

Network Restoration Via Satellite in The Pacific

Robert Suber | Managing Sales Director



An Exciting Year for the Pacific Islands

Feb

Digicel Invests For The Future Of Tonga



Digicel Tonga Limited announced that it has finalised negotiations with the Government of Tonga (GoT) to acquire shares in Tonga Cable Limited (TCL), a strategic Government asset.

Tonga Cable System is a submarine cable system, which connects Tonga with Fiji and spans about 827 kilometers. It has cable landing points at Sopo in Tonga and Suva in Fiji and was jointly funded by Asian Development Bank and the World Bank.

Digicel objective is to increase internet access and bridge the digital divide for Tongans especially those living in the outer

islands of Vava'u and Ha'apai. Digicel is also committed to delivering on its vision of being a total communications and entertainment provider to the region with this key strategic investment.

"Digicel is delighted to partner with the Government of Tonga and the TCL board to drive the financial and operational performance of TCL. Digicel see this important investment as a further commitment to Tonga's economic and social development. We are also delighted that this partnership will allow Digicel to deliver more innovative and exciting services to our customers all over Tonga" said: Pepe Christian Fruen, Chairman of Digicel Tonga.

The Deputy Prime Minister for Tonga, the Honorable Siaoisi 'Ofakivahafolau Sovoleni went onto say that "Both Digicel and TCC now have the same shares in the business with the monies received by the GoT from the share purchase, being used to extend and focus on its domestic cable in Tonga, which should see coverage and reach out to areas beyond Tongatapu and into the islands including Vava'u and Ha'apai."

Commenting on the investment, Mr. Michael Murphy, CEO of Digicel Pacific says, "Digicel remains committed to providing exceptional service to our customers in Tonga and we see this investment as a key enabler to deliver more reliable, improved and innovative services for the people of the Kingdom of Tonga with the associated social and economic benefits this will bring to Tonga."

Mar

Polynesian leaders agree to extend submarine cable

08 March 2017

399 Hits



POLYNESIAN CABLE DEAL: Cook Islands P.M., Henry Puna, P.M. Tuiaepa Sa'ilele Maleleagaoi, French Polynesia's President, Tagaloa Eduard Fritch, (standing) Minister Alamasaga Rico Tupai and Pepe Fiasiletua Fruen.



Prime Minister Tuiaepa Sa'ilele Maleleagaoi and Polynesian leaders agreed to the extension of a submarine cable connecting Polynesia.

The agreement was reached in Auckland, New Zealand, during the weekend where Tuiaepa led a delegation from Samoa to a meeting with the President of French Polynesia, Tagaloa Eduard Fritch, Cook Islands Prime Minister, Henry Puna and New Zealand's Minister of Foreign Affairs, Tupe'i Murray McCully.

Tuiaepa was accompanied by the Minister of Communications and Information Technology, Alamasaga Rico Tupai and the Chairman of Samoa Submarine Cable Company Limited, Pepe Fiasiletua Fruen.

May

Docomo Pacific begins marine lay for ATISA cable

By Saipan Tribune | Posted on May 16 2017

Tag: ATISA, CNMI, Docomo Pacific, Guam



Dino Manning, Docomo Pacific CNMI general manager, gives an opening speech during a landing ceremony for ATISA at Aquarius Beach Tower Hotel on Saipan. (Bea Cabrera)



The deck of the cable ship Responder. The deck is also where the fiber-optic cable is being prepared before being laid underwater. (Bea Cabrera)

Docomo Pacific announced last Thursday the start of the marine lay for its ATISA submarine fiber-optic cable system.

On May 11, Docomo Pacific hosted a landing ceremony for ATISA at Aquarius Beach on Saipan. Members of Docomo Pacific's leadership team were joined by island dignitaries and business leaders for the event. Similar landing ceremonies will take place on Tinian and Rota later this month. Following the marine lay, the Docomo Pacific team will conduct end-to-end testing of the cable system before ATISA is ready for full service in the Marianas by August.

The marine lay began in Guam on May 6 following the arrival of the CS Responder, the vessel that will perform the physical cable installation between Guam and the CNMI. Guests and island media were given the opportunity to tour the vessel and learn about the marine lay process from project managers.

An Exciting Year for the Pacific Islands

Jun

World Bank grants \$36m to remote Pacific fibre-optic broadband projects



15 June 2017 | Jason Mcgee-Abe

The World Bank's board of executive directors has approved \$36 million in grants to help provide reliable fibre-optic broadband internet in Kiribati and the Federated States of Micronesia (FSM).



The grants, including \$20 million for Kiribati and \$16.26 million for FSM, will finance the installation of a subsea cable system connecting Tarawa, Kiribati, to Nauru, and Kosrae state, FSM, to Pohnpei state, FSM, which is connected to global networks. The Asian Development Bank is preparing finance to support Nauru's participation in the cable system.

"We have already seen the benefits high-speed, reliable and affordable internet can bring to countries across the Pacific, and we look forward to working with Kiribati and Micronesia to bring faster and cheaper connectivity to the North Pacific," said Michel Kerf, World Bank country director for Timor-Leste, Papua New Guinea and the Pacific Islands.

"These connections will play a crucial role in linking families, creating economic and employment opportunities, reducing transaction costs, providing remote education and healthcare, and boosting national and international coordination."

The projects are part of the Pacific regional connectivity programme, which aims to bring more reliable and affordable internet to the majority of countries in the Pacific

Islands. Kiribati and Micronesia are two of the world's most remote island nations, covering six million square km of the Pacific Ocean, making access to information, services and economic opportunities a massive challenge. The projects will help to provide broadband internet to approximately 80,000 people.

