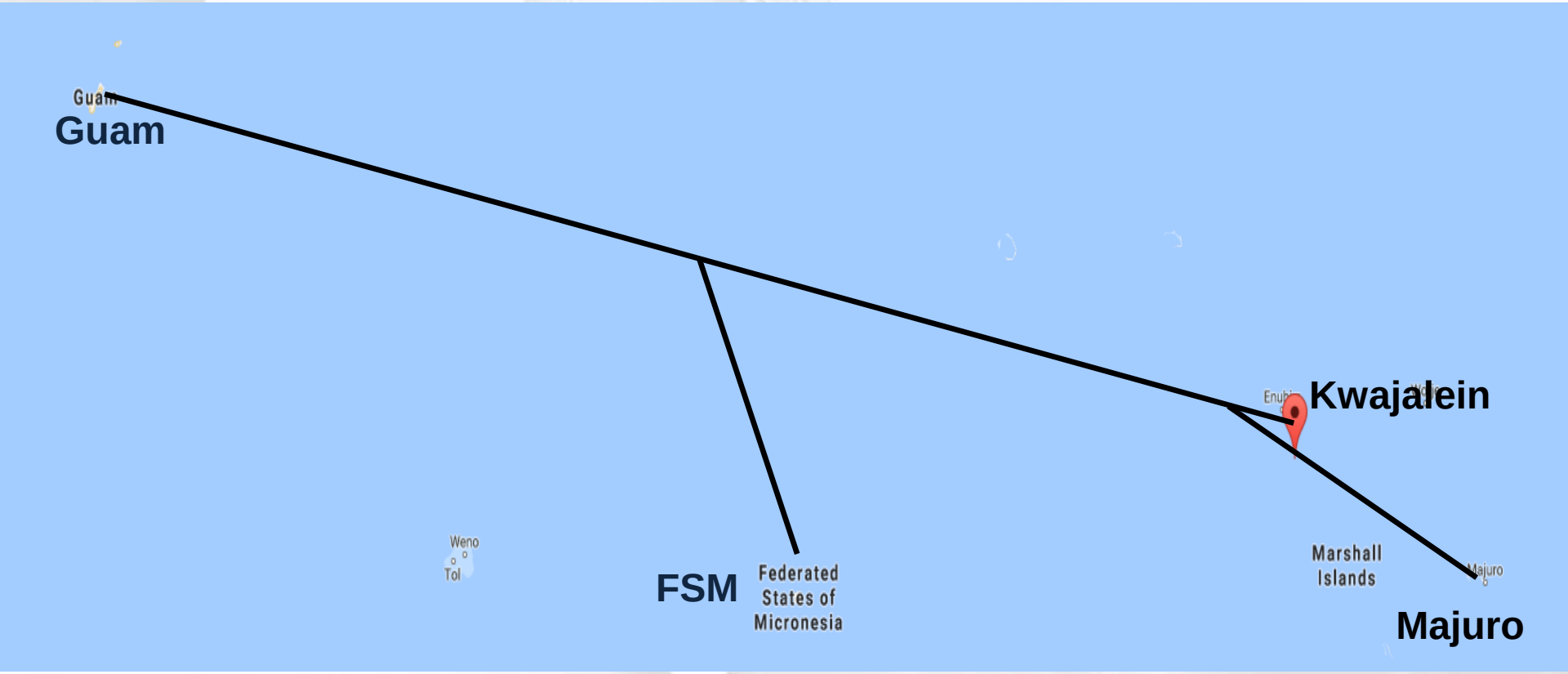
Background



OLD NETWORK – ALL LINKS WITHIN FSM

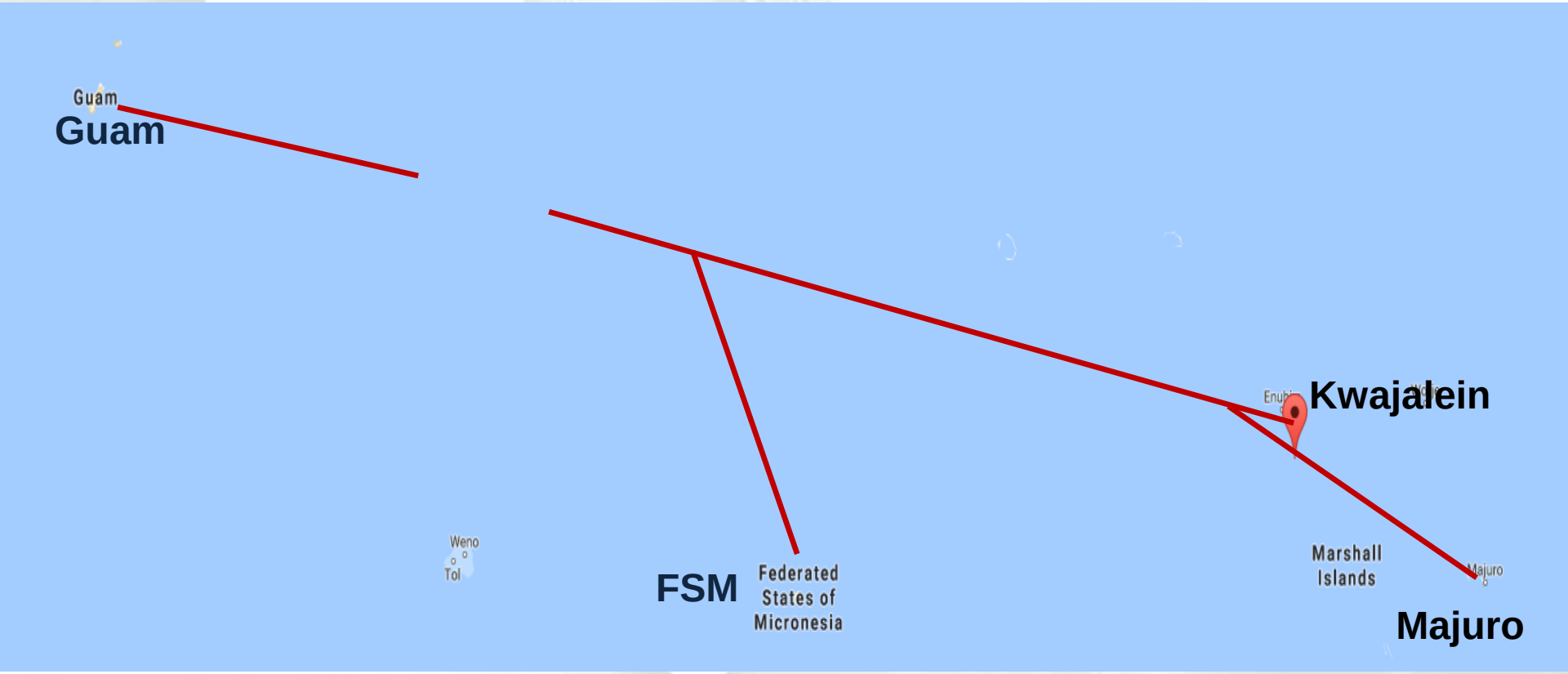
