Bridging the Digital Divide

PRESENTATION

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Tuvalu telecom

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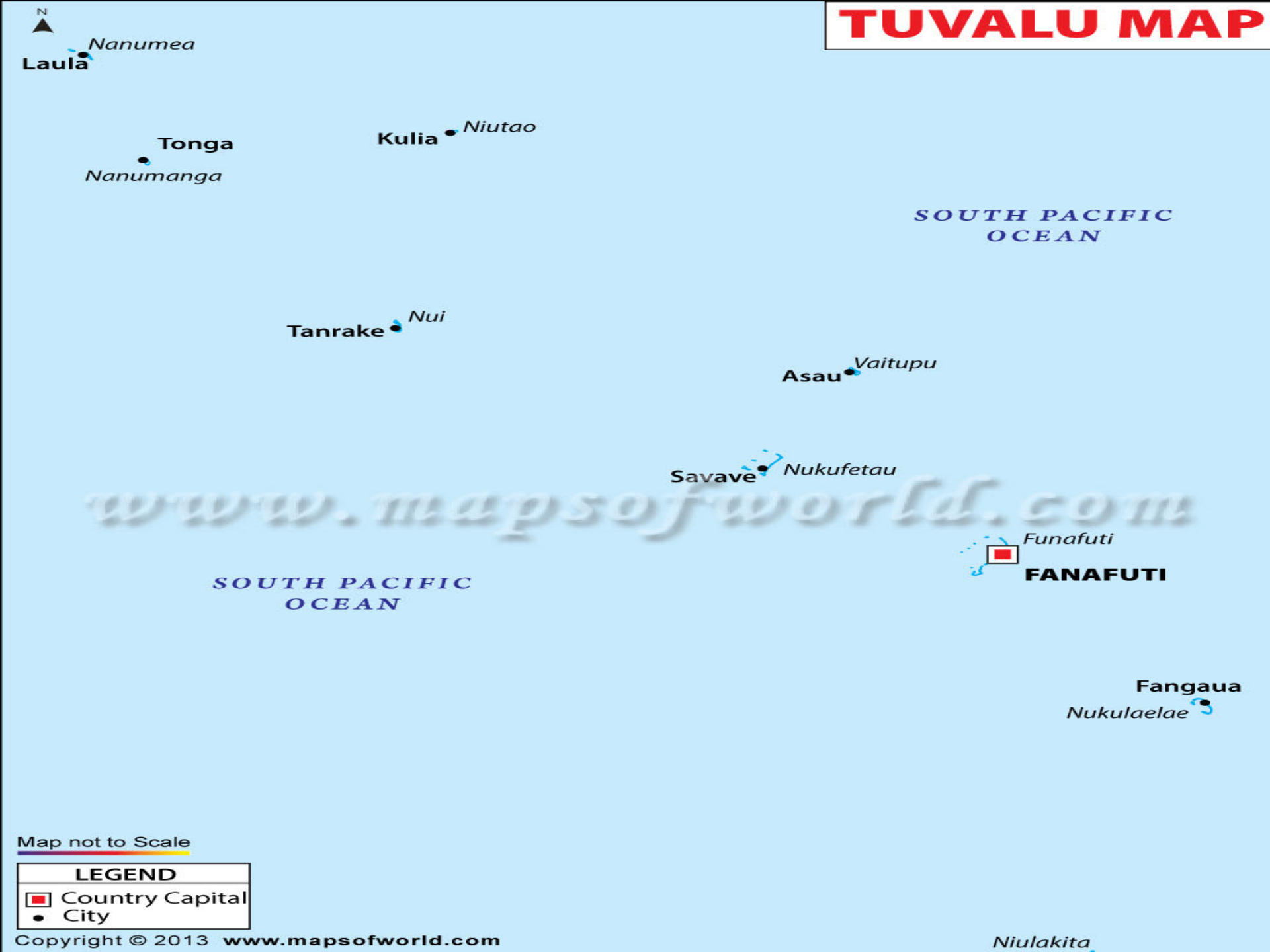
ITU/PITA Regional RadioCommunication Seminar For Asia Pacific

