



SATELLITE ON THE MOVE

TE (PNG) Limited

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Introduction

Satellite communications are changing rapidly, enabling new technology to connect from anywhere. Satellite on the Move (SOTM) is a term used to describe satellite communications that can be used on moving platforms, such as airplanes, ships, and trains. SOTM technology is becoming increasingly sophisticated and affordable, making it a viable option for a wider range of applications.





A FAST CHANGING INDUSTRY

The satellite industry is moving rapidly, with the introduction of new technologies, higher throughput satellites, reduced cost to orbit, the world has moved on quickly from large bulky expensive antennas, to fast and affordable internet for everyone globally.

New LEO (Low Earth Orbit) services such as StarLink and OneWeb are now active, providing communications never seen before.



INMARSAT / IRIDIUM / VSAT

The main systems used for years have been either L-Band services with providers like Inmarsat and Iridium, or expensive VSAT terminals that track the satellite. The hardware can cost \$50,000 USD or more, and the bandwidth is very expensive, often limited to 64-128Kbps, enough for basic email and weather reports, or a voice channel.



KYMETA



Kymeta developed the world's first electronic steerable flat panel antenna. Rather than a moving parabolic, this antenna has no moving parts, is IP65 rated, requires no specialist training to install and commission.

The antenna refreshes its position with the satellite 128 times a second, providing a very reliable and stable connection to any Ku based GEO service, or OneWeb LEO service.



MARINE COMMUNICATIONS

TE has deployed a Kymeta with a GEO Ku service on 20 vessels to date. This provides the vessel with 5/2Mbps unlimited service, anywhere in PNG or Australian waters.

This enables new technologies, such as multiple PC's and phones to be connected on wifi, the use of email, internet, WhatsApp, streaming services and more.

The system is fully managed remotely and will be moved to OneWeb next year.



CSI 1 | 4Q21
>50°N | ~200 Gbps



CSI 2 | 4Q22
Global | ~1.1 Tbps



**648
Satellites**



18 Launches



**1.1 Tbps
Fwd. Capacity**



**42
SNPs¹**



**Global
Coverage**

¹In business plan, 3 of the 45 SNPs will be funded by joint venture partners



Phase 2.0

Q1 2024

Coverage ●

Global excluding Russia and China

Satellites

588

SNPs:

Norway, Italy, Portugal, USA FL, USA CT, USA CA, USA AK, Greenland, Chile, South Africa, Australia West, Australia East, Japan North, Japan South, Bulgaria, Brazil South, India North, India South, Mexico, Saudi Arabia, USA Hawaii, Australia North, Ghana, Costa Rica, USA Guam, Mauritius, Thailand, Colombia, Brazil North, Chile North, Indonesia, Fiji, Senegal, Tahiti, Kazakhstan, Angola, Martinique, Djibouti, Nauru, St Helena, Seychelles, United Kingdom

PoPs:

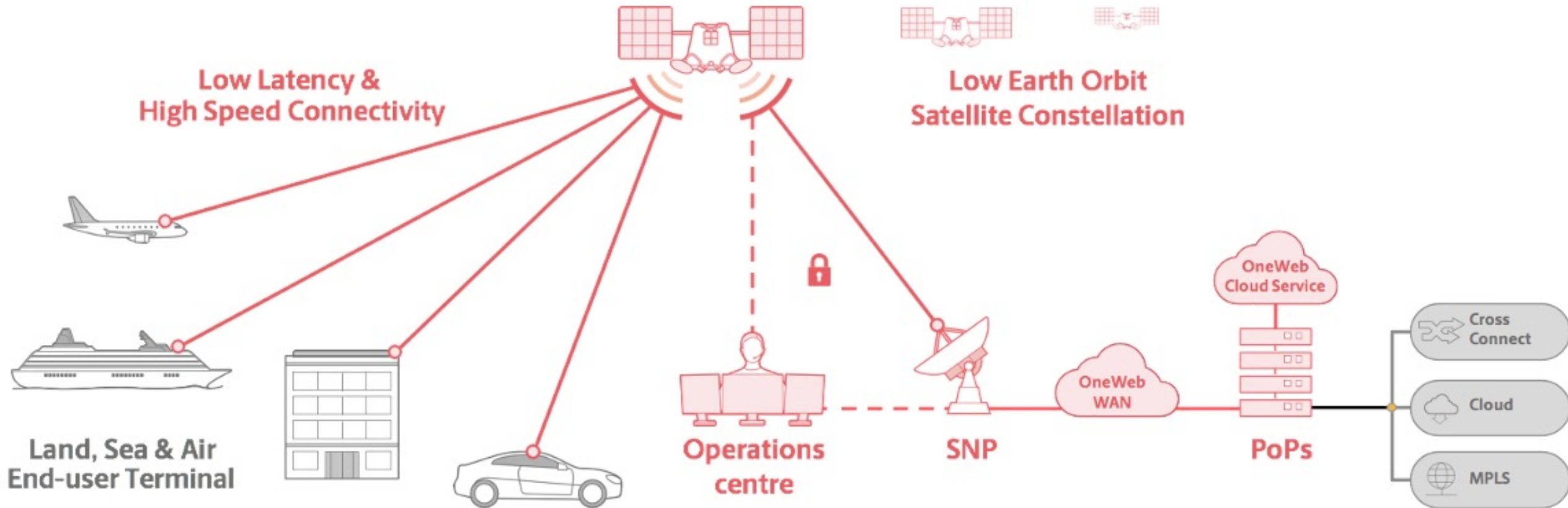
USA WA, USA CA, USA FL, USA VA, UK, Italy, Canada East, Canada West, Chile, South Africa, Australia West, Australia East, Japan, Brazil South, India North, India South, Mexico, Saudi Arabia, USA Hawaii, The Netherlands, Turkey, Brazil North, Ghana, UAE, Singapore, Indonesia, Kazakhstan, Nigeria, Kenya, Oman



For representation purposes only

OneWeb Network Coverage Map ©2022 OneWeb Source: Coverage Data: OneWeb Modelling Team, CTO | SNP/PoP Data: OneWeb PMO, D&O

System Overview





SAT. ONE



SAT. ONE

LEO – Low Earth Orbit



High Speed



Global Coverage



SLA & 24/7 NOC Support



QoS (EF & AF Forwarding)