Background

HANTRU1



Problem

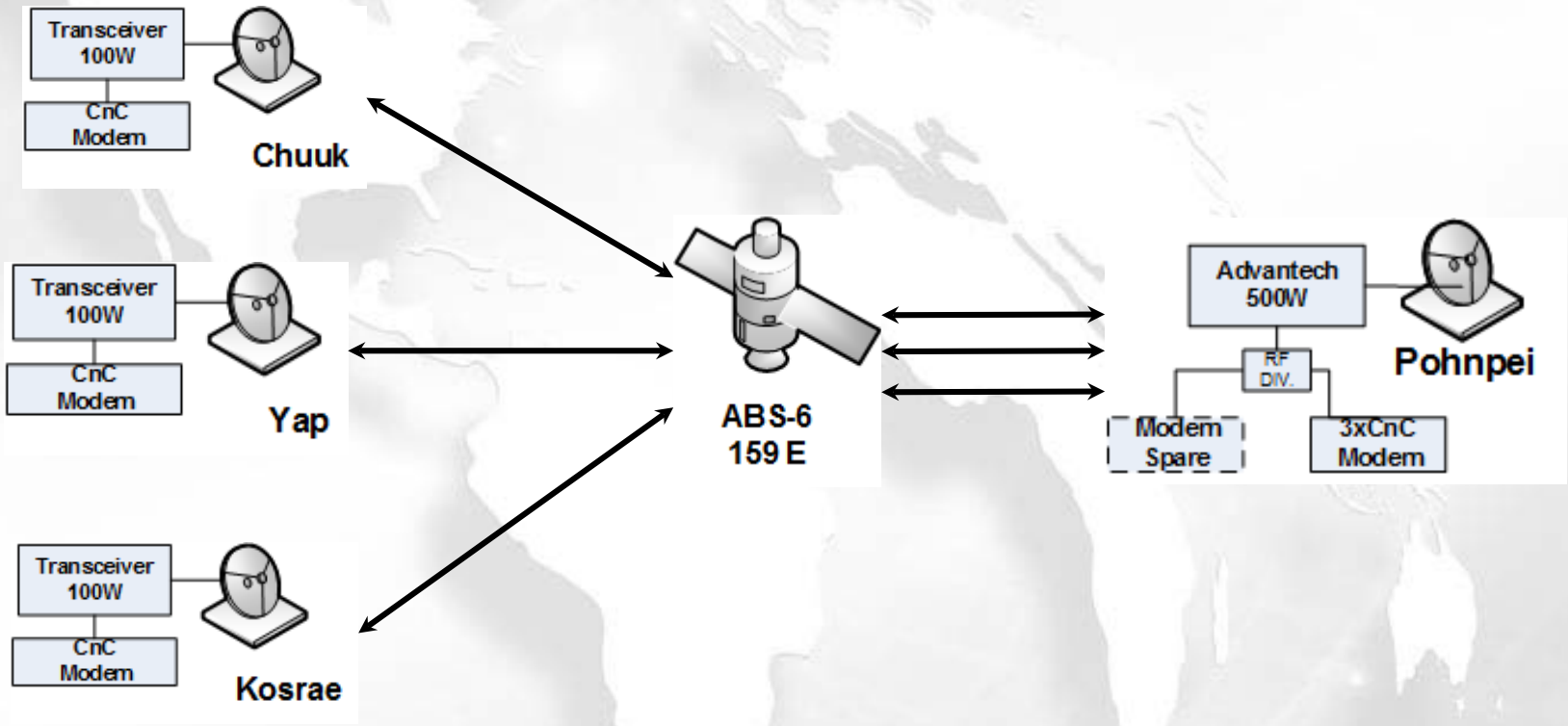
HANTRU1 FIBER CUT



Planning

