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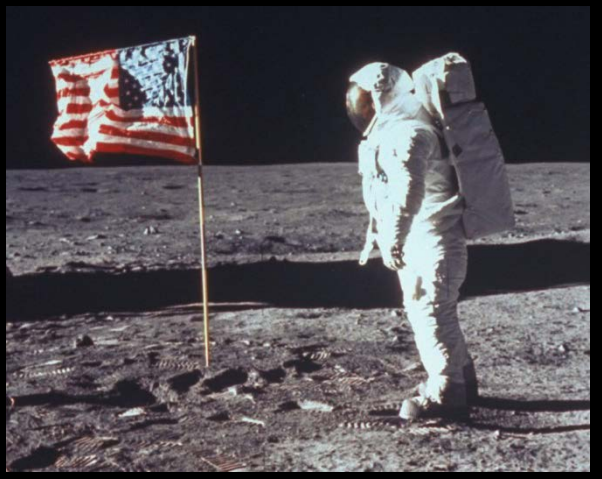
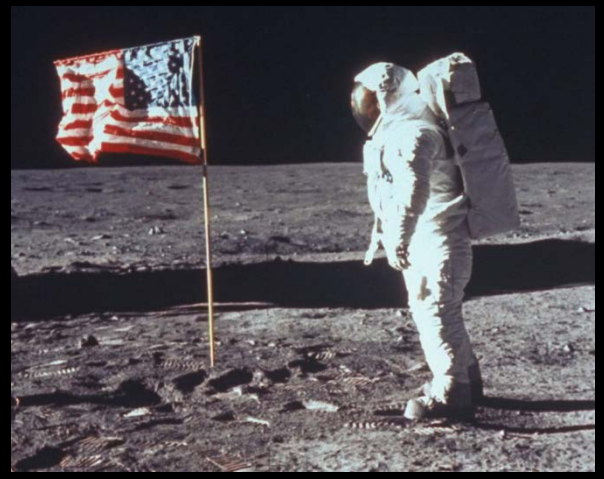
Robert Suber

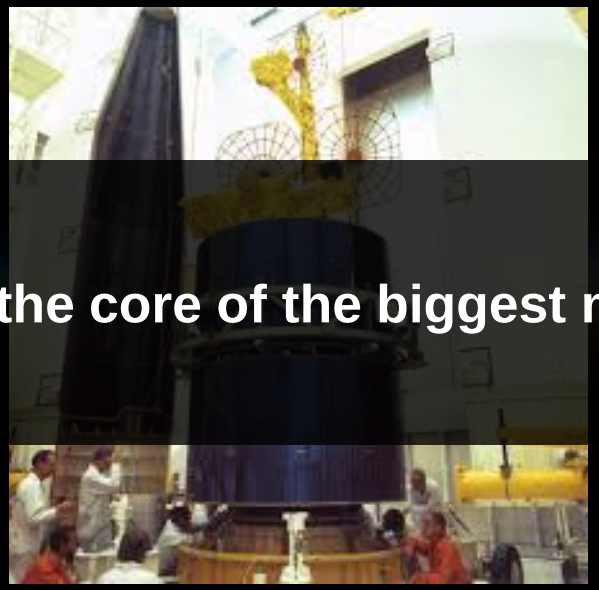
Managing Sales Director, Asia Pacific Sales

OUR STORY: THE NEW INTELSAT



FEED THE WORLD
JULY 13th 1985 at WEMBLEY STADIUM
LIVE AID
LIVE AID





Intelsat has been at the core of the biggest moments in communications… and the world

Market Trends

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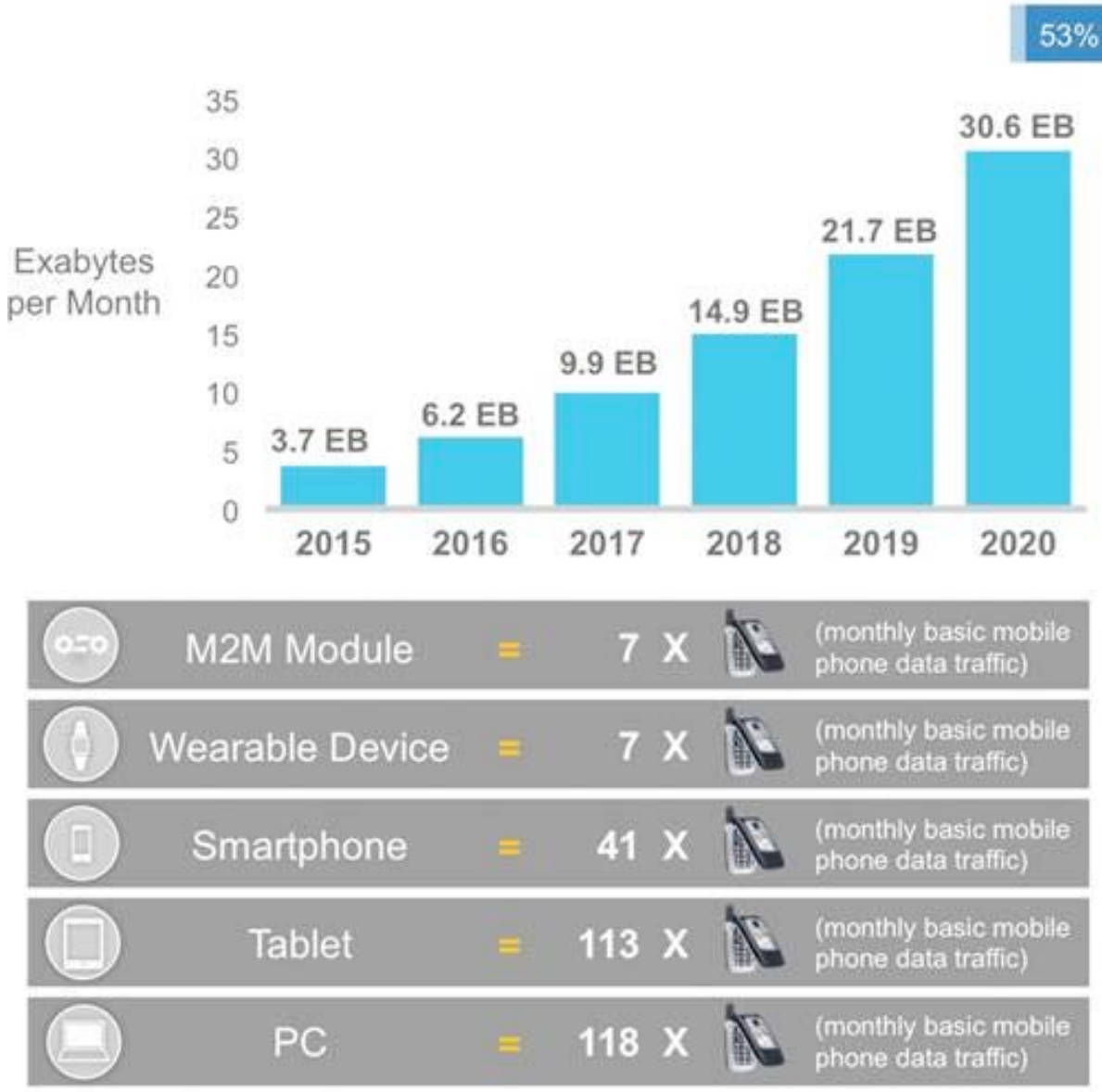
Mobile Data Traffic Continues to Grow……We All Know It!