\$9m spent on Southern Cross cable

06:26 Thu Jun 15, 2017

The Government has spent \$9 million in getting Vanua Levu connected to the Southern Cross cable.

This would mean faster, quicker and more bandwidth in internet services.

Tui Macuata, Ratu Wiliame Katonivere, says something as big as this could unleash the many potentials in the Northern Division.

"We are like someone ready to be unleashed. The development here is ready to be unleashed. We have so many recourses and so many untapped talent here. But with technology coming in, I think this is one way the North will be more recognised."

By sub-marine cabling works is expected to be completed by March next year.



Taken from/By: FBC News
Report by: Elenoa Turagaivui

Network Redundancy and Diversity

National importance

Island States rely almost entirely on undersea cable for internet traffic

Important to ensure continuity of operations

Almost all of the undersea cable connections are single path systems

No path diversity and no overland alternatives

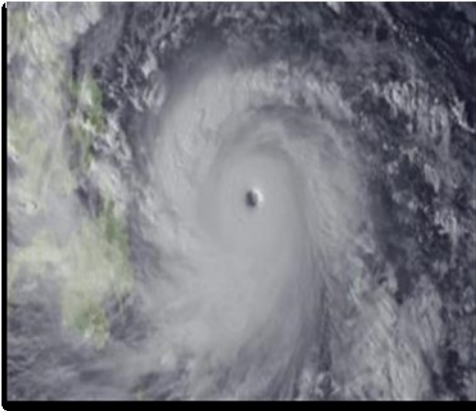
A very high proportion of internet traffic is international

Economic impact

Natural Threats

Submarine cables are exposed to natural hazards in all water depths but they dominate in water depths greater than 1,000 m

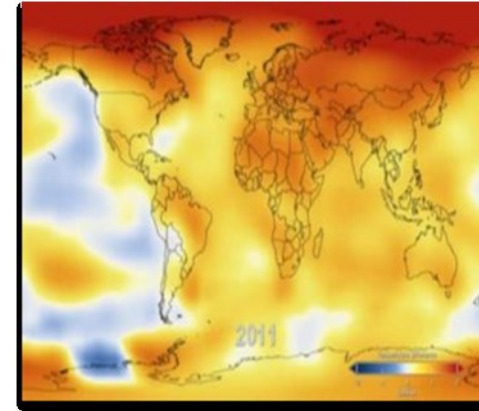
Typhoons · Undersea Volcanoes · Earthquakes · Tsunamis



Source: NOAA/Reuters



Source: NOAA / NSF / WHOI



Source: NASA

When these natural disasters happen,
the impact is devastating and often cause great damage to many undersea cables

Man-Made Threats

In depths to around 1000 m, around 90% of all hazards to submarine cables are man-made

Fishing



Source: ISPC

Trawling nets can snag and damage submarine cables

Anchorage



Source: ISPC

Ship anchors are dropped in the wrong places and caused accidental breakage

Theft



Tons of cables have been stolen and sold as scraps

Additional Risks and Interruptions



Source: US Pacific Fleet

Disruptions due to planned maintenance



Source: Wikipedia Creative Commons

Vulnerability of cable landing stations



Scarcity and expense of cable repair ships

Thus, some form of diversity and disaster restoration is required to ensure continued flow of communications