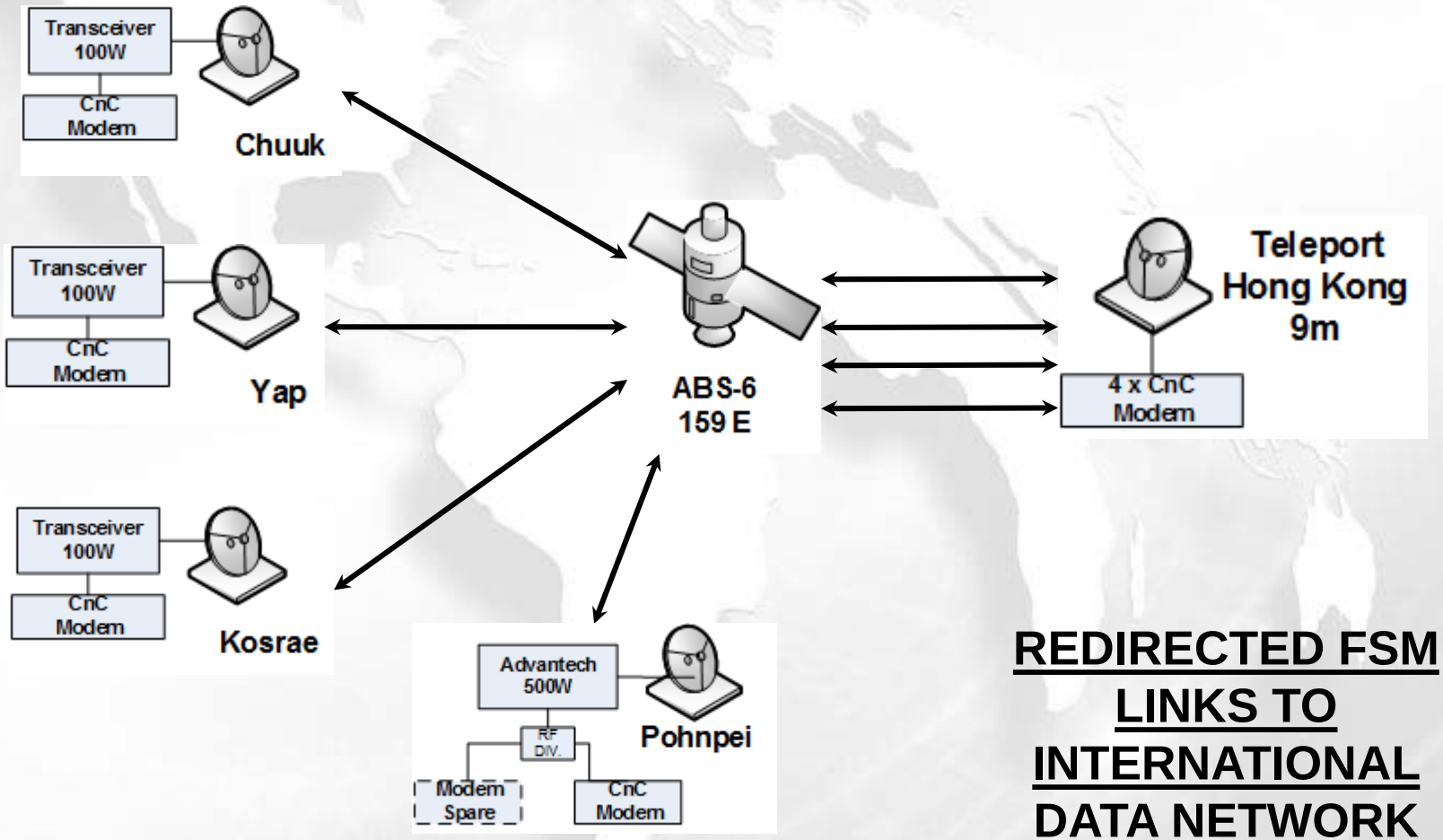
- WHAT TO DO?
- HOW TO MAINTAIN EXISTING LINK?
- LUCKY THAT WE KNEW OF THIS IN ADVANCE