Device Type	2015	2020
Nonsmartphone	23 MB/month	116 MB/month
M2M module	164 MB/month	670 MB/month
Wearable device	153 MB/month	558 MB/month
Smartphone	929 MB/month	4,406 MB/month
Tablet	2,576 MB/month	7.079 MB/month
PC	2,679 MB/month	5,232 MB/month

Source: Cisco VNI Mobile, 2016

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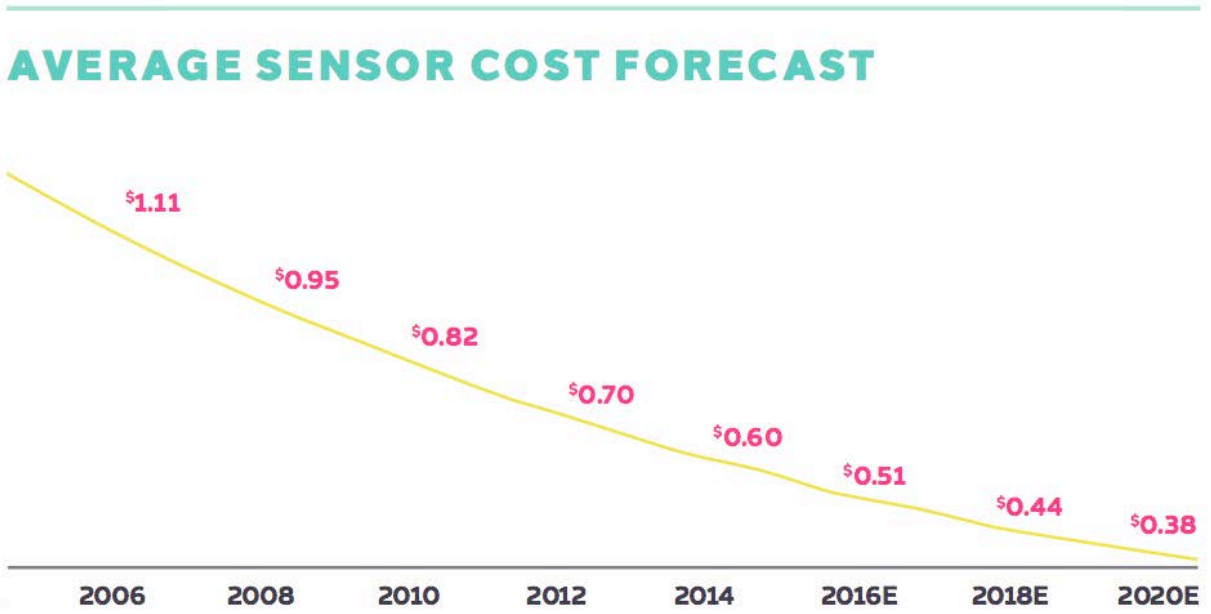
But What Else Will Be Driving Data Traffic Growth?



Source: *Business Insider*, "The Internet of Everything: 2015 [Slide Deck]," by John Greenough, BI Intelligence, April 8, 2015. http://www.businessinsider.com/internet-of-everything-2015-bi-2014-12?op=1

Both Consumer Demand and Internet of Things will Drive Data Traffic Growth

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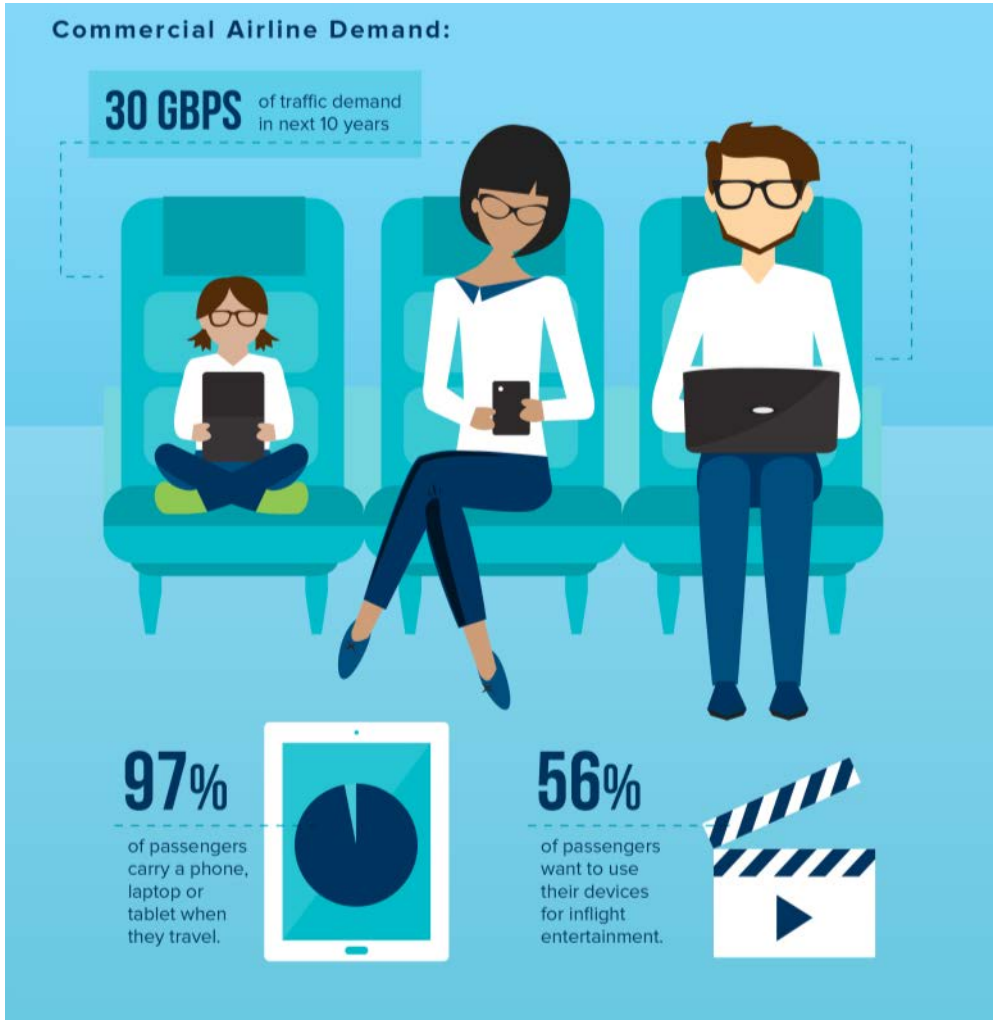
The Connected Plane