Satellite – Ideal for Diversity & Restoration

Highly Survivable

Physical survivability and robustness

Independent of terrestrial infrastructure

Load sharing & Surge Capacity Solution

For larger sites

Best for redundancy

Path diversity & link availability

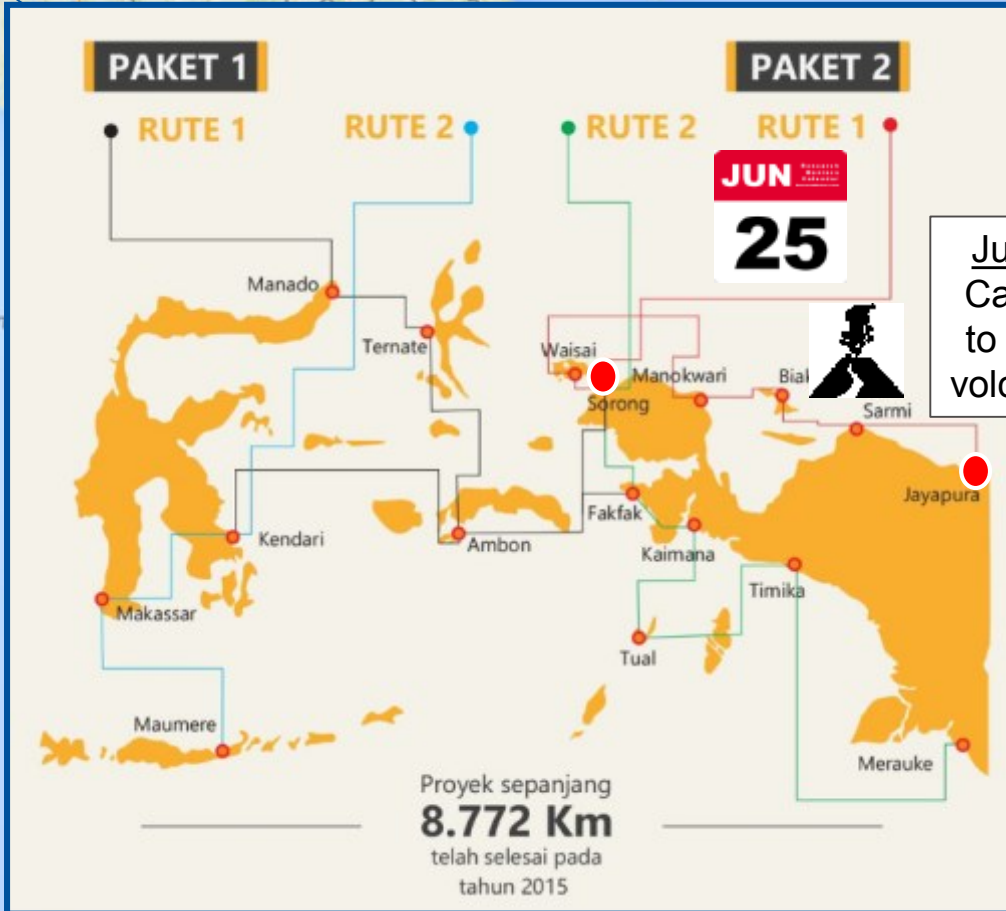
Satellites are Instant Infrastructure

Intelsat provides quick responds during disaster recovery and restoration



In times of disaster recovery, solutions provided via satellite are more reliable than communications utilizing land-based connection

Sulawesi-Maluku-Papua Cable System (SMPCS)