Planning



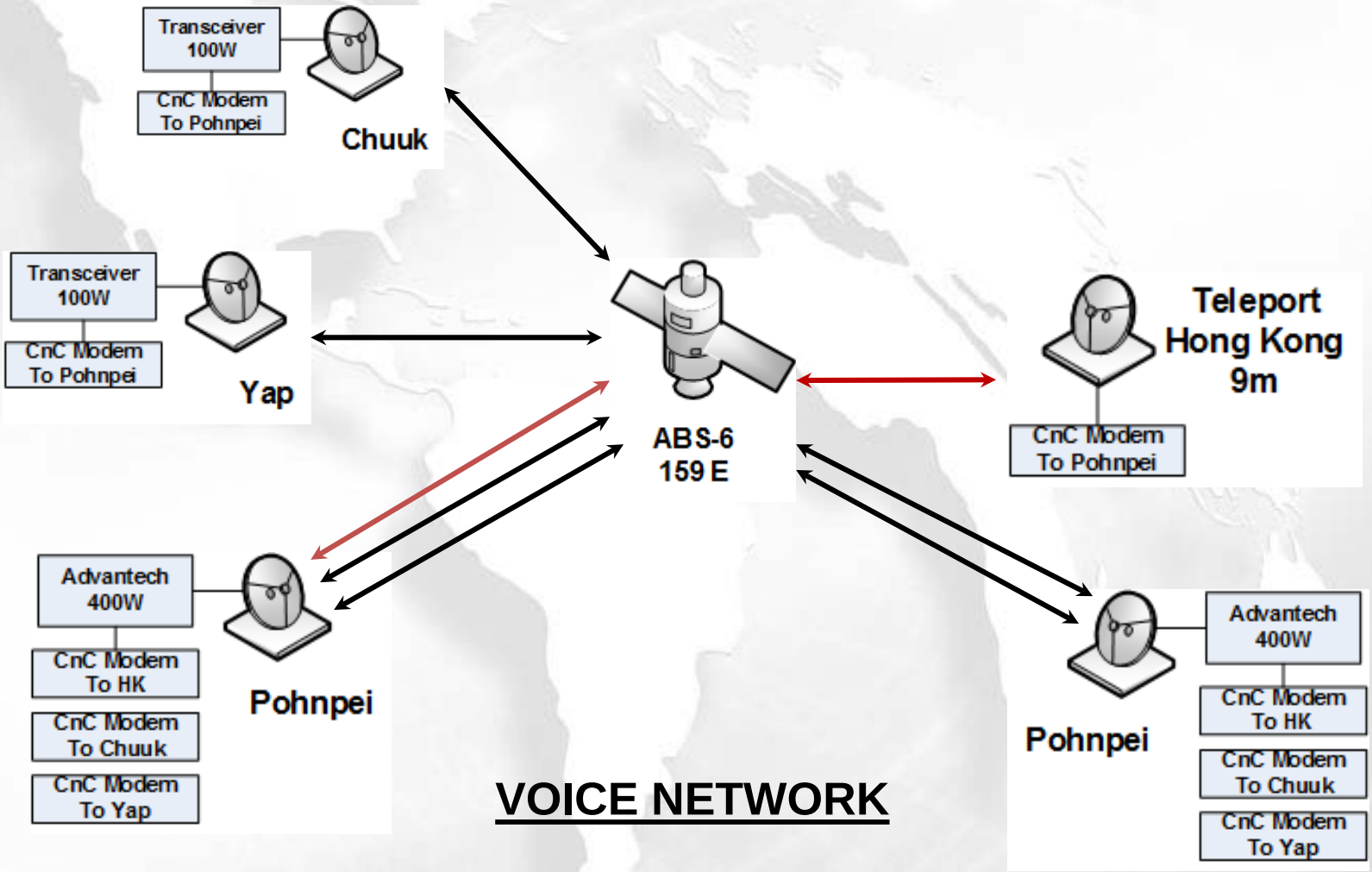
EXISTING NETWORK

Planning

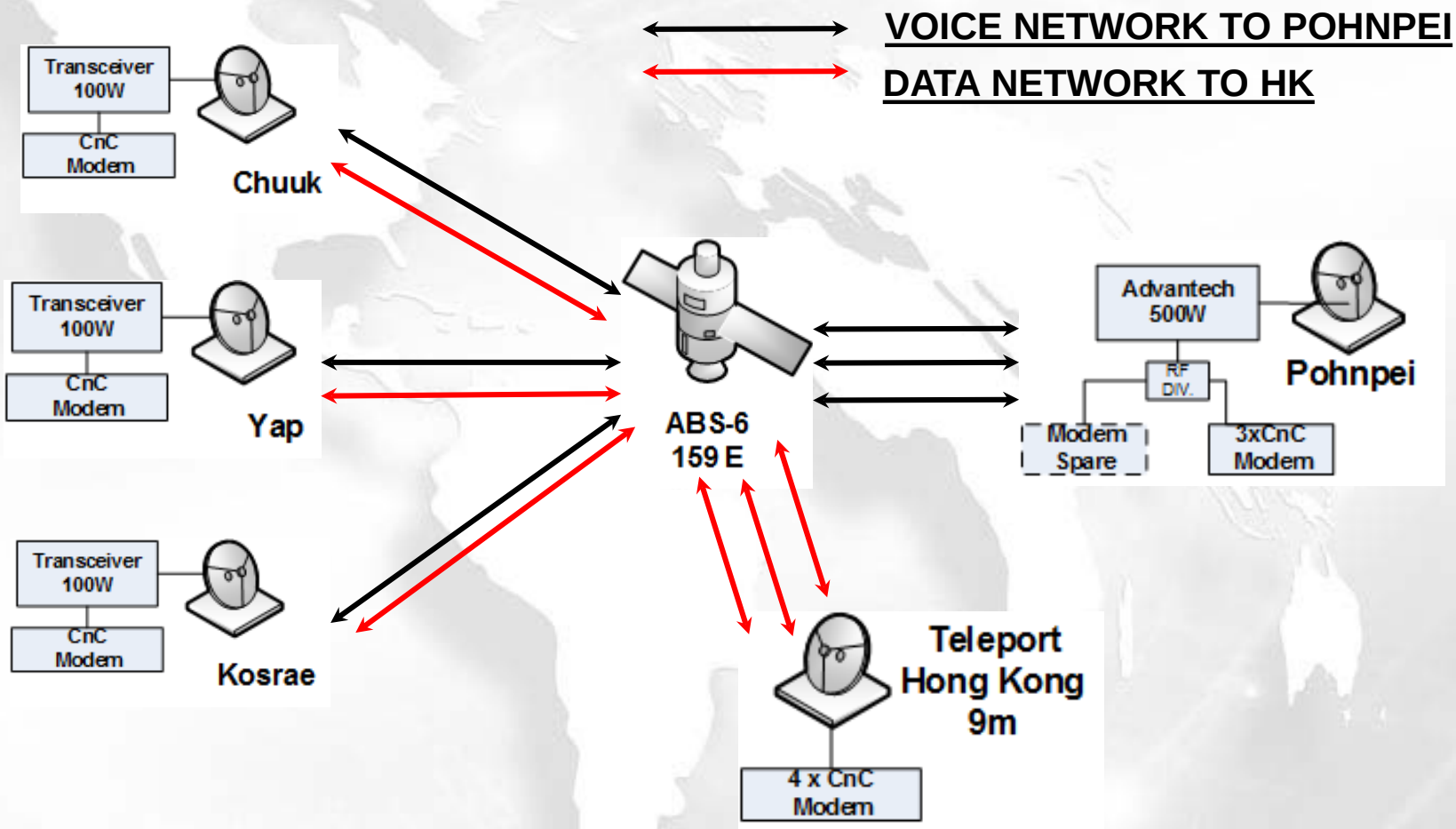


REDIRECTED FSM LINKS TO INTERNATIONAL DATA NETWORK

Planning


Transceiver 100W
CnC Modem To Pohnpei
Chuuk
Transceiver 100W
CnC Modem To Pohnpei
Yap
ABS-6
159 E
Teleport Hong Kong 9m
CnC Modem To Pohnpei
Advantech 400W
CnC Modem To HK
CnC Modem To Chuuk
CnC Modem To Yap
Pohnpei
Advantech 400W
CnC Modem To HK
CnC Modem To Chuuk
CnC Modem To Yap
Pohnpei
VOICE NETWORK