Consumer Demand



Internet of Things

The engines on a 787 Dreamliner generate 1 TB of sensor data a day

The latest Airbus A350 will generate 2.5 TB of sensor data a day

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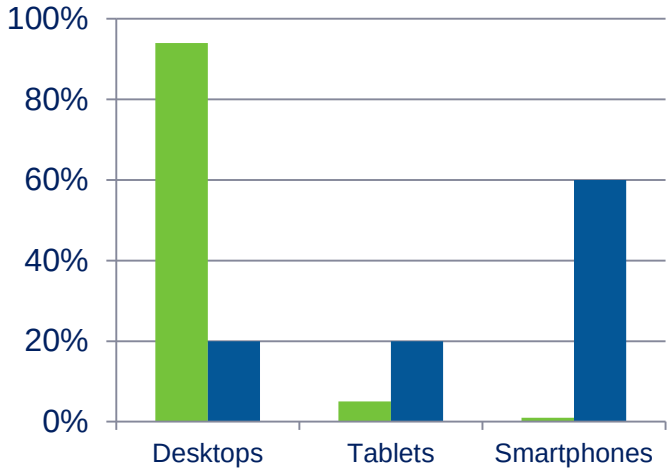
The Connected Ship

Consumer Demand

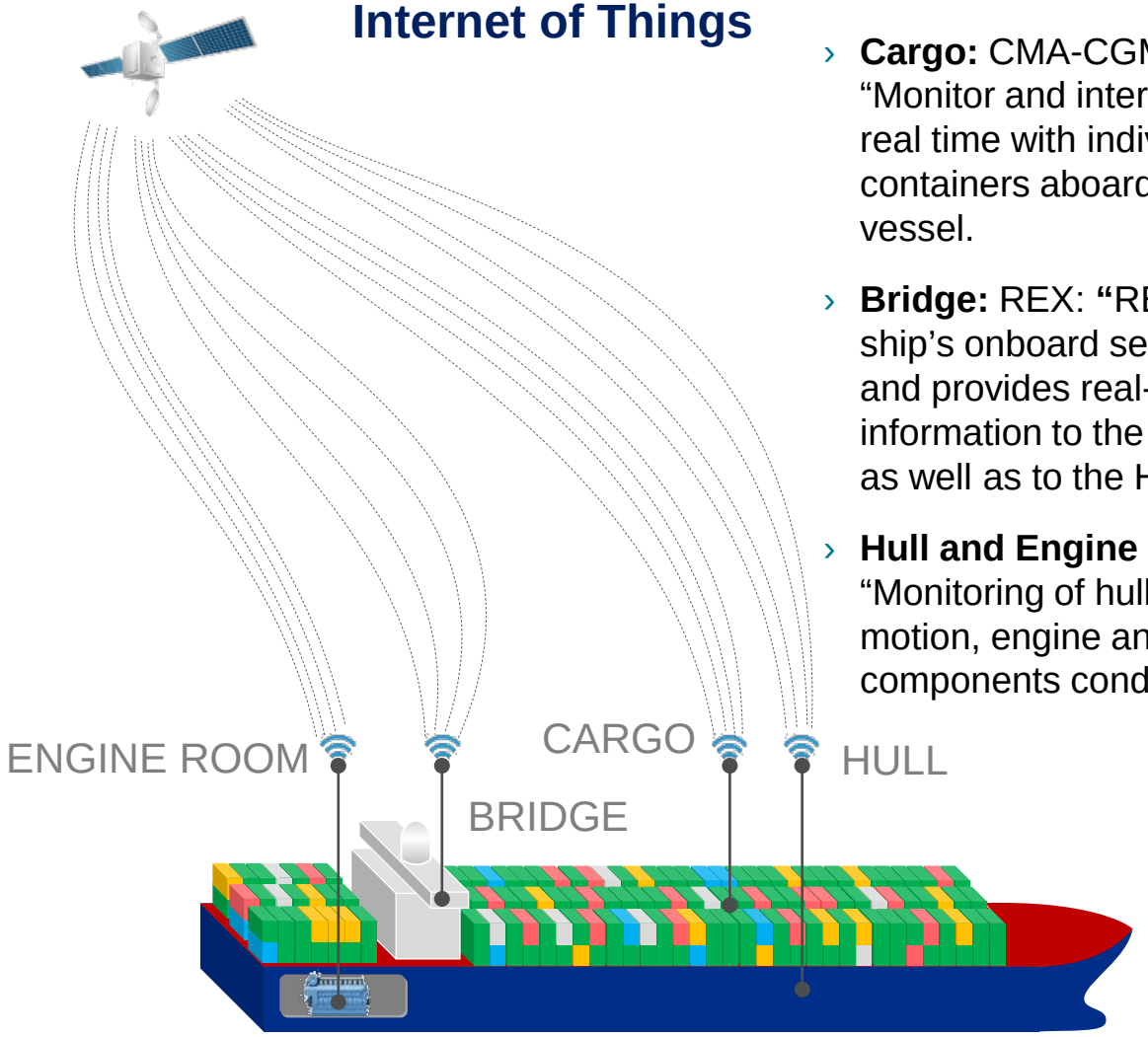
According to EMC(MTN), data consumption on the cruise ships it served increased 500% over a 2 year period (2013-2014)



Devices Used For Connectivity on Cruise Ships

Source: MTN Survey

Internet of Things



- **Cargo:** CMA-CGM: “Monitor and interact in real time with individual containers aboard the vessel.
- **Bridge:** REX: **“**REX reads ship’s onboard sensors and provides real-time information to the captain as well as to the HQ”.
- **Hull and Engine Room:** “Monitoring of hull stress, motion, engine and components conditions”

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The Connected Car

Consumer Demand

250 Hours Time a typical American commuter spends per year inside their car.

~50% Of all the car buyers wish to access their mobile applications when they are inside their cars.