Background

- Tuvalu Comprises of nine small Islands scattered over 500,000 square mile in western pacific south of equator
- Ocean approx. midway between Hawaii and Australia
- Land Area of 26km square
- Tuvalu is smallest country in the world in terms of Geography
- Total Population of Tuvalu in recent census 2012 was 9847 with 57% of population residing on main atoll of Funafuti

Tuvalu on the World Map


TUVALU MAP
N
Nanumea
Laula
Tonga
Nanumanga
Kulia
Niutao
SOUTH PACIFIC OCEAN
Tanrake
Nui
Asau
Vaitupu
Savave
Nukufetau
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Funafuti
FANAFUTI
SOUTH PACIFIC OCEAN
Fangaua
Nukulaelae
Map not to Scale
LEGEND
Country Capital
City
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Niulakita

Company Structure and Management

- TTC is the sole Telecommunication provider, a fully state owned enterprise established in 1994 under the Tuvalu Telecommunication Corporation Act 1993 (TTC ACT)

- With the exception of some fewer services operated by the Government ICT department and other Government Agencies, TTC owns and operate majority of the ICT/Telecommunication infrastructure in the Country

- TTC has a Total of 44 staff, including 22 administrative and 22 Technical Personnel

TTC Service Portfolio

- Fixed Line Telephony Services
- Mobile Services
- Fixed Broadband Services
- WIFI Internet Services
- Distribute/Resale of Sky Pacific Satellite Television Services
- HF Radio Backup Services

Fixed Line Services

- TTC provide Fixed Voices Services to over 1380 subscribers in Tuvalu with Majority of the users are from the Capital Islands Funafuti
- Number of Homes passed by copper is equal to number of fixed Voice subscribers

Islands Name	Residential	Business	Government	Total
Funafuti	535	192	209	936
Vaitupu	83	8	20	111
Nanumea	52	4	7	63
Nui	52	3	8	63
Nukufetau	47	8	8	63
Nanumaga	49	1	7	52
Niutao	38	6	8	52
Nukulaelae	23	3	10	36
Niulakita	-	-	2	2
Total	879	225	279	1,383