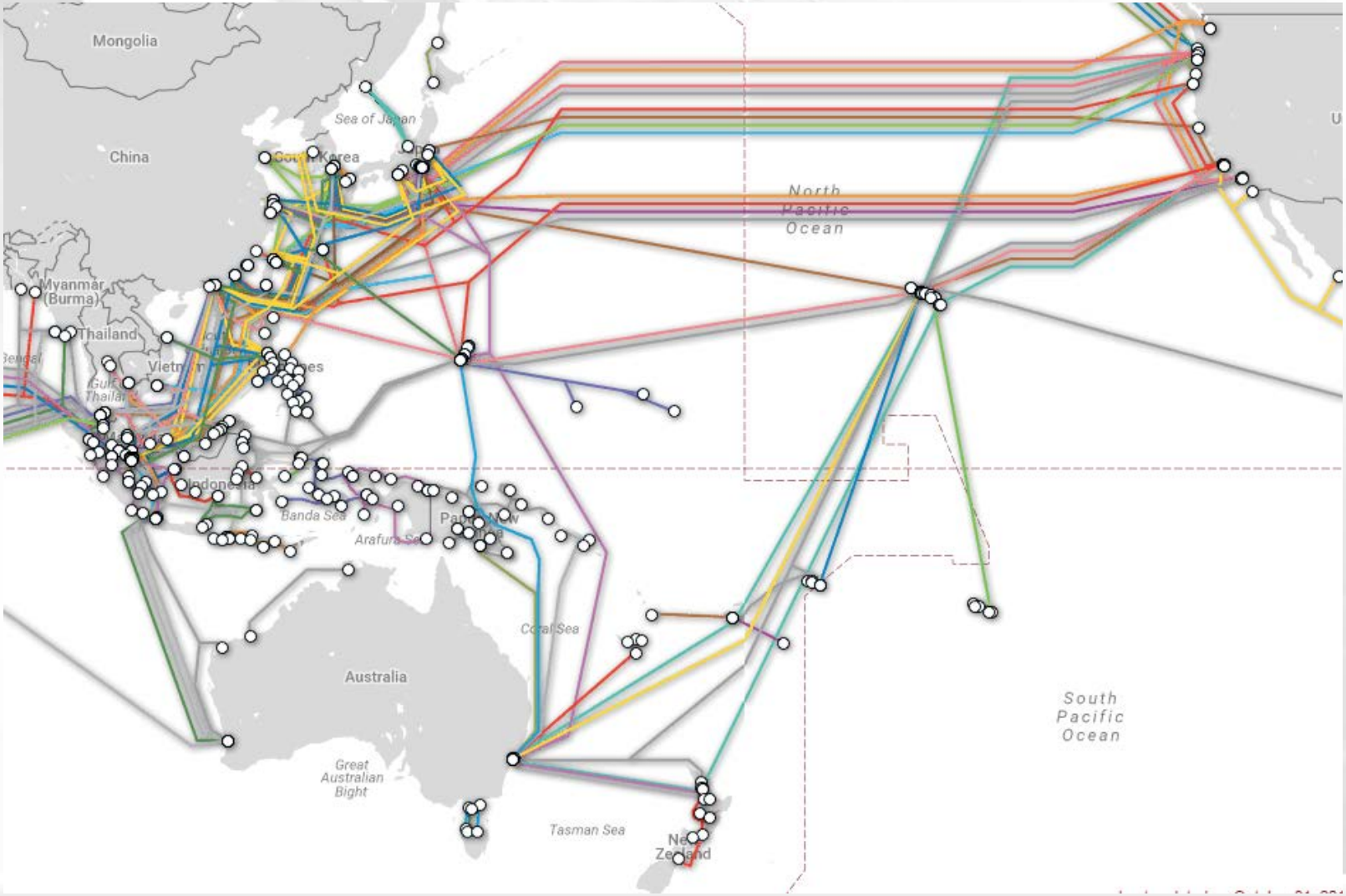
Switch back to Original Network – We Didn't!



Provides redundancy to communications in case of equipment failure. If Fibre Fails, Minimal Disruption