Source: "The Internet on Wheels and Hitachi, Ltd." by Hitachi

Internet of Things

The sensors on a 2013 Ford Fusion already generate more than 25 GB of data an hour which are analyzed by more than 70 onboard computers

Source: Ford Motor Company

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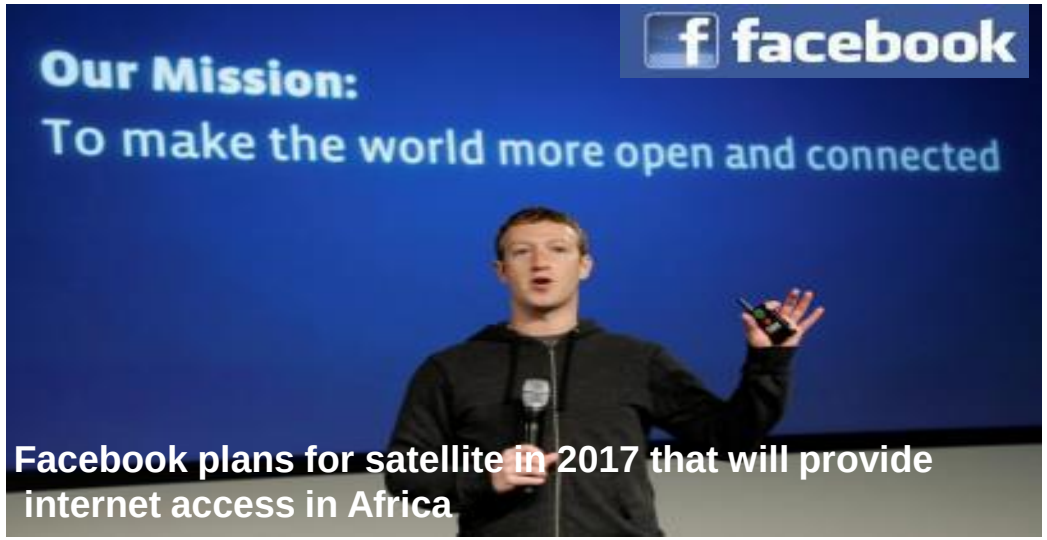
Innovation in the Industry

These internet giants and entrepreneurs are investing heavily in the satellite Industry …

Source: theinformation.com



Richard Branson

- Virgin Galactic
  - Re-usable
  - Space tourist
- OneWeb
  - LEO satellite constellation

Jeff Bezos: Founder of Amazon

- Owns Space company BLUE ORIGIN
- Launched and landed rocket vertically for second time Jan
- Great Inversion

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What has changed?

1. Redefining communication satellites

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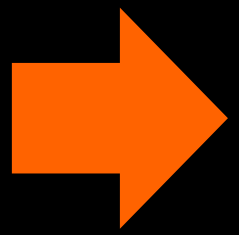
1. Redefining communication satellites

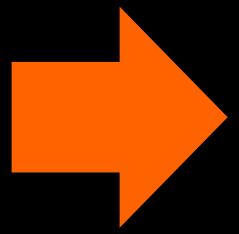
- Frequency reuse
- Concentration of power
- Digital payload



- More capacity
- More throughput
- Smaller antennas

2. Innovations in Rocket design

- Space X (Musk)
- Blue Origin (Bezos)
- Virgin Galactic (Virgin)

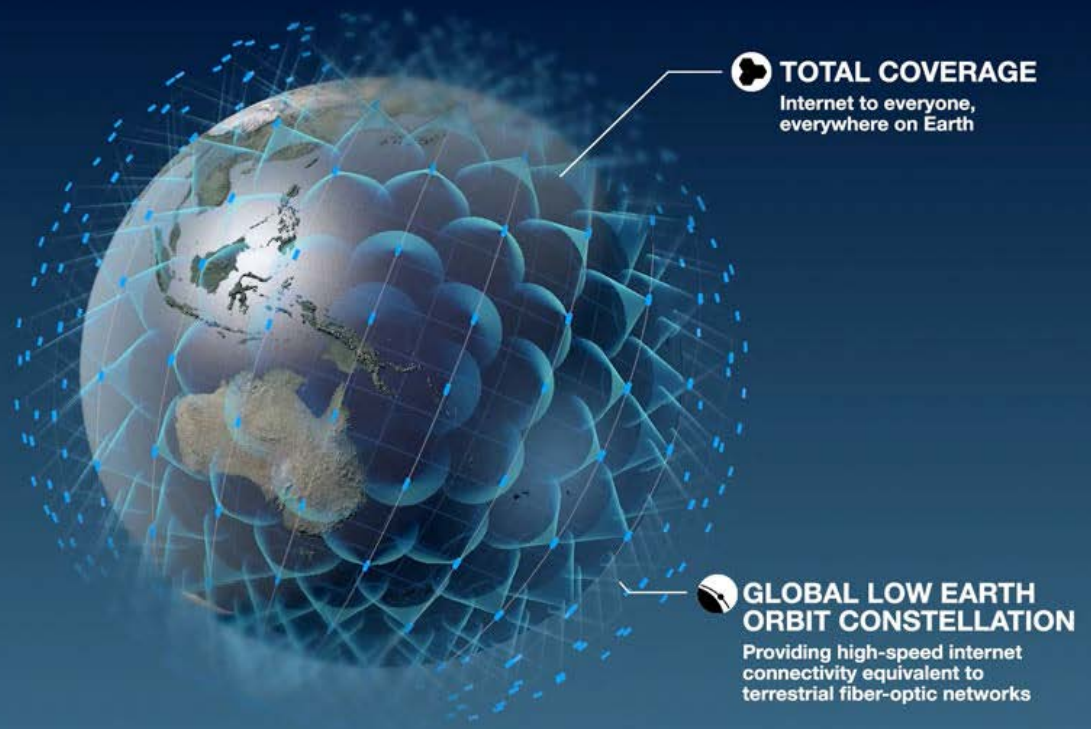


- More options
- Re-usable technology
- Cleaner/cheaper launches

3. New Satellite Constellations: OneWeb

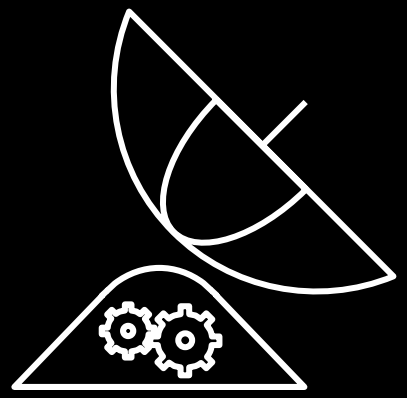
First and only fully global, pole-to-pole high throughput satellite system

