



# CIVAL AVIATION MEETING Ghana 2019

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# Agenda

- 1) Civil Aviation Satellite Coverage / Reach into Africa
- 2) Civil Aviation Network Customers
- 3) Challenges
- 4) C-band Spectrum Risks & Protection
- 5) Intelsat's Global Infrastructure
- 6) Satellite Trends





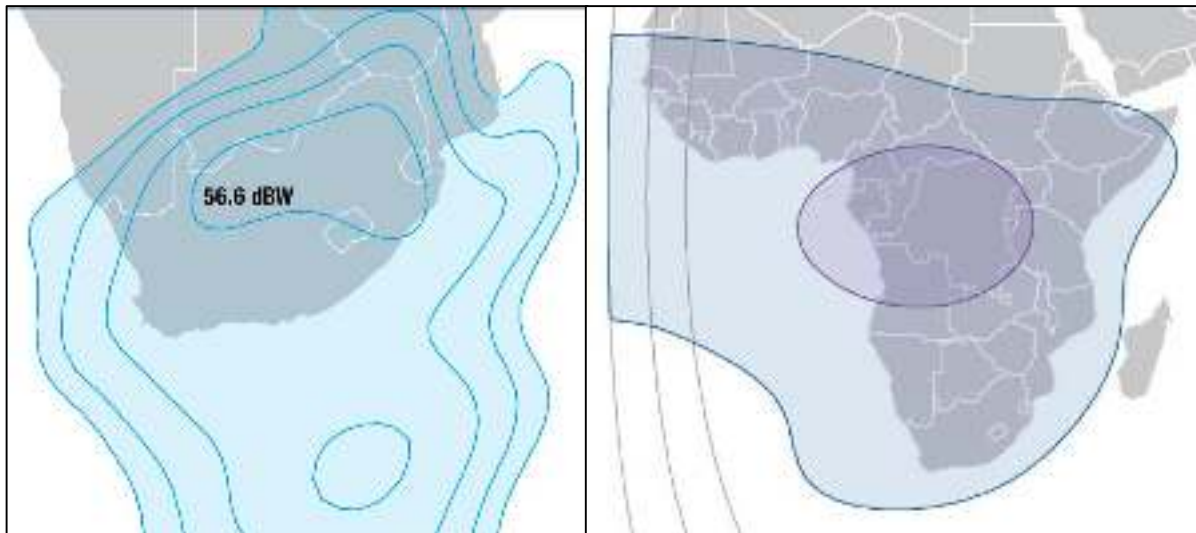
# **Intelsat Coverage for Civil Aviation in Africa**

# Civil Aviation Satellite Coverage / Reach into Africa

4 Satellite utilized to provide connectivity across Africa

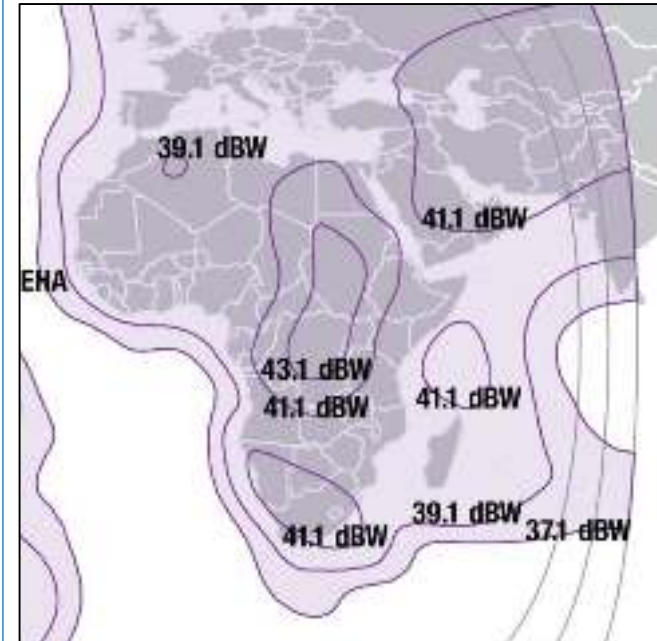
Satellite	Country	Frequency Type
IS-10 02	Africa, Mauritius	C-band
IS-38	South Africa	Ku-band
IS-37e	Africa	C-band
IS-33e	Angola	C-band

Total Capacity Across the Satellites = ~60 MHz

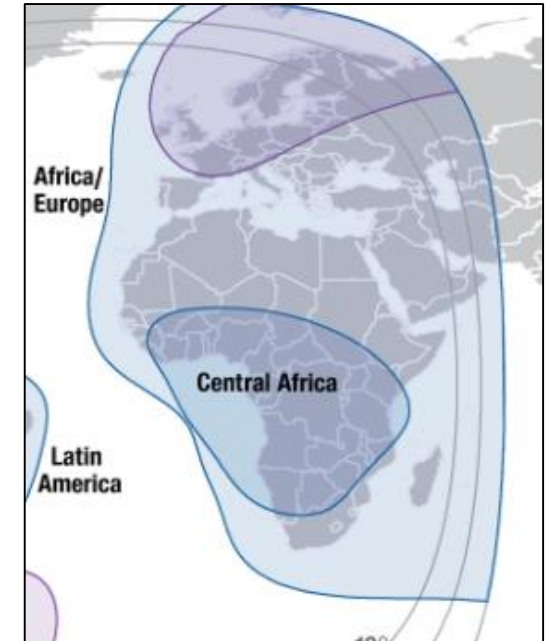


IS-38 – Ku-band

IS-33e – C-band



IS-10 02 – C-band



IS-37e – C-band

# Civil Aviation Network Customers

	Name	Country	AFISNET	NAFISAT	CAFSAT	SADC
1	Nigerian Aviation Management Authority (NAMA)	Nigeria	X			
2	Kenya Civil Aviation	Kenya		X		
3	ATNS	South Africa				X
4	ONDA (Morocco Civil Aviation)