Moving Forward – Pan Pacific Support

There are many cables and new ones coming

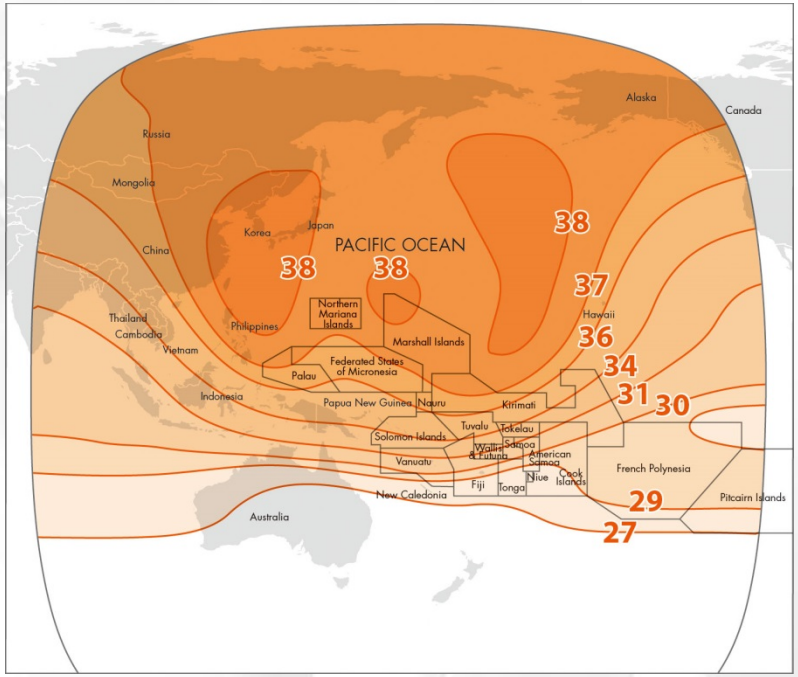


Moving Forward

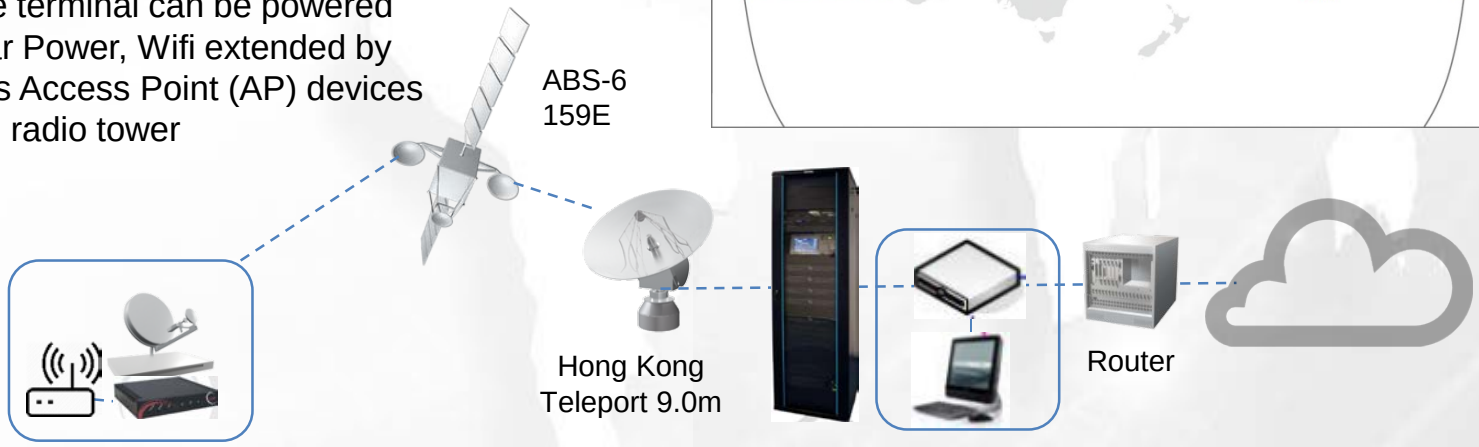
- Providing an always on fibre redundancy solution that is affordable
- Fibre does need Satellite
- Fibre can and does fail as we have seen
- So ABS is offering a low cost solution
- A solution that will provide the essential communication links “if” the fibre fails

How Else to Communicate during Disasters? VillageWireless for Pacific Ocean

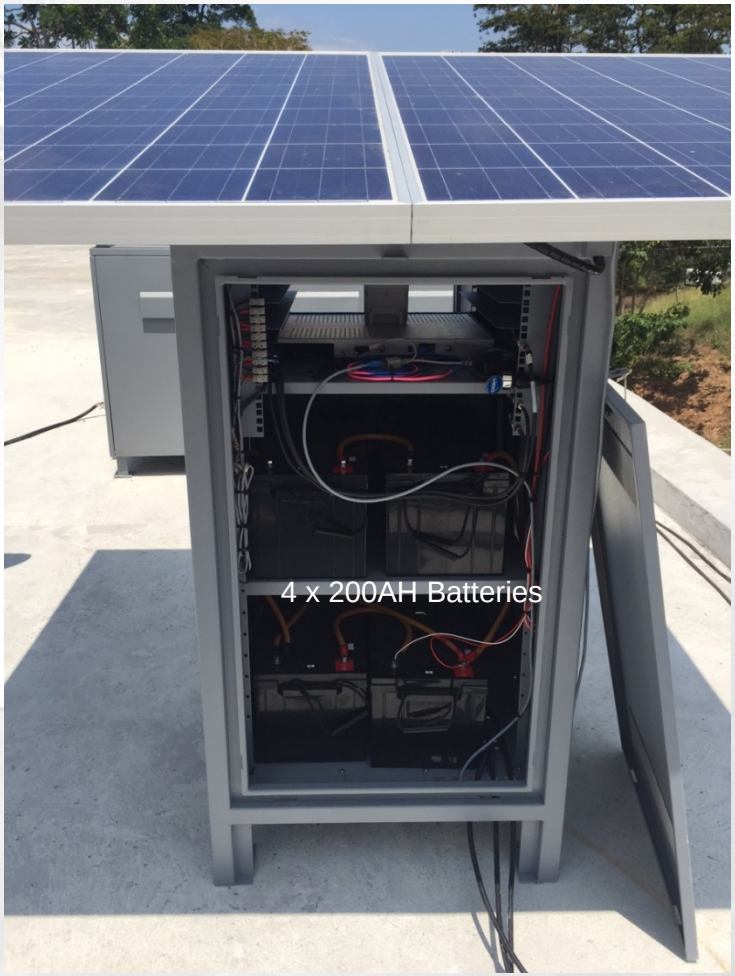
- UHP-240 Single-Band TDM/TDMA Hub at Hong Kong
- 2.4m 5W/10W, UHP-100 satellite router and Wifi AP at remote site
- ABS-6 B-Beam (C13B)
- Service area: ≥ 33 dBW contour



Note:
Remote terminal can be powered by Solar Power, Wifi extended by wireless Access Point (AP) devices and 7m radio tower