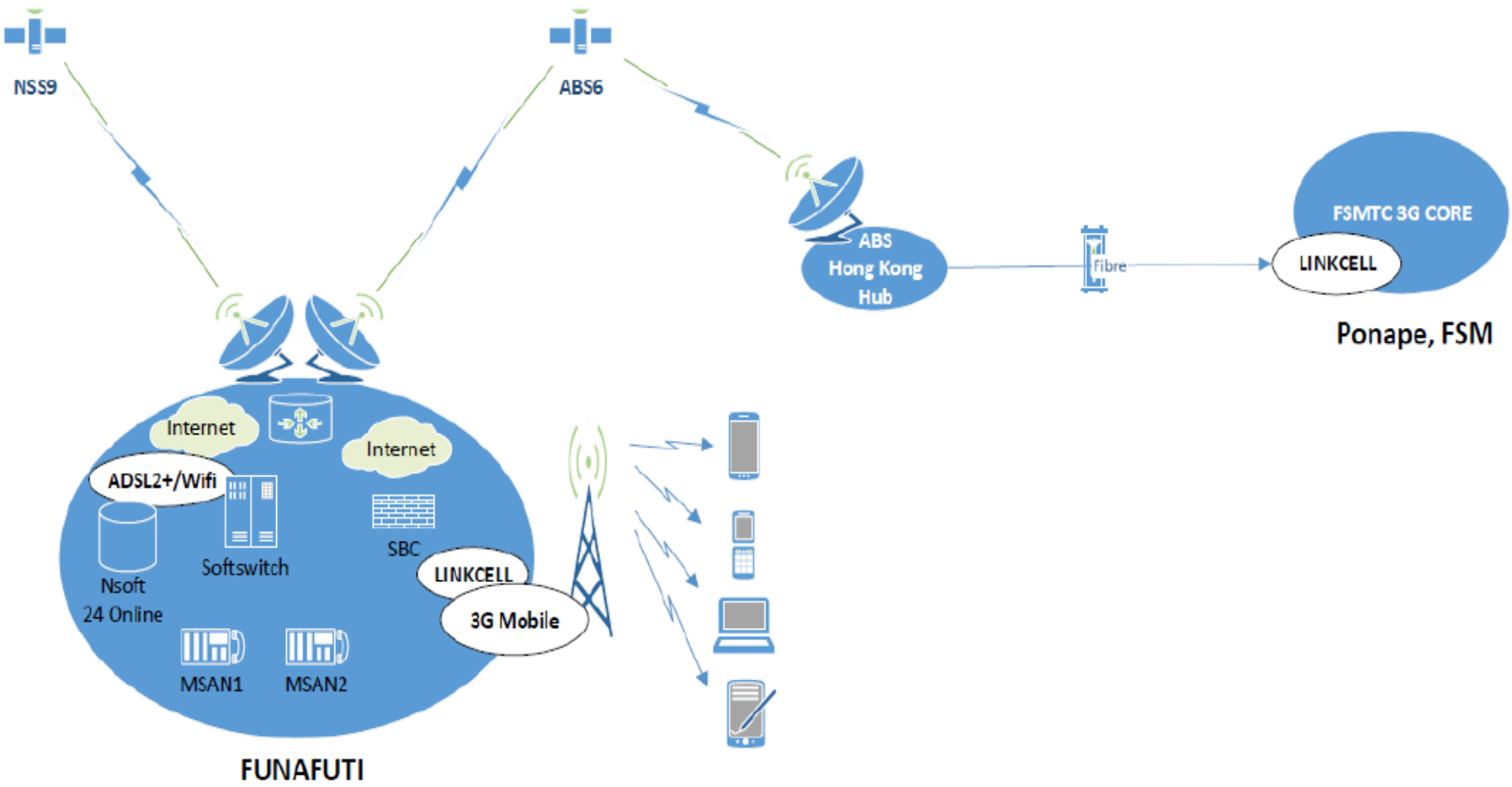
Tuvalu Numbering Plan

Islands	Existing Plan	New Numbering Plan
Funafuti (Capital Island)	20 xxx – 21 xxx	20 xxx – 21 xxx
Niulakita	21 xxx	22 xxx
Nui	23 xxx	23 xxx
Nukufetau	36 xxx	24 xxx
Nukulaelae	35 xxx	25 xxx
Nanumea	26 xxx	26 xxx
Niutao	28 xxx	28 xxx
Nanumaga	33 xxx	27 xxx
Vaitupu	30 xxx	29 xxx
GSM (2G)	90 xxx – 91 xxxx	90 xxx – 91 xxx
3G	700 xxxx – 7003 xxx	