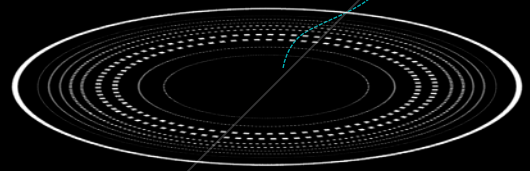
- The OneWeb satellite constellation
- 700 satellites (Constellation – 18 planes of 36 satellites)
- Low latency (<30ms round trip delay)
- Look angles > 57◦



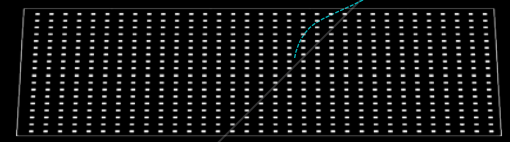
4. Redefinition of the satellite antenna

- Electronically Steered Antennas (ESA)
- No moving parts
- Ultrathin and light





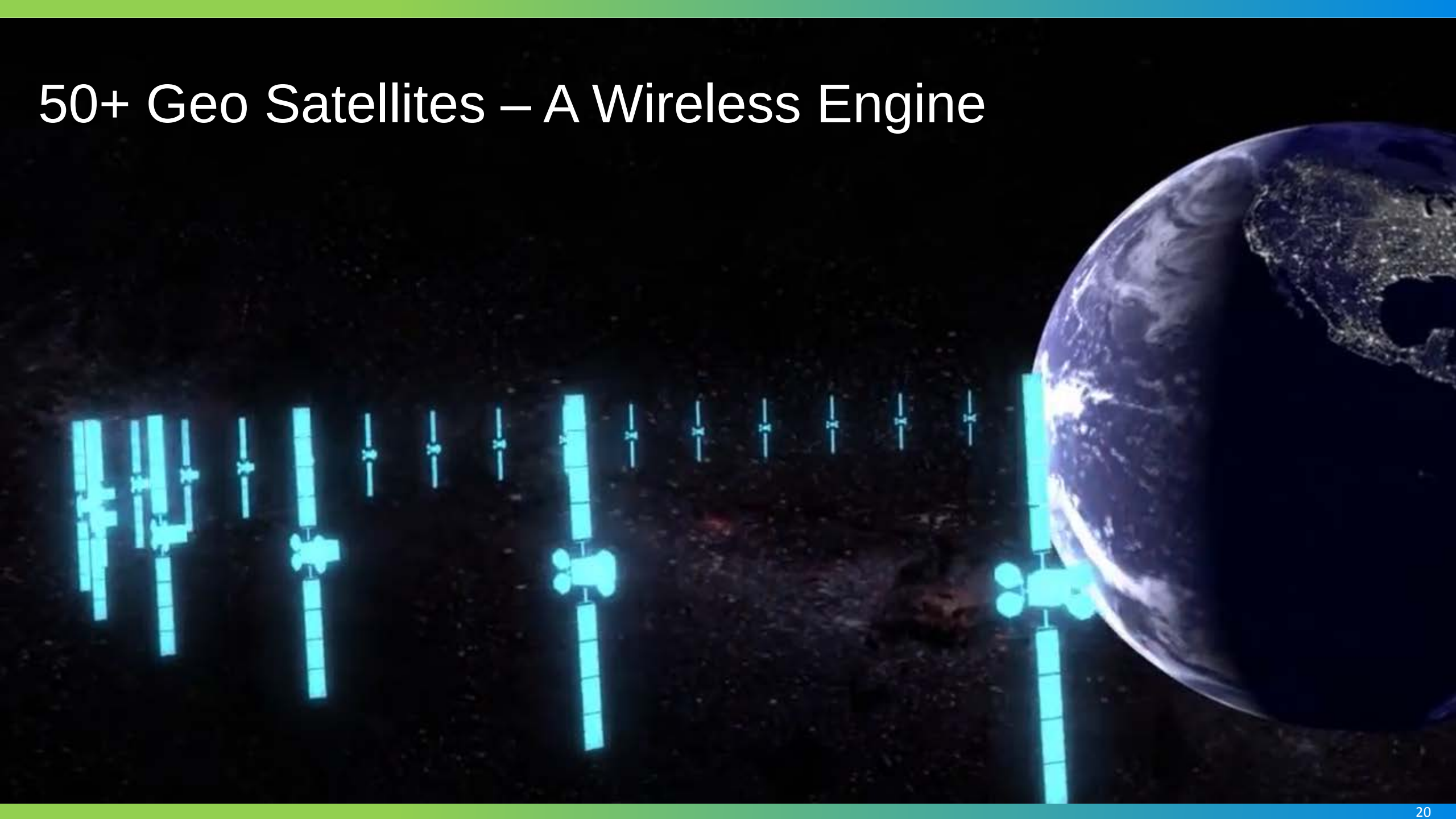
- Metamaterial
- Passive array



- Active phased array
- Panels may be laid CONFORMABLY

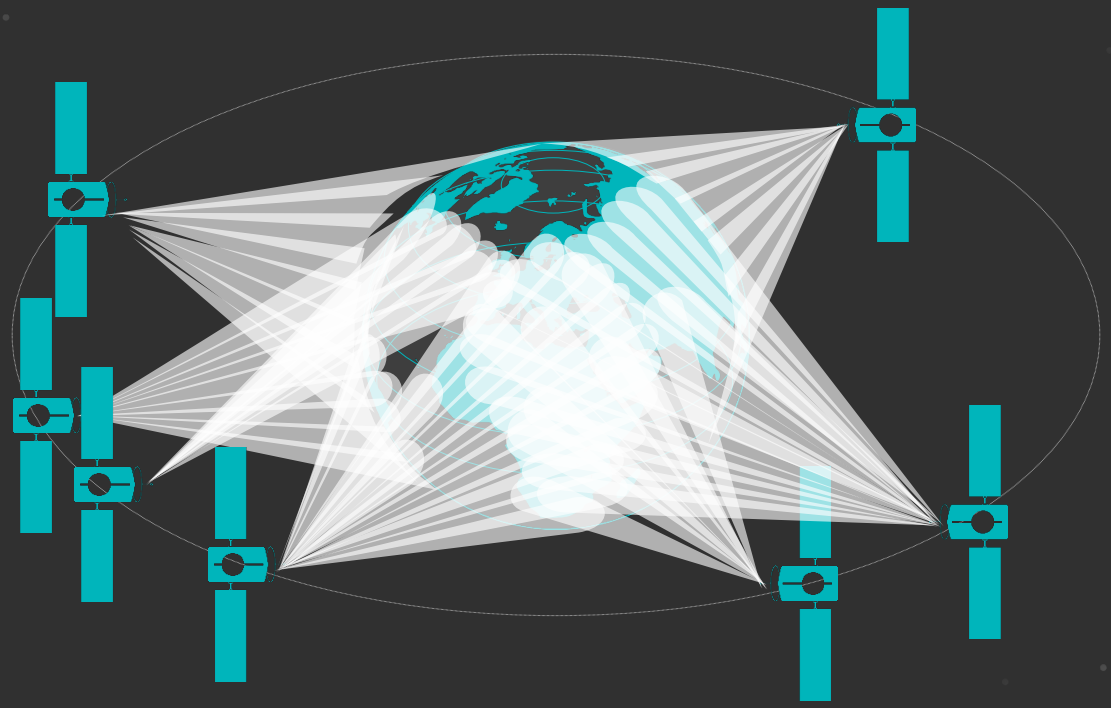
So, concretely…
what is Intelsat doing?