Simple Shipping



Prototype 2 – Bill of Material

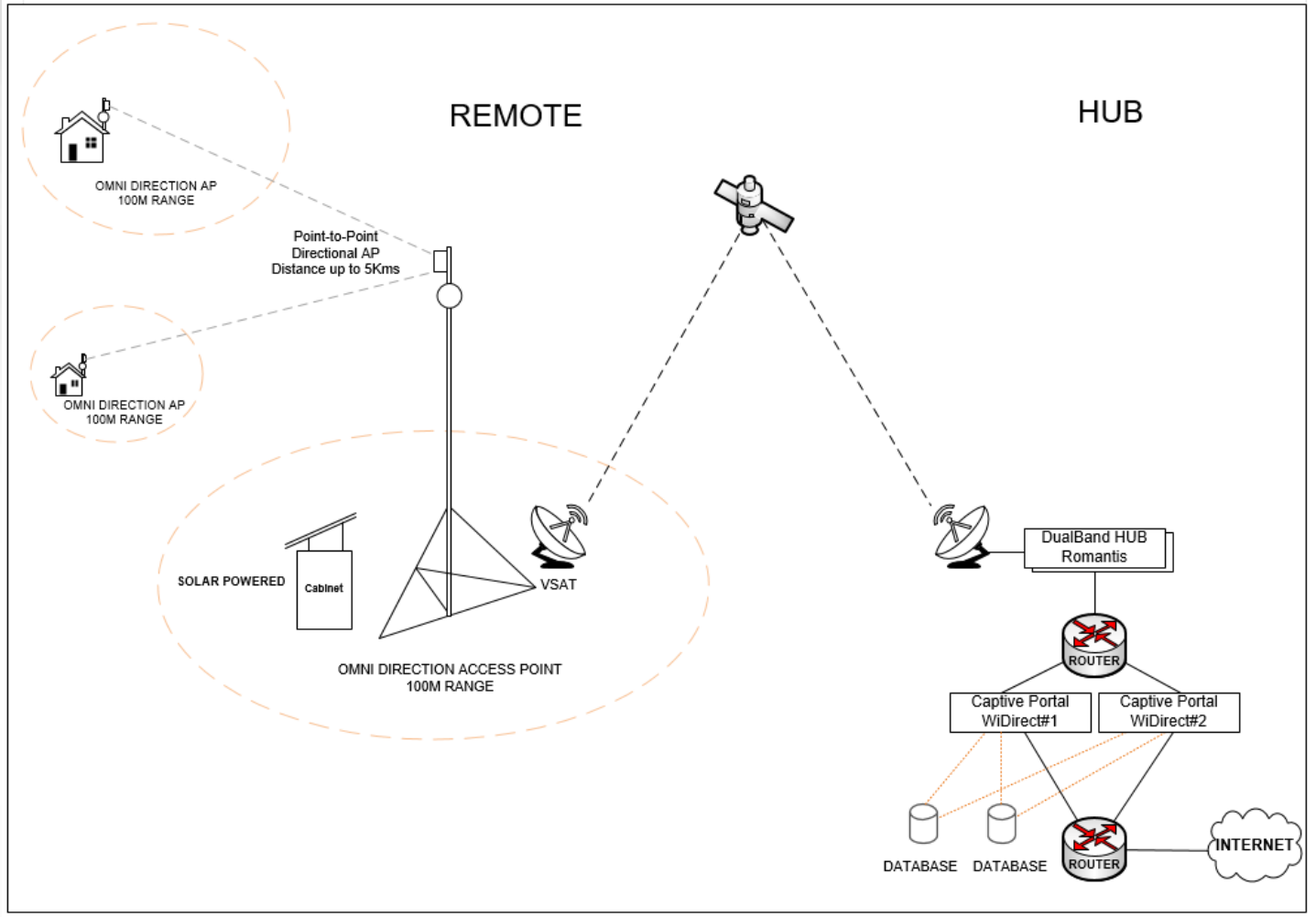
- Sized for 24 hours operation – Demo unit available in Subic Bay

Description	Qty
Solar PV Panel (320Wp)	2
Charge controller (30Amp) with Remote Meter	1
Deep Cycle Battery (200AH)	4
Solar PV Mounting Frame/4 RU Equipment/ Battery Enclosure	1
DIN Rail Mount Circuit Breakers	3
Solar PV Ancillary/Electrical Installation Materials	1 lot