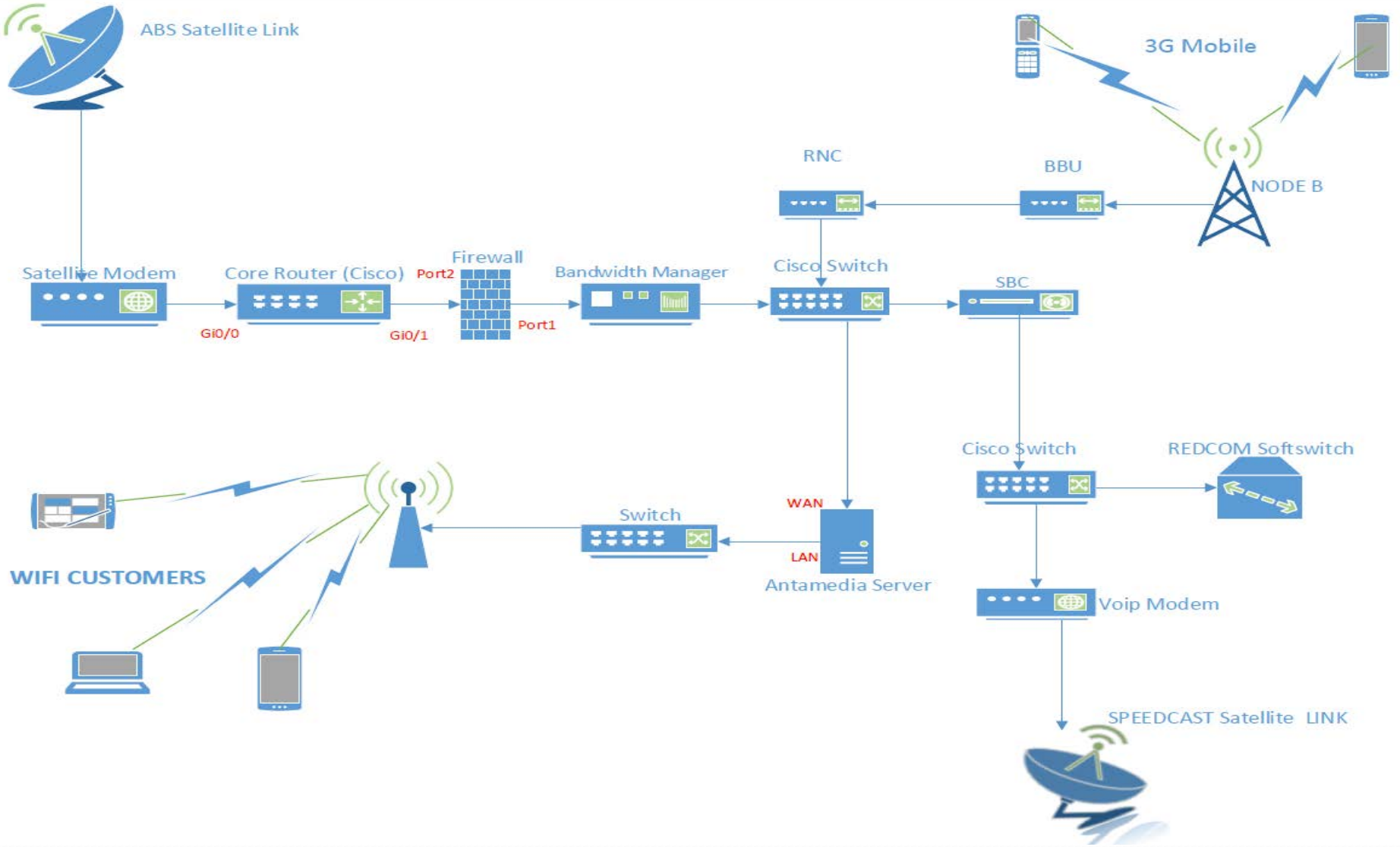
MOBILE SERVICES

- TTC Implement and Launched a new 3G UMTS Mobile System 4th Quarter of 2014 but only in the Capital Funafuti
- Deteriorate 2G GSM Mobile was decommissioned beginning of 2015 due to capacity and Coverage Problem
- TTC 3G Mobile system is only one site with two sector antennas installed in the sole existing Tower in Funafuti
- Each Sector handle a maximum of 30 simultaneous call and 16 simultaneous Data session.
- The NodeB operate in the 900 MHZ band using bandwidth of 5MHZ (2x2.5 Mhz)
- Core Network is remotely provides with infrastructure services from FSM
- Data Traffic is Routed over our ABS Satellite link while Voice is passed through our Speedcast Satellite Link