50+ Geo Satellites – A Wireless Engine



Intelsat Epic^{NG} – Delivering High Throughput Today

INTELSAT Epic^{NG}®



Launching 7 Epic^{NG} satellites …and counting…

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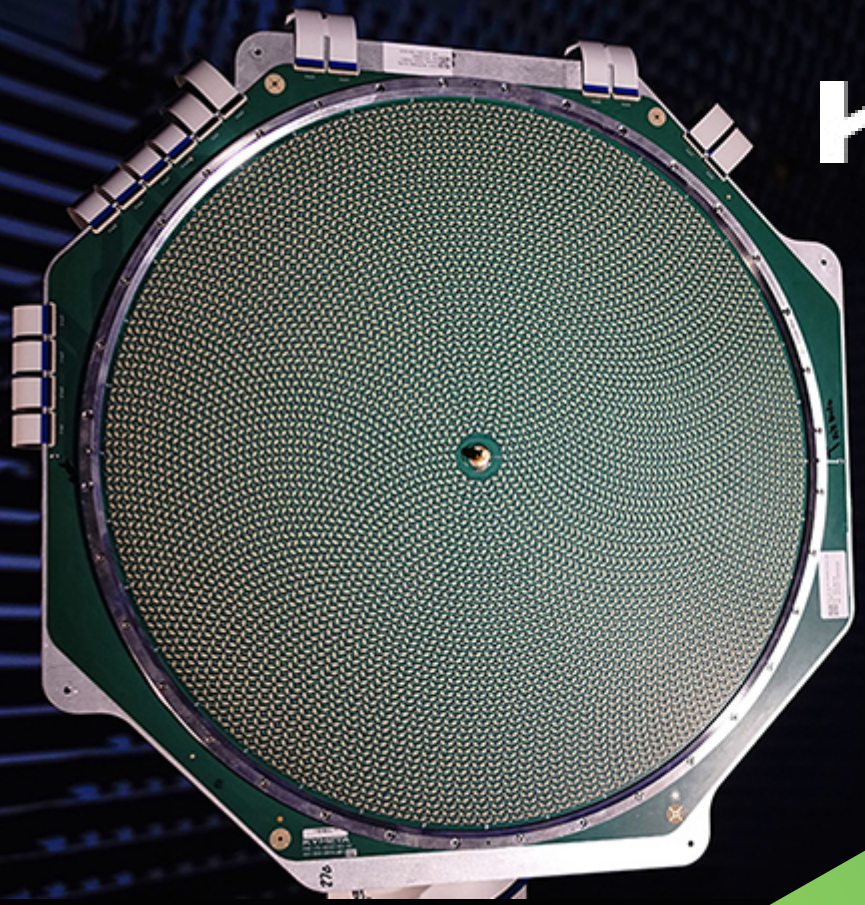
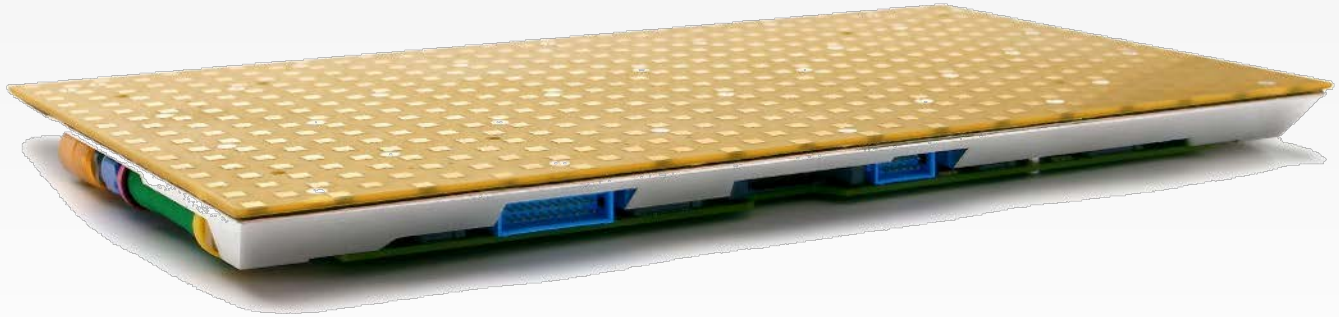
KYMETA™