Jun 25, 2016
Cable cut due to underwater volcanic activity

Restoration of Mobile Network Services via Satellite

>0.5Gbps

- Fiber cut occurred on a Sat weekend.
- Customer did not have any pre-arranged satellite backup and called Intelsat
- Intelsat responded and made IS-805 ready for service within 3 hours
- Service over satellite implemented within 12-14 hours as the ground equipment were deployed in the field.

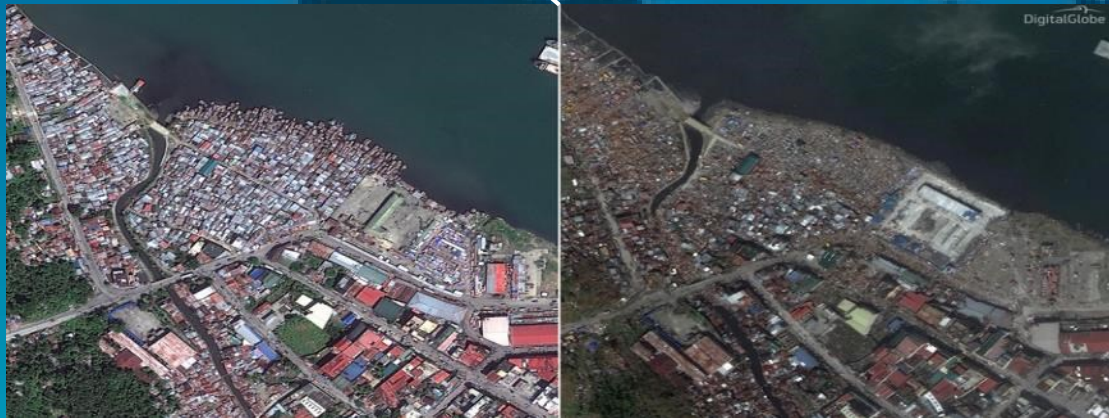
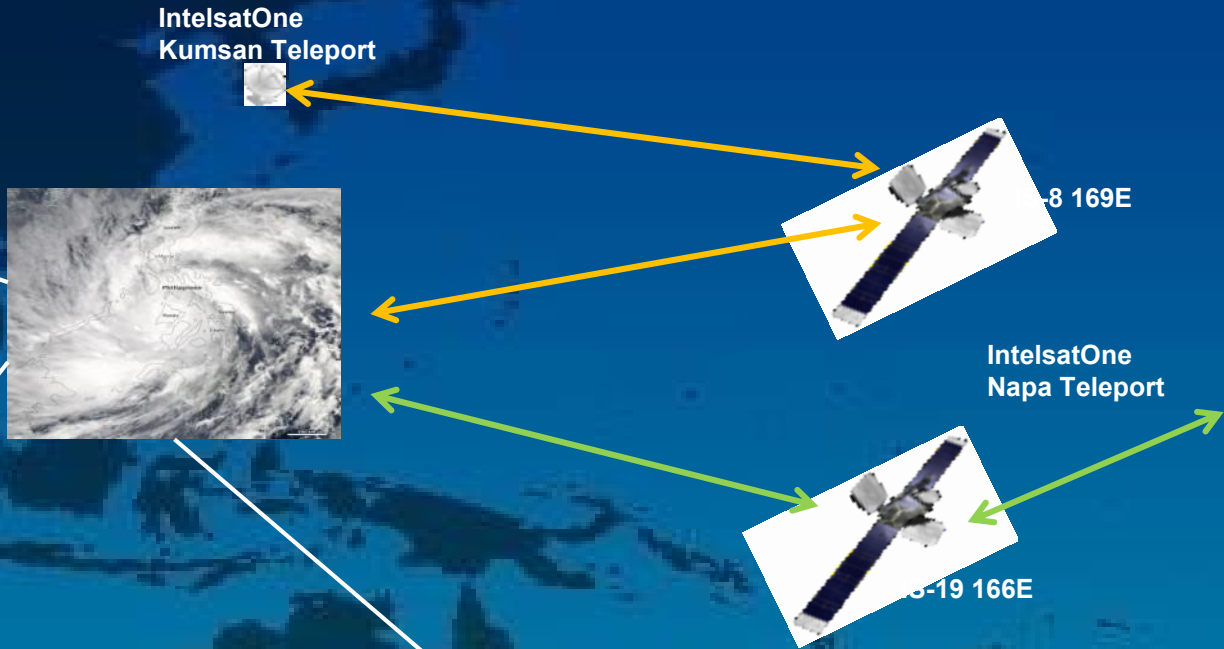
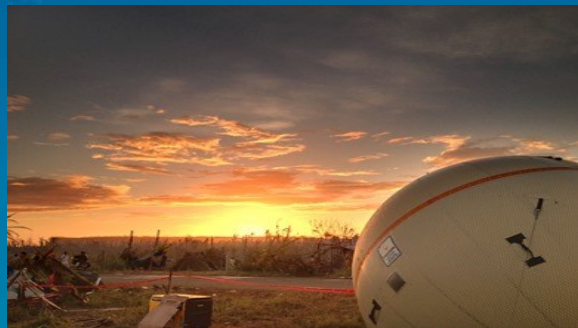
Intelsat – Assisting in Disaster Recovery