3G Mobile Network



Mobile Data & Voice



Fixed Broadband

- In the Capital Island Funafuti broadband services delivered over the copper access Network via ADSL2+ and VDSL technology and some on the Existing public WI-FI Network
- Broadband plans differ in respect to speed and amount of data that subscriber can use (Data Cap)
- Bandwidth available for Outer-Islands is 1.6Mbps and shared among the users
- Outer-Islands internet are charged on timed basis

Broadband Rate in Funafuti

Plan	*Speed (Kbit/s)*	*Data cap (GB)*	*Monthly charge (AUD)*	*Price per MB (AUD)*	*Number of subscribers*
Residential 1	128	1.4	50	0.036	58
Residential 2	256	3	100	0.033	26
Corporate 1	256	7	200	0.029	23
Corporate 2	384	12	300	0.025	7
Corporate 3	512	21	500	0.024	6
Corporate 4	1 024	45	750	0.017	6
VDSL	1 024	45	750	0.017	1

WIFI Internet Services (Funafuti)

- TTC Provides Broadband access to Customers through WIFI Hotspots in Funafuti
- WIFI Network deployed 5 Hotspots and seven repeaters distributed along the Islands
- TTC dedicate 3Mbps for WIFI access (2Mbps download and 1 Mbps upload)

SKY TV

- TTC is a reseller of Sky Pacific Satellite TV service previously owned by Fiji Television Limited
- Service deliver via Satellite IS 19 a Geostationary C-Band Satellite operated by Intelsat