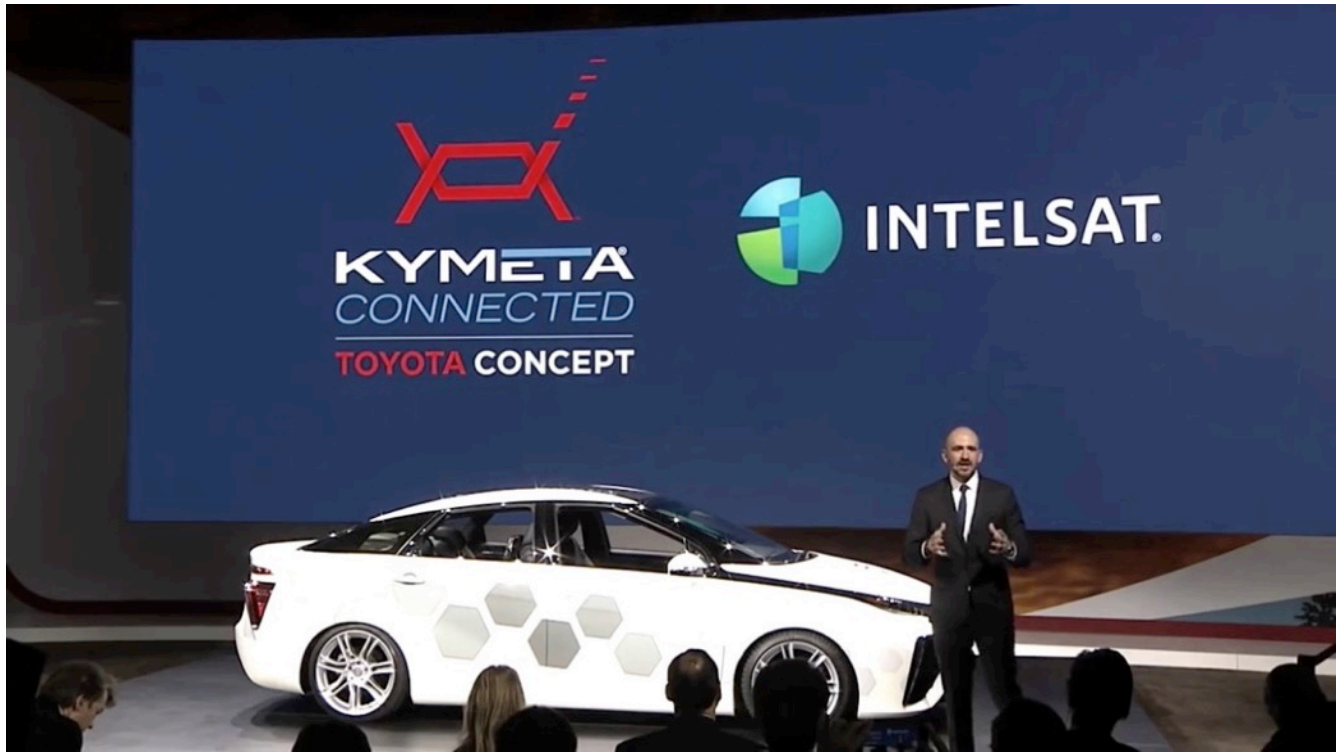


Access Technology



PHASOR

Kymeta for The Connected Car



Kymeta/Intelsat solution will be designed to deliver 1 TB of data per month to each car

Source: Kymeta

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OneWeb

First and only fully global, pole-to-pole high throughput satellite system

- Complements Intelsat's geostationary orbit ("GEO") satellite services
- Enables coverage over the Earth's poles and in urban canyons (Look angle >57º)
- Provide global Ku-band high throughput coverage over certain great circle routes, such as via the North Pole
- Low latency (<30ms round trip delay)

Credit: Airbus Defence and Space

So, How are other countries using satellite?

Isn’t satellite old technology only being used in the developing world?

USA and satellite for Broadband

- It is estimated that 10 to 12 Million homes in USA can not access broadband internet or have very limited access
- Two companies, Hughes and Viasat have launched high throughput satellites to address this demand.
  - Viasat launched ViasSat 1 October 2011, a 130 Gbps satellite and are in the process of launching a second satellite, Viasat 2 (to be launched mid-2016), to meet this demand.
  - HughesNet launched Jupiter 1, July 2012 and a building Jupiter 2 for a planned launch of mid 2016
  - This reflects investment of over $2 Billion by commercial entities in this market
- To date they have connected over 1.2 Million homes and are adding 100,000 users per quarter

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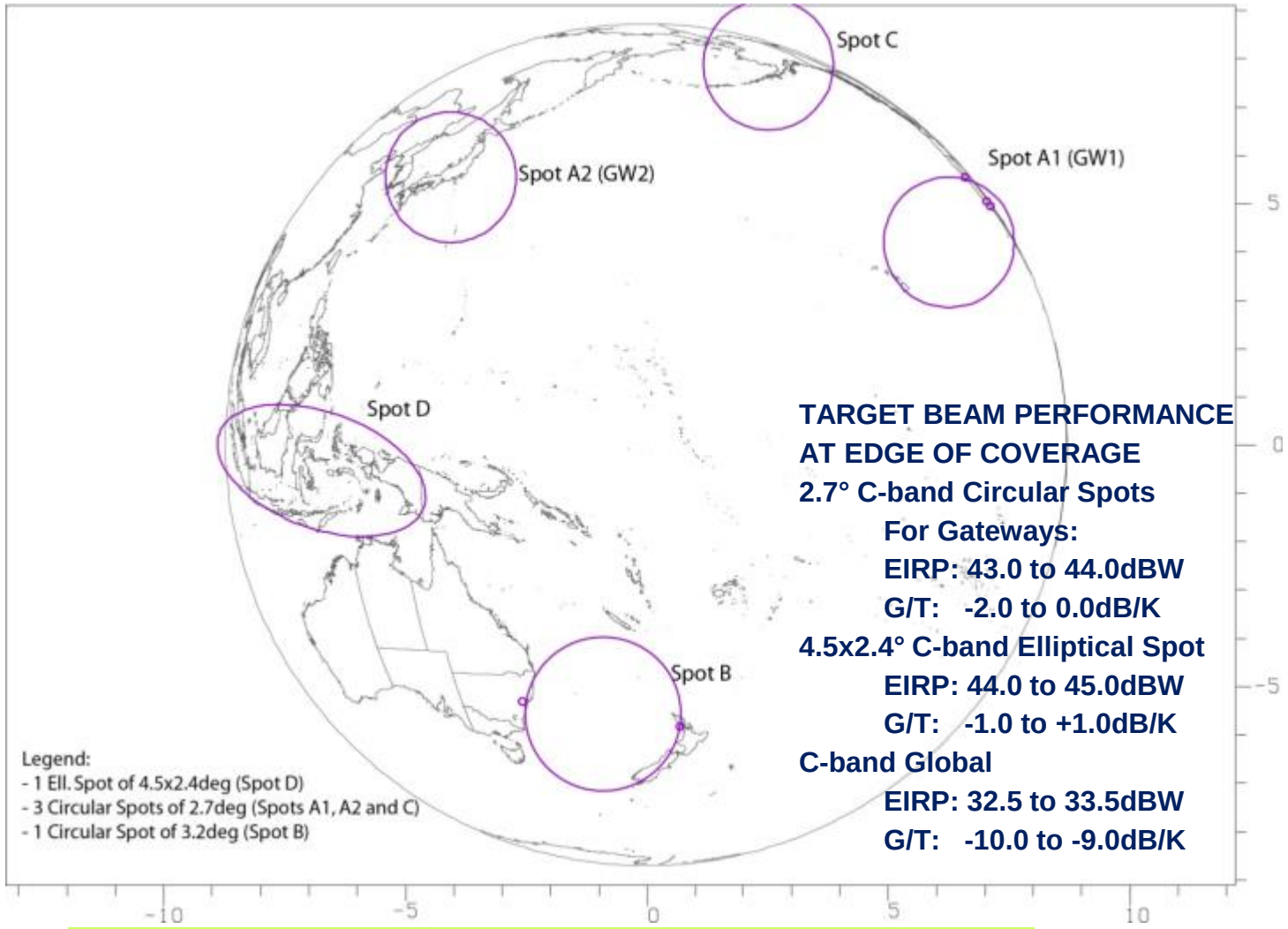
Australia: NBN Background