Philippines – Typhoon Haiyan 2013

IS-8 supporting the American Red Cross International Emergency Response unit



IS-19 supporting the Global Disaster Immediate Response Team



Ready for the Pacific Islands

Reliable and quickly
deployable satellite solution



INTELSAT
Satellite Services | London

Satellite Backup Options

To help customers prepare for worst case scenarios, Intelsat is offering 2 types of satellite backup options that cater to different needs

Dedicated Backup Capacity

- Dedicated Access
- Potential Revenue Generation
- Full Control
- Instant Activation

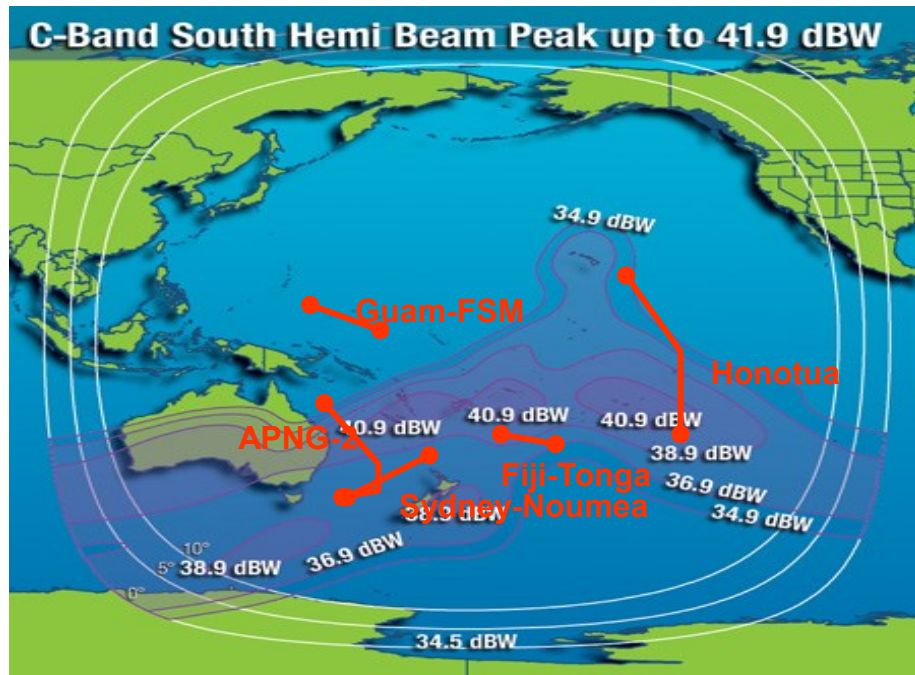
Shared Backup Capacity

- Shared Access
- Subscription-based
- Affordable
- Pay-As-You-Use

Dedicated Backup Capacity Options

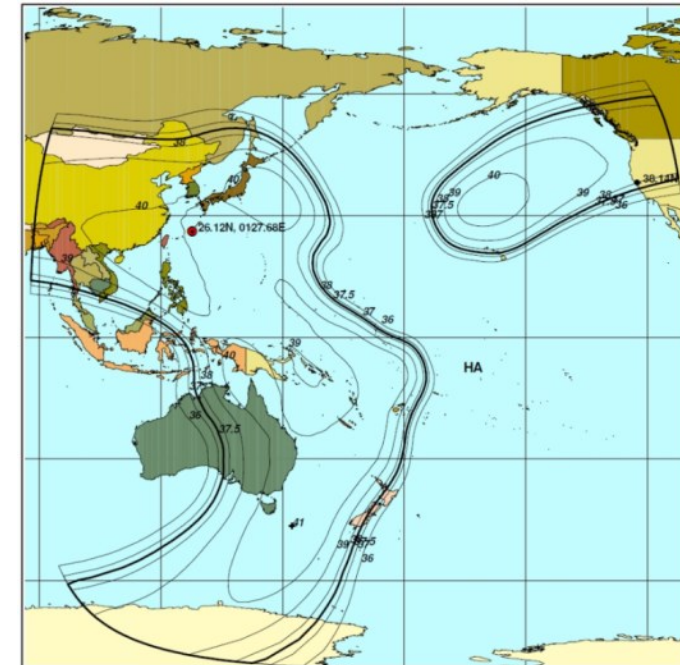
Full-time satellite diversity

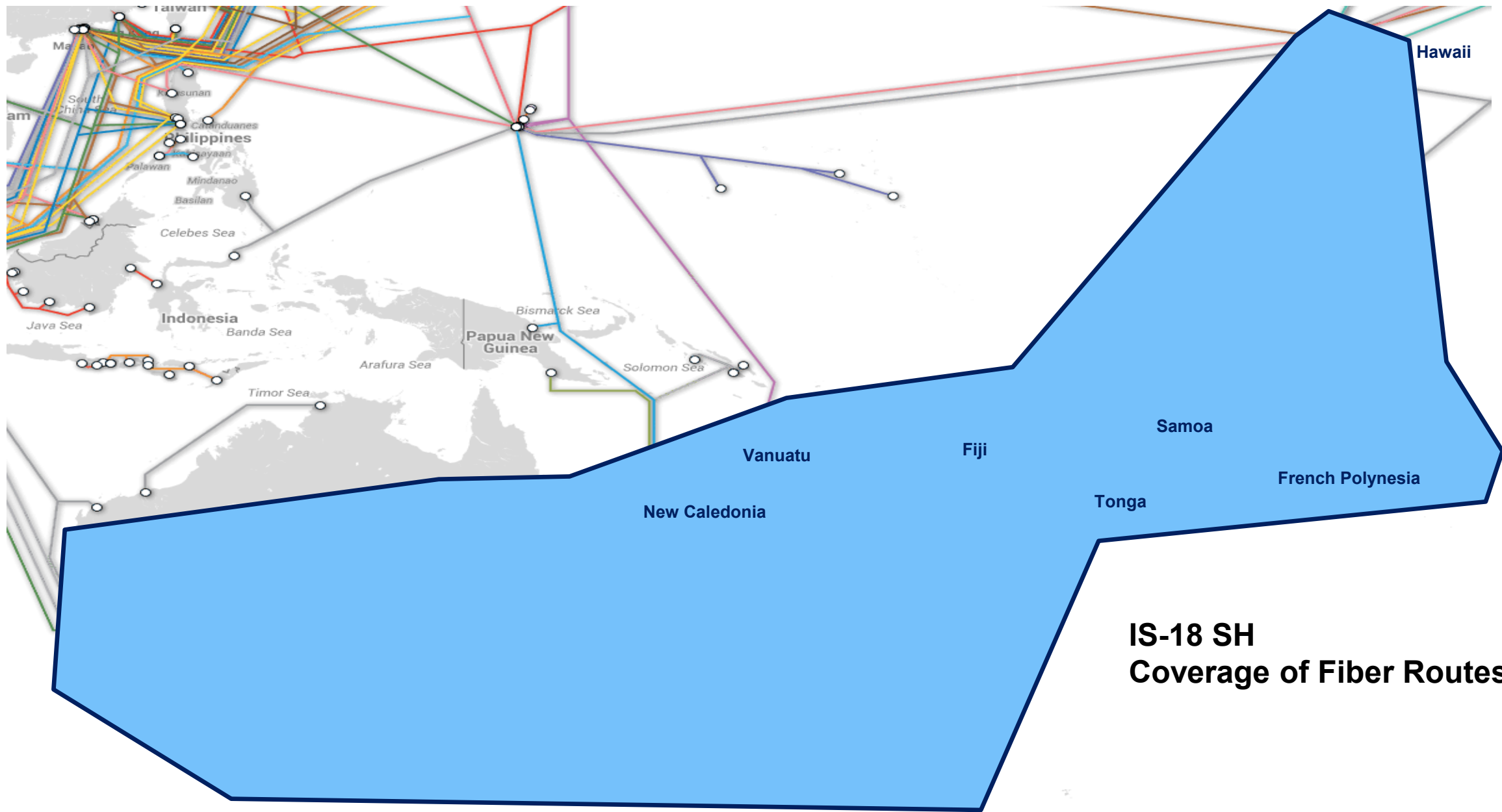
- IS-18 SH/SH @180°E
- Straight lease of capacity
- Full control and access



Eclipse pre-emptible satellite diversity

- IS-805 @169°E
- Lower cost
- Inclined orbit with one hour outage per day for up to 90 days a year
- Suited for Northern and Mid-Pacific Islands