Resistant to rain fade



Enterprise Grade with IPv4 options



Priority Spectrum



Multiple UT Options



Partner Friendly



Unlimited Data Plan Options



Carrier Grade Links Available -
1:1 Contention Ratio*



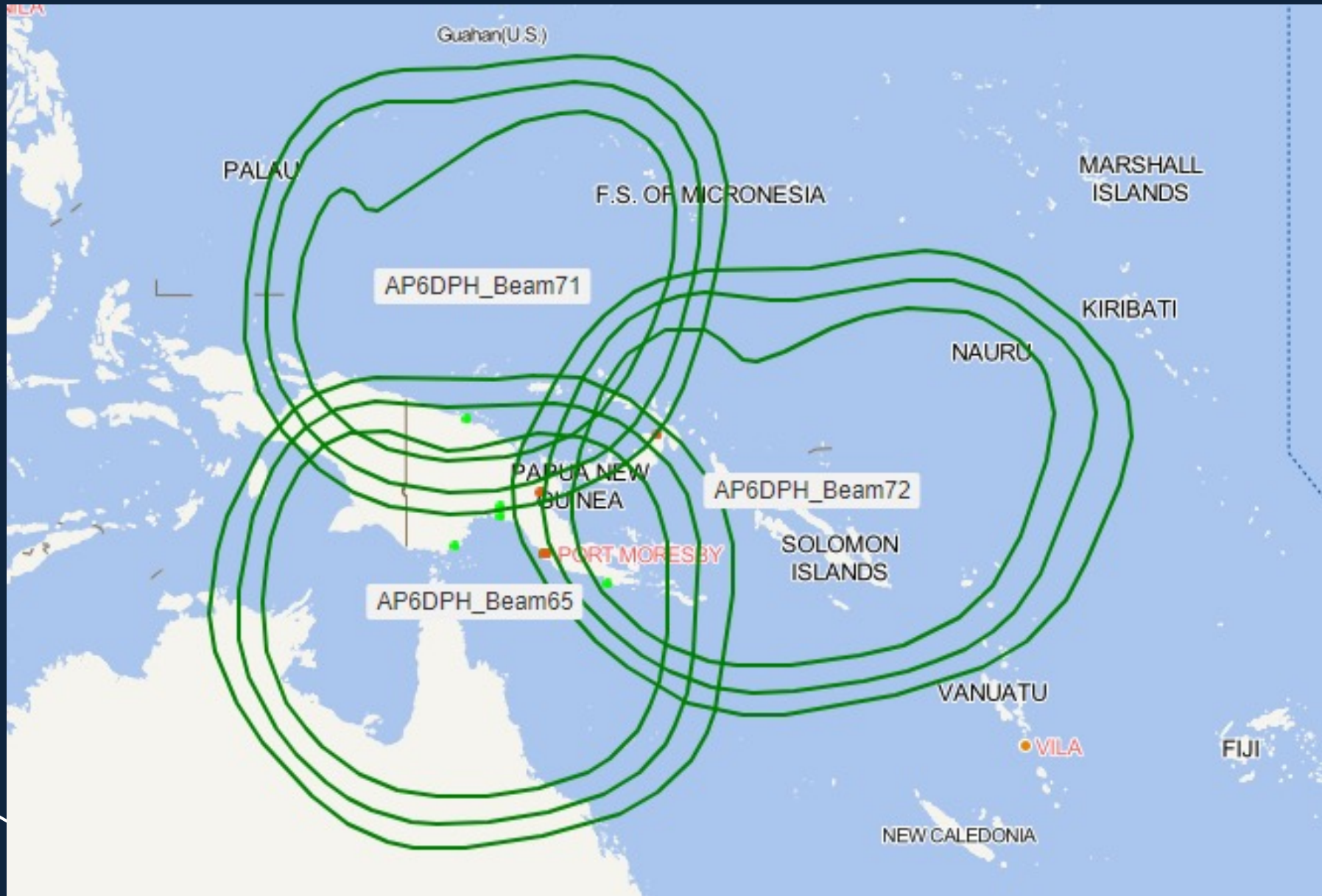
KYMETA™



HAWK™
u8

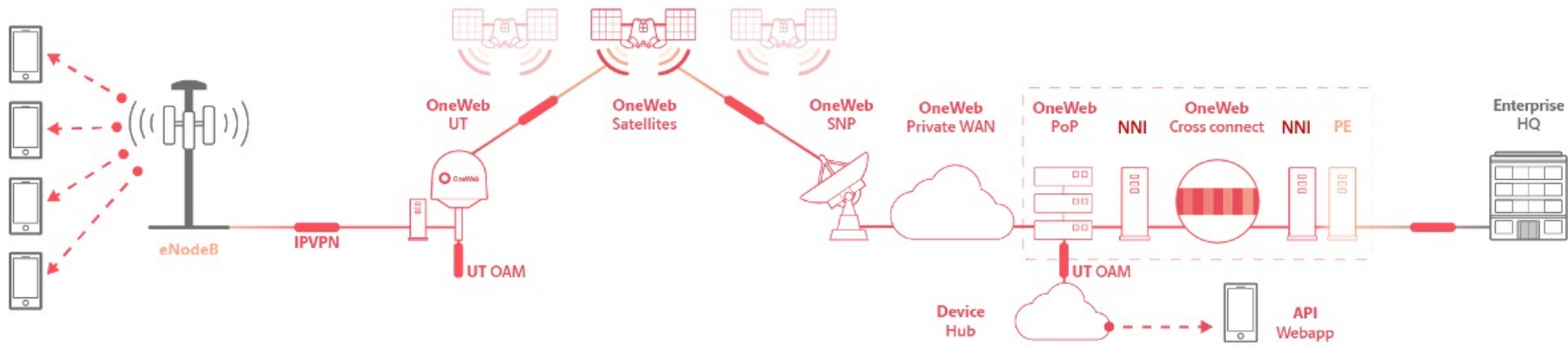


PEREGRINE™
u8



Fixed Market Offer Use Case Example

Rural Cell Backhaul	OneWeb Primary	Summary	An existing mobile operator wants to extend their mobile network using OneWeb as an IP backhaul		
		Solution	Dual Parabolic UT	Dedicated circuit 100/20mbps	Based on IPVPN