- NBN Co is a Government Enterprise tasked to design, build and operate a high speed broadband network for all Australians.
- NBN Co's Long-Term Satellite Service (LTSS) is a $2 billion national infrastructure investment that is designed to provide high-speed broadband coverage to homes, businesses and farms in some of the most isolated communities in Australia.
- Skymuster has been scaled to provide services to 300,000 subscribers, or the “last” 3% of Australian households.
- Skymuster is a Wholesale Ethernet product suite providing access service for Retail Service Providers (RSPs). Service Profile 25/5 Mbps.
- 3,000 orders in first two weeks of service
- 650 technicians trained to perform up to 10,000 installs per month

169E Epic^{NG} Satellite Proposed C-band Beams



TARGET BEAM PERFORMANCE AT EDGE OF COVERAGE

2.7° C-band Circular Spots

For Gateways:

EIRP: 43.0 to 44.0dBW

G/T: -2.0 to 0.0dB/K

4.5x2.4° C-band Elliptical Spot

EIRP: 44.0 to 45.0dBW

G/T: -1.0 to +1.0dB/K

C-band Global

EIRP: 32.5 to 33.5dBW

G/T: -10.0 to -9.0dB/K

- C-band spot beams A1 and A2 are for Mobility Gateways with cross-connect to Ku-band only
- C-band spot beam B for Auckland or Sydney Gateways to support Pacific Islands mission also with cross-connect to Ku-band only
- C-band spot beams C and D are loop-back only to support customer specific missions in Alaska and Indonesia, respectively - capacity is shared to provide some risk mitigation

Note: Spot B role is to support Auckland and Sydney Gateways for the Pacific islands.

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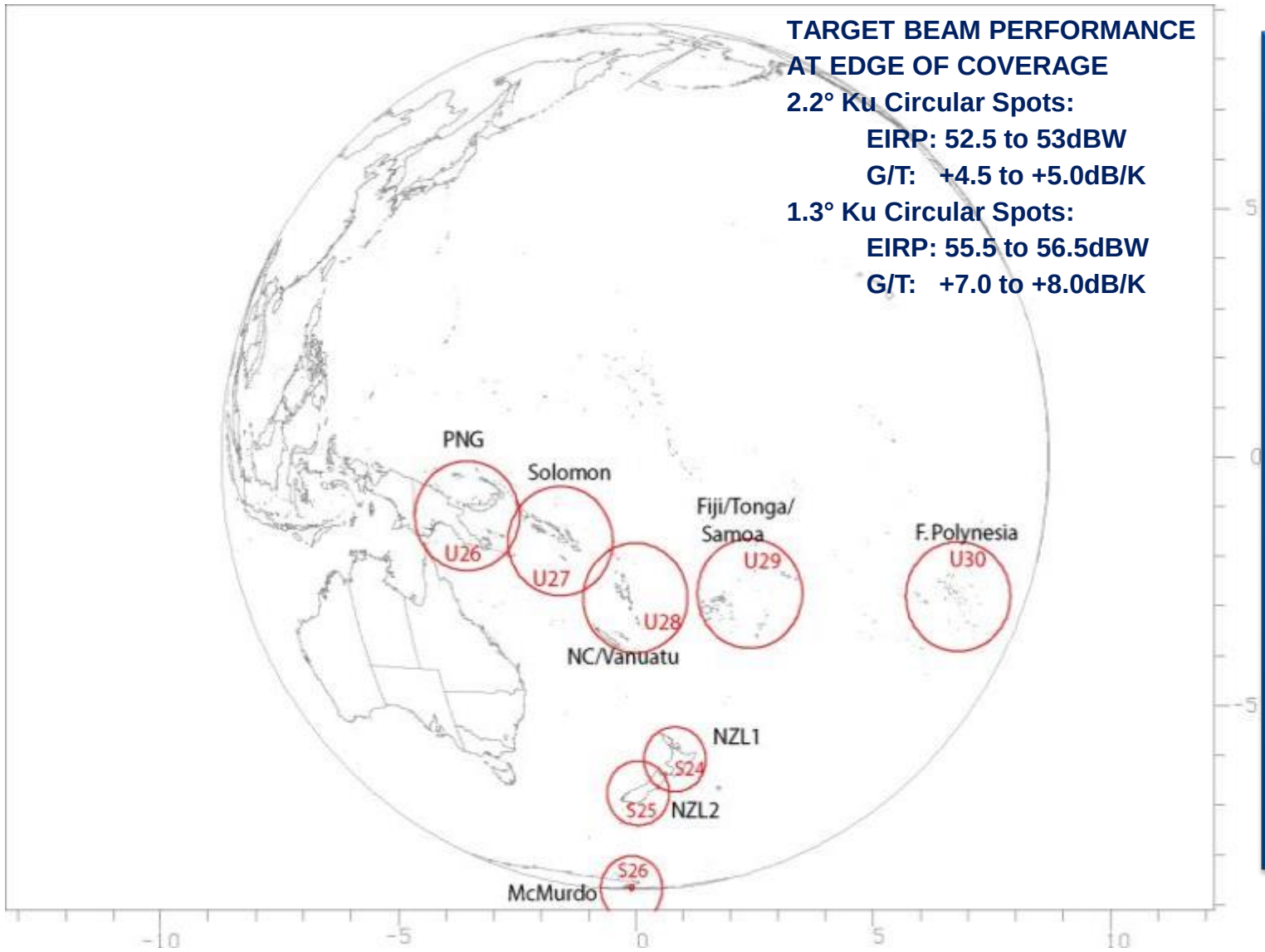
Ku-band Beam Coverage for Pacific Islands



- 5 x 2.2° Spots over Pacific islands
- 3 x 1.3° spots over NZL and McMurdo Base
- Target service applications:
  - Cellular Backhaul
  - Consumer & Community Broadband
  - International & Domestic Trunking
- As mostly new ground network deployment, high performance spot beams reduce cost of new antennas
- Flexible C to Ku-band connectivity facilitates service provision by Pacific Rim service providers

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Thank you

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