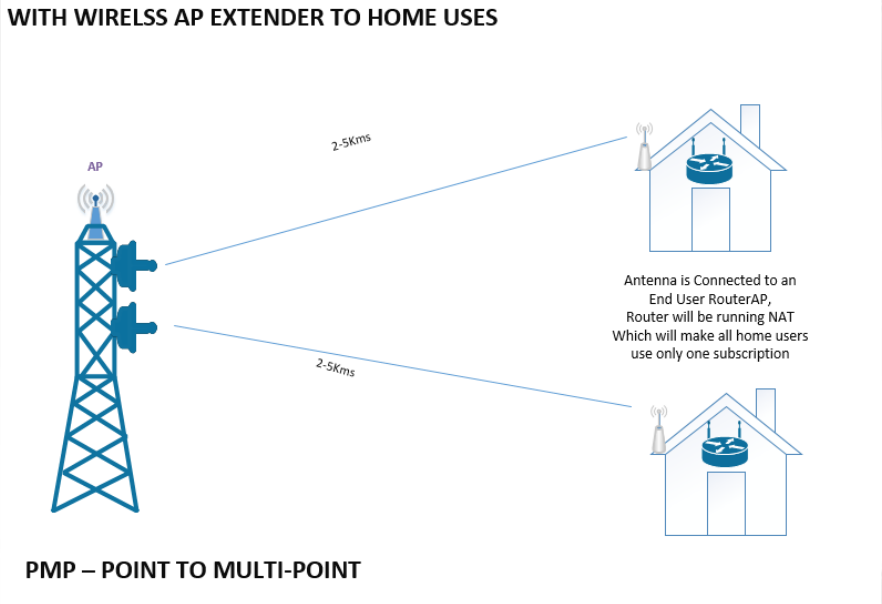
7m Radio Tower Prototype in Subic

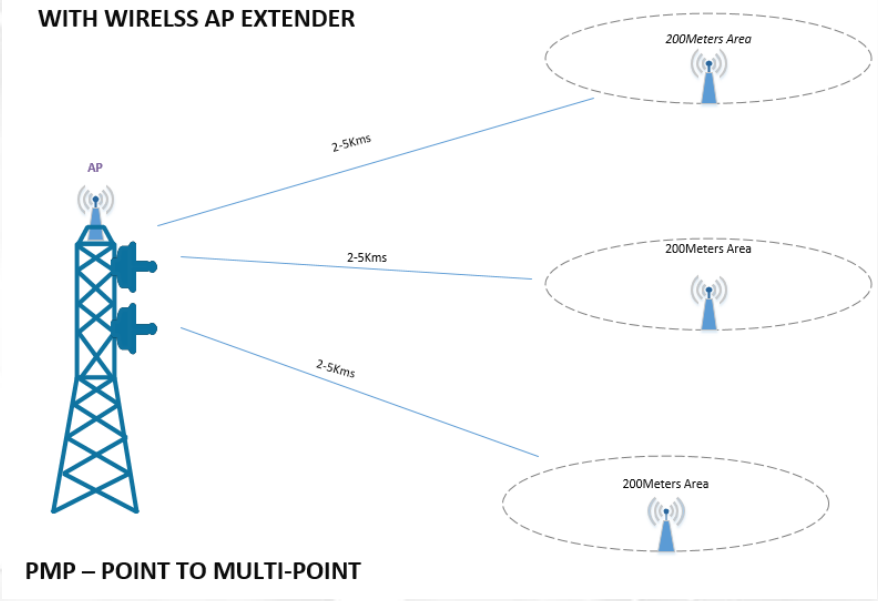
- Prototype fabricated in Subic Bay

VillageWireless Wifi Network Diagram



Wireless AP Extender





End-User Access Point

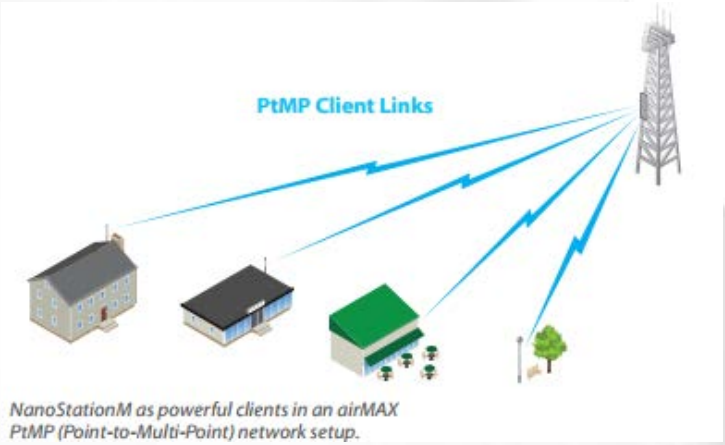
- Fully sealed, industrial design metal case
- Built-in N-male connector and pole attachment points, can be attached directly to an antenna, or use a standard antenna cable
- LED signal indicators make it easy to install and align
- Package contains access point, mounting loops, PoE injector, power adapter and 6dBi omni antenna

AP Type	Operating Freq	Max TxP	Coverage	Power Consumption
Outdoor Access Point	2.4GHz	1600mW	1000M for AP to AP 350M for End Users	12Watts @ 24VDC

Long Range Access Point

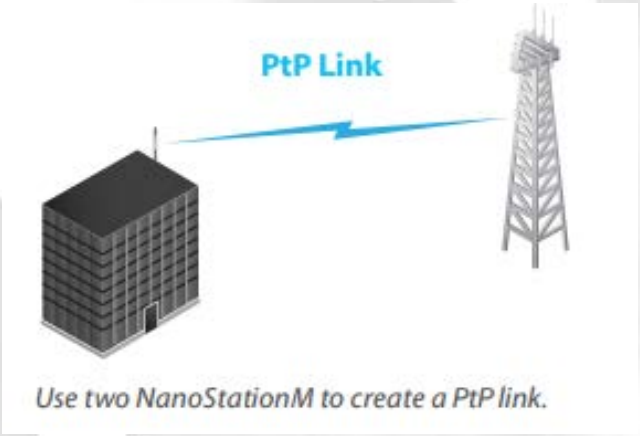
AP Type	Operating Freq	Coverage	Power Consumption
Outdoor Access Point	2.4GHz & 5Ghz	5Km	8Watts @ 24VDC

POINT-TO-MULTIPOINT



NanoStationM as powerful clients in an airMAX PtMP (Point-to-Multi-Point) network setup.

POINT-TO-POINT



Use two NanoStationM to create a PtP link.

What to do with Village WiFi

- Actively been involved with 1000 deployments
  - Not just VSAT – but the end of the end network
  - From content creation to end users

- Lesson to learn from the past
- 20 years ago first computer deployments to remote villages in Thailand No internet

- E-Learning – What does the “E” stand for?
  - 1 – Viruses are everywhere!
  - You need a local sponsor
  - Plan for Maintenance and support
  - Does PC’s in classrooms work? Not really.
  - Access – Not prime use

- Local ownership
  - Continued failure of Government owned networks

What to do with Village WiFi

- 15 years ago first VSAT enabled VillageWiFi in Thailand
  - Again you need a local sponsor – the “Enablers”
  - Community Liaison is very important
  - Identifying which villages will work fast and which will not
  - Let them own and profit!
- Let “Them” be creative – what “They “ do will amaze you!
- First E Government
- E-Learning

Elliott Masie (CBT Systems) coined the word 1999
The term has always been used to refer to learning using the web or any other electronic medium – School of the Air

What to do with Village WiFi

- Government Services
  - First E-Education for Handicapped in Thailand
  - Solutions replicated in parts of Africa

- Medicine -a failed project - Laos

- Why?
  - Careful planning
  - Local respect – two ways
  - The content “owner” was not identified
    - Content failed the project

What to do with Village WiFi

- Tales of two towns – Success and Failure
  - Both around 4000 people
  - Both have good markets, high school and attract a lot of traffic
- One Town now has a far higher rate of university participation than the other
- Why?
  - Careful planning
  - Local respect
    Goes two ways
  - Create local ownership
  - WHY Local Ownership?
    - Velocity!

What else to do with Village WiFi? Schools and Government services

- Deploying to an area of deep troubles
- Enabling schools in a difficult zone to continue to function
- Providing Teachers with a reason to stay in a troubled area
- Creating local content
- Broadcasting local content

What else to do with Village WiFi? Schools and Government services

- Teacher Training in a hurry - The Tanzania Lessons
- Local communities built for schools far too fast
  - Not enough teachers for the schools
  - Develop a plan to teach teachers remotely while teaching students
- Not all Data is Equal
  - A school system can be designed to allow "White" pages only

John Hawker

UNESCO Information for All Programme

Australia Pacific & PNG

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