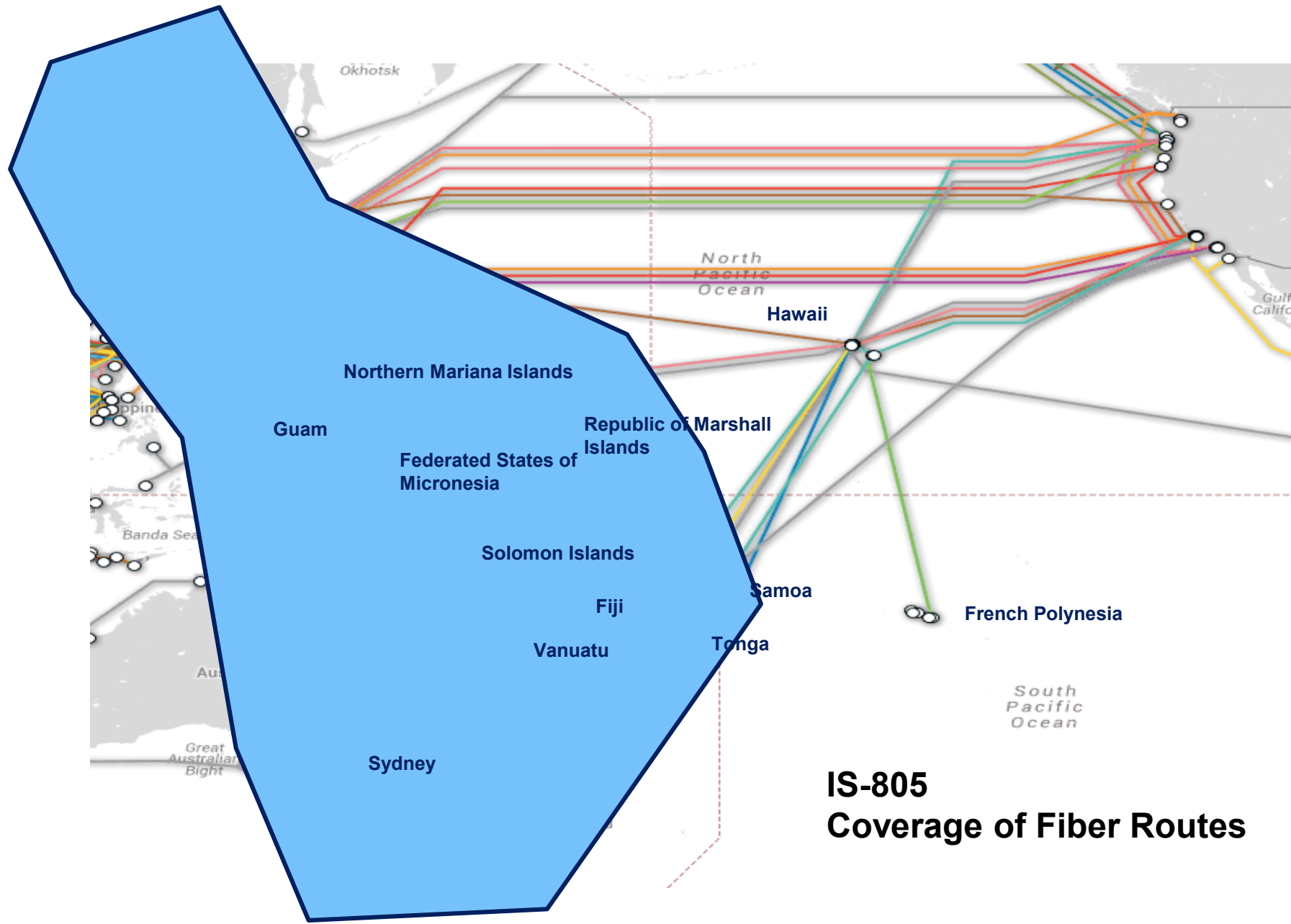




**IS-18 SH
Coverage of Fiber Routes**



Source: www.submarinecablemap.com

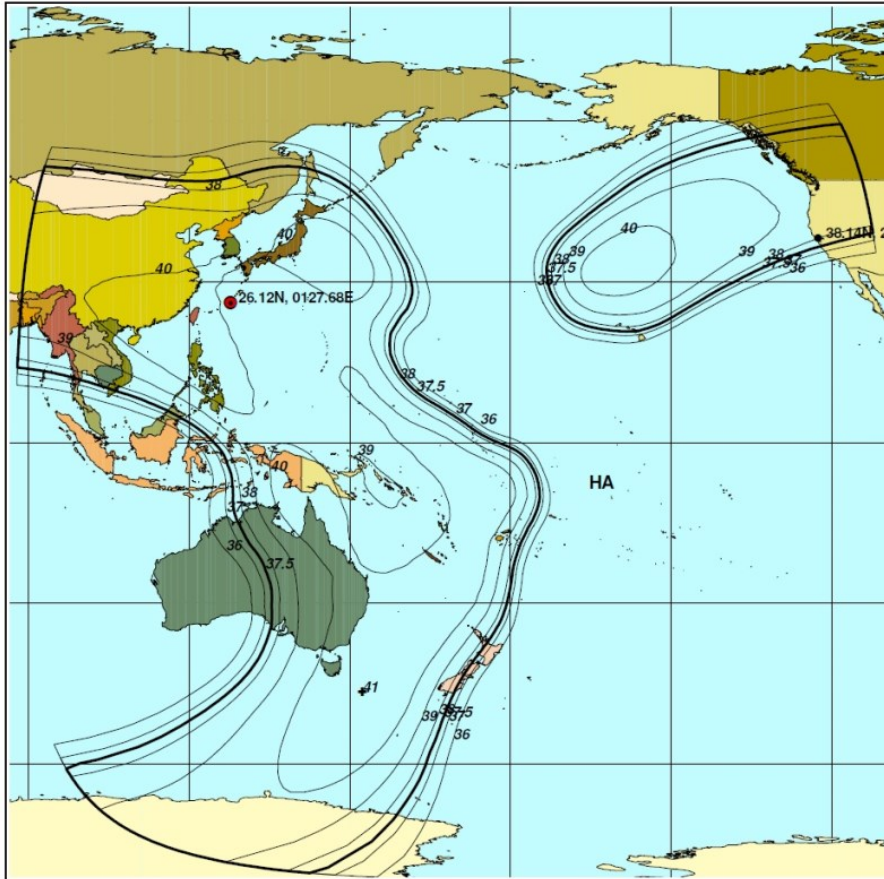


**IS-805
Coverage of Fiber Routes**



Source: www.submarinecablemap.com

Shared Backup Capacity Option



Shared backup capacity

- IS-805 C-Band Hemi beam
- Pay for usage of capacity when required; monthly reservation fee
- Advanced scheduling also available (eg. cable maintenance)
- Pre-assigned transmission plans & test periods provided to allow for fast activation of services

Ensure Continuity of Operations

Different options for different customer needs and budgets



Full-time satellite diversity
IS-18 SH/SH

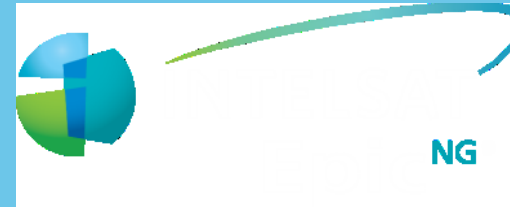


Eclipse pre-emptible satellite diversity
IS-805 (inclined orbit)



Shared satellite capacity pool
IS-805 (inclined orbit) C-Band Hemi

- Service providers – maintain services and safeguard revenue
- Companies – business continuity
- Government organizations – access to critical communication services in times of disaster

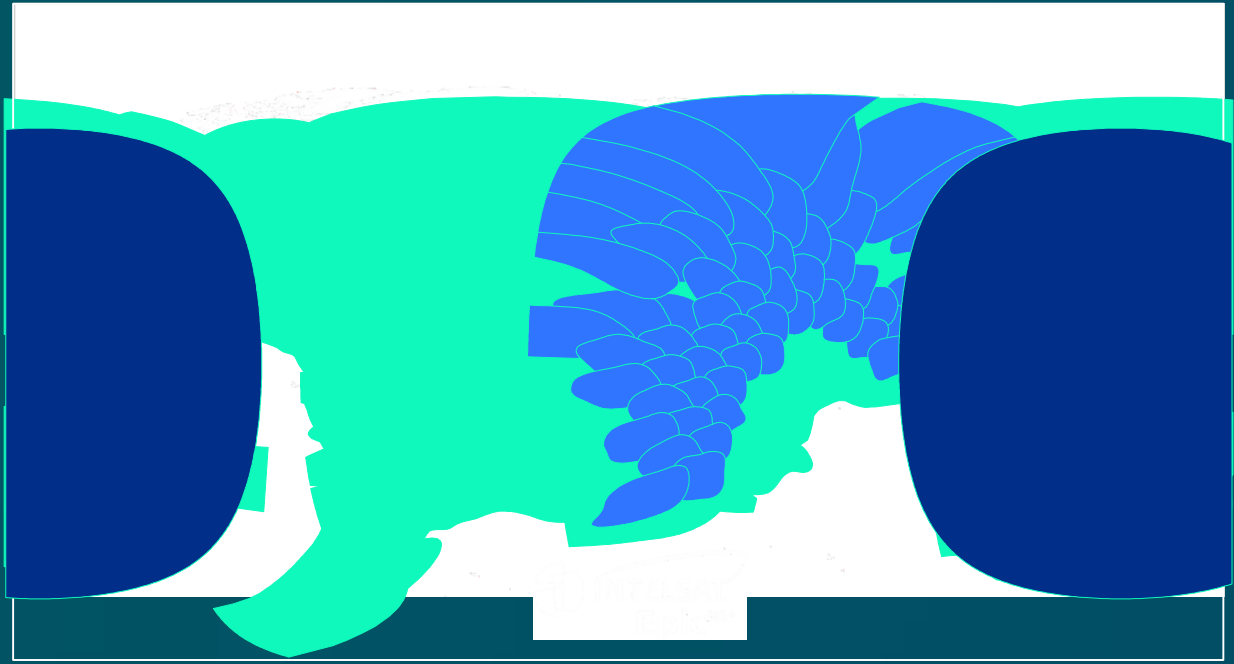


Just Around the Corner

HTS + Leo + Geo



Building a Global Ku-band Network



2016-2017 2018 onwards



IS-29e IS-33e IS-32e IS-35e IS-37e H-3e Epic^{NG} Class

Horizons 3e

Designed for Oceania/Pacific Islands

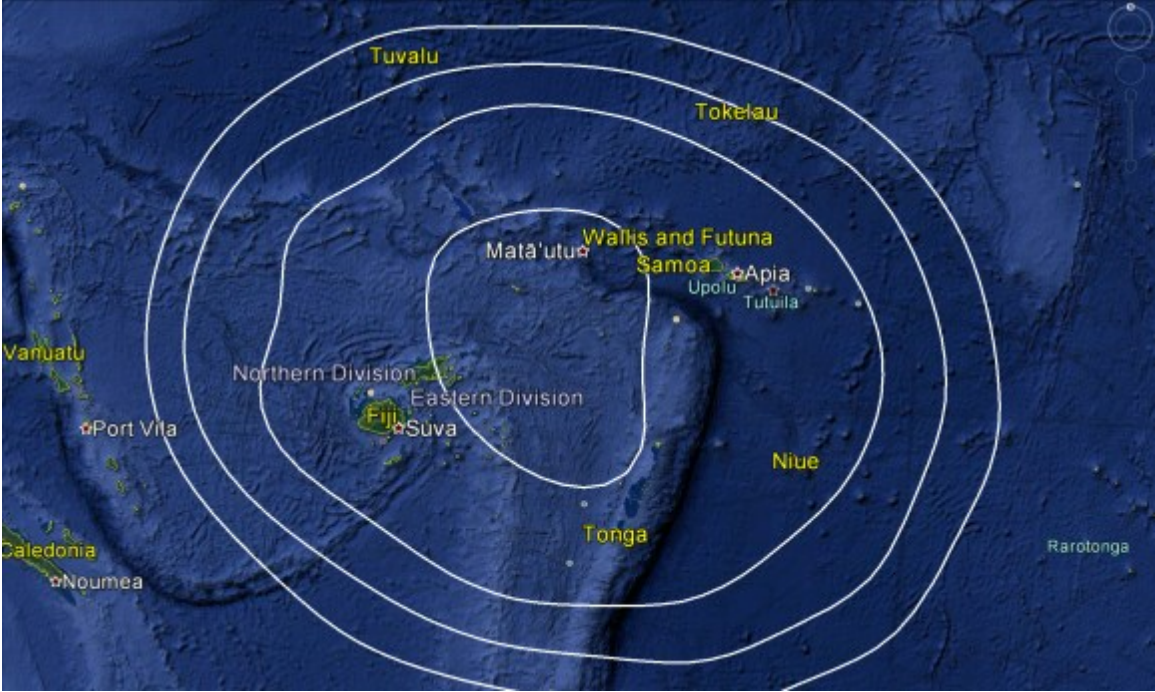
Coming to you in ~2018



New Epic^{NG} Class of High Throughput Satellites with Digital Payloads



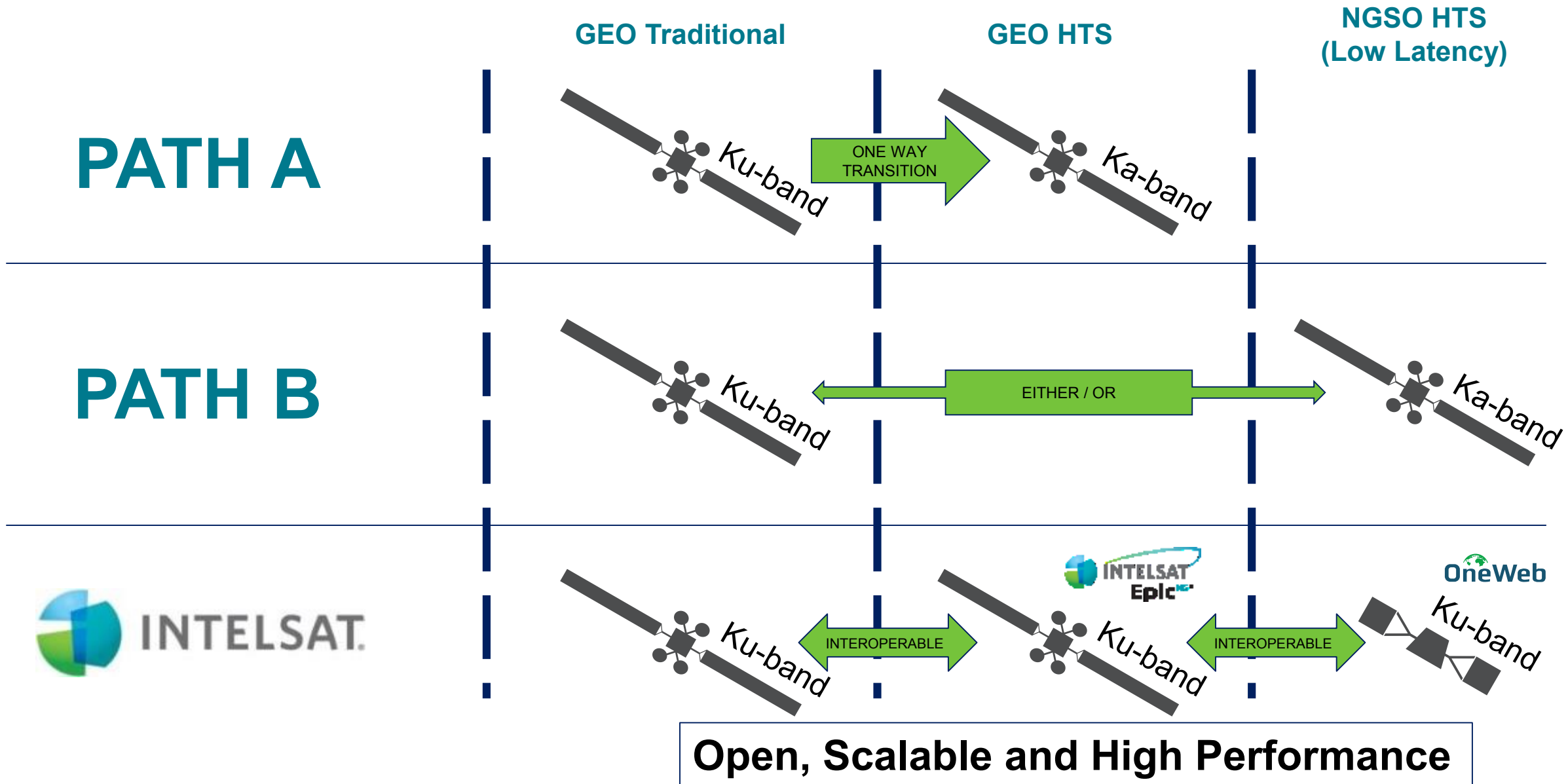
Pacific Island Ku-Band Spot Beam



Beam Type	FWD Spectral Efficiency [bps/Hz]		RTN Spectral Efficiency [bps/Hz]	
	Beam Peak	Beam Edge	Beam Peak	Beam Edge
Avg. H-3e U-Type	2.0	1.1	1.7	1.2

Note: Figures are indicative only.

Different Paths to High Throughput Satellites in the Pacific Islands Today



GEO

- › Wide beams
- › HTS overlay for high density areas
- › Global Coverage

Premium Spectrum
Ku-band
Flexible high-performance
Interoperable User
terminals

- › Additional capacity
- › High look angle
- › Low latency
- › Pole-to-pole coverage

LEO




Roadmap to the Future – Unlocking New Applications

LAUNCH & DESIGN PHASE

LEO HTS	<ul style="list-style-type: none"> › Pole-to-pole coverage › Small terminals, low latency
More GEO HTS	<ul style="list-style-type: none"> › Software defined payloads with flexible coverage, power and connectivity

- › 3 HTS satellites already contracted
- › OneWeb design and implementation



COMPLETED

HTS High Throughput Satellites (GEO)	<ul style="list-style-type: none"> › HTS spots positioned in high traffic areas › Complementing first layer not replacing it › Provides depth of coverage
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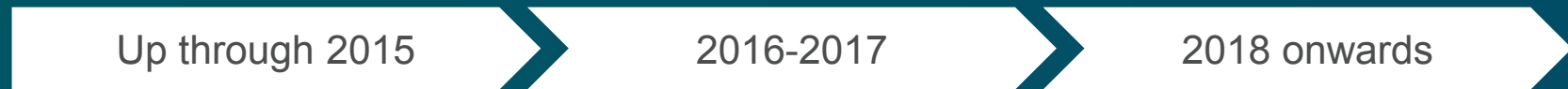
- › 4 HTS satellites launched



COMPLETED

WIDEBEAM SATELLITES	<ul style="list-style-type: none"> › Uniform quasi global coverage › Base layer of the network › Provides breadth of coverage
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- › 50 satellites
- › 100% complete

Thank you!