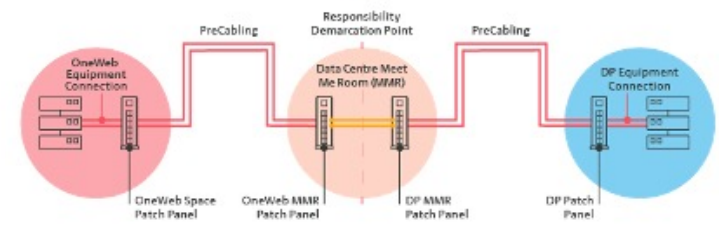


Partner	OneWeb	Partner
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Alarms
Interactive Control
Bulk logs

EF
AF
BE
Data

IPVPN



Fixed Market Offer Use Case Example

Community ISP



Summary

A rural ISP has existing GEO capacity, but wants to upgrade the user experience. Low latency traffic is sent over the LEO link, and buffered OTT video via GEO.

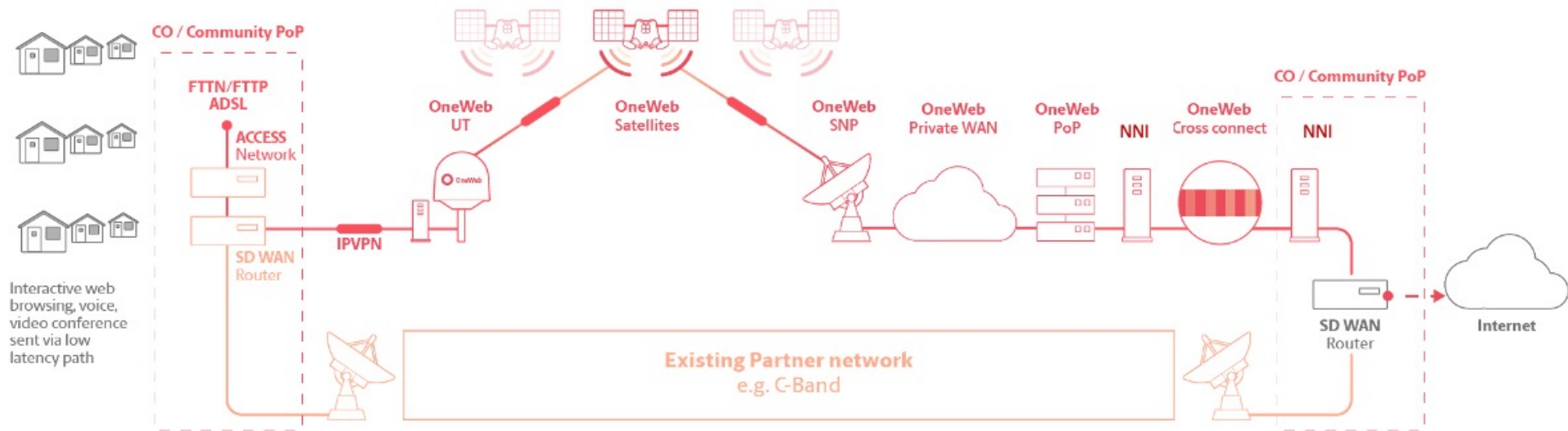
Solution

Dual Parabolic UT

Dedicated circuit
100/20mbps

Based on IPVPN
product

Cross Connect
at OneWeb POP



Partner

OneWeb

Partner

ADDRESSING ALL APPLICATIONS & USE CASES

A PORTFOLIO OF USER TERMINALS



CLASSIFICATION

CONFIDENTIAL



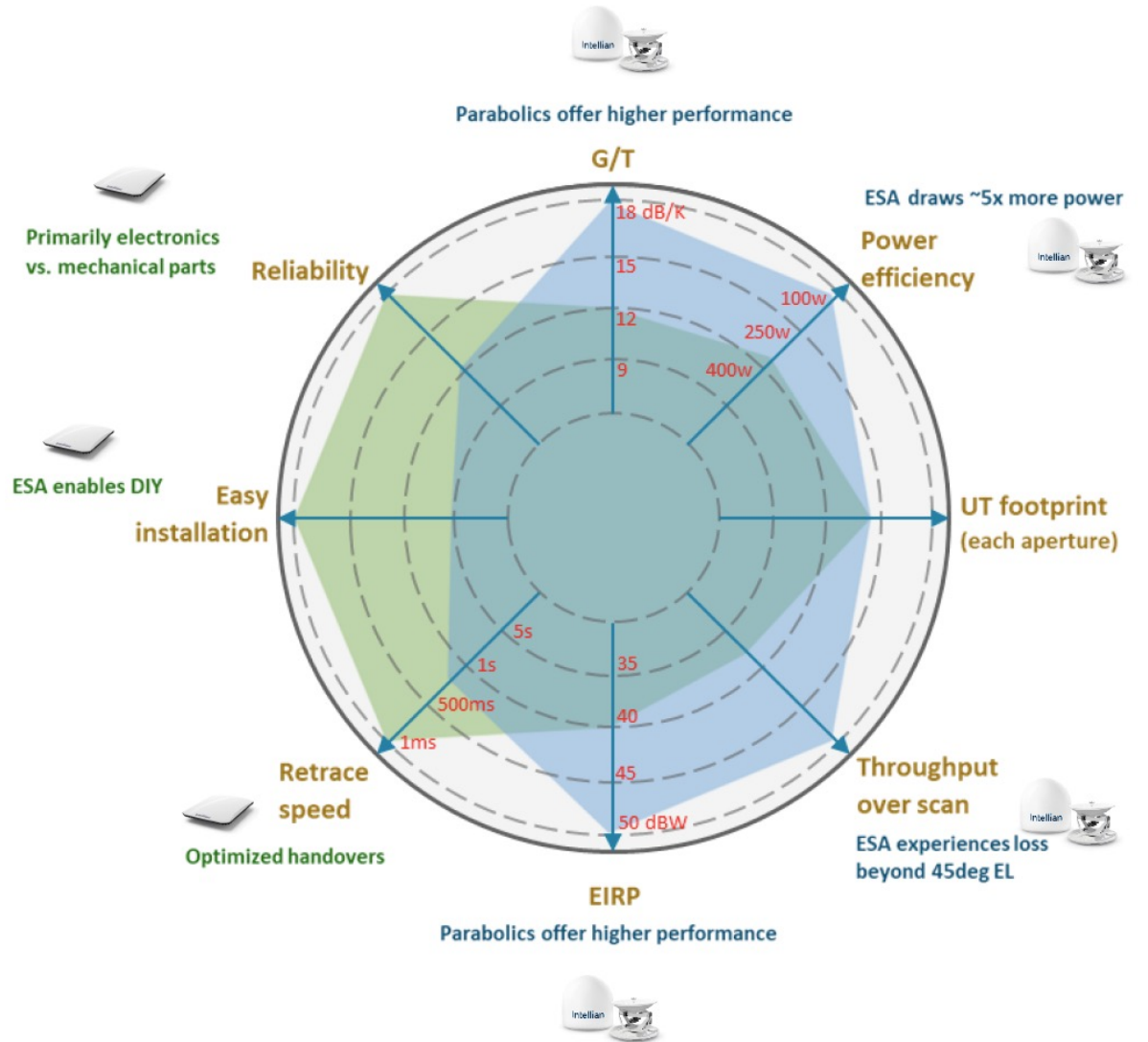
PHASED ARRAY UTs

Ideal for fixed, portable and land mobility cases, which require easy installation and basic throughput for individual users.



PARABOLIC UTs

Ideal products for land and maritime markets, where customers need high throughput, high link margin/SLA and can accept larger form factors.





Summary

The satellite industry is changing rapidly, allowing new technologies to supply services globally. These services have advantages and disadvantages, but they open up services to markets not previously possible, allow families to stay connected, business to make real time decisions remotely, and the world to stay connected.





Thank you

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