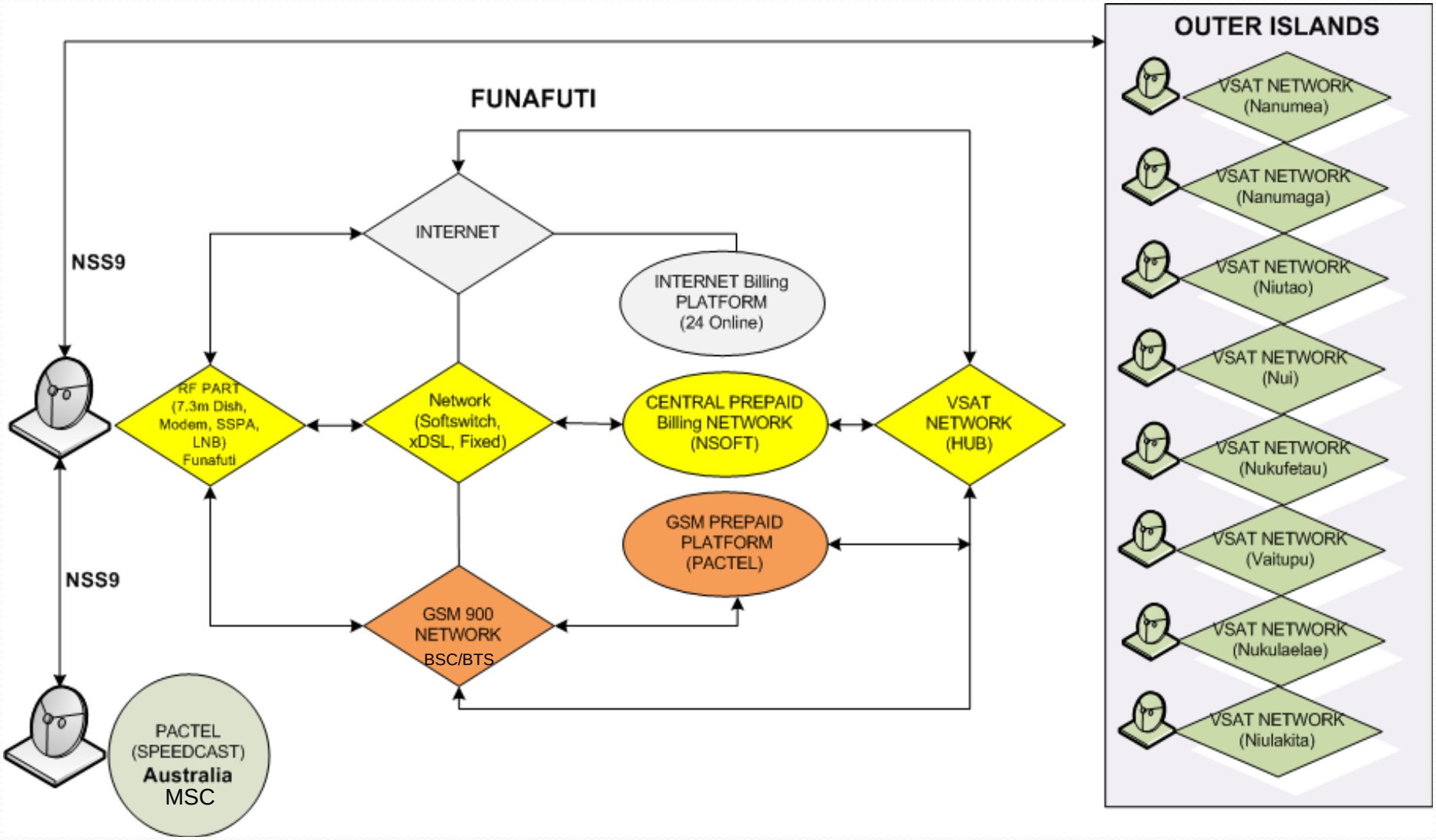
HF Radio Backup services

- HF Radio is one of TTC Fallback source of Communication in times of Disasters and also if satellite communication to Remote Islands failed
- Now six of the Islands have faulty HF Radio set without any back-up. Now TTC are trying securing some fund to buy spare HF set for Problematical Units
- TTC install 3 New HF Radio Set on Funafuti for the Ministry of Communication and Transport as a 24/7 Radio Watch with Ships and Aviation Towers

Inter-Islands & International Connectivity

- TTC Fixed Network is based on a Centralized architecture with the Core Network located in Funafuti and Outer-islands connected through a Vsat Network
- TTC used two geostationary C-Band Satellite- NSS9 and ABS
- Total Bandwidth Available is 21.8Mbps from NSS9 and 58Mbps from ABS
- Connectivity in the NSS9 Satellite provide by Speedcast and Intelsat

TTC Current Network



Issues

- Fixed Local Loop/Access i.e status of access copper Network is deteriorating due to sea-level rise and rain water impact
- Poor data service delivery to Remote Islands due to bandwidth throttle
- Internet connectivity in the islands is only available at TTC Tele-center
- Poor Coverage of 3G Mobile system as well the WIFI
- Emergency Back-up communication

Challenges

- Cease Investment in Copper assets and migrate to a full Wireless access Network
- Deploy a Fibre cable in Funafuti in a shared cost
- Quickly rollout ABS link to all outer-islands
- Deploy Kacific Satellite system with ka band frequency because of greater capacity then C band and at the same time provide internet access to schools and Medical Clinics on all outer-islands
- Secure some Fund from Government or Donors to buy Towers to improve Mobile and WIFI coverage
- Opt for 4G Mobile. 4G is superior in terms of speed, capacity, coverage and reliability

Economical benefits:

- Education.
  - E-learning.
    - Schools connected together & to the outside world.
  - Children's and adult courses on demand in real time over the internet.
- Medical & Health.
  - Doctors can stream in real time video of patient care to overseas based hospitals for advice and second opinions. Surgery could be performed with outside surgeons watching the video in real time.
- Government services.
- Television on demand over the internet.
- Commerce & Banking.
- Tourism & Film Industry.
- Ability for Tuvalu to establish call centres and e-commerce.
- Generating sustainable economic growth
- Improving the economy (tourism, commerce…)
- Delivering services more effectively


Thank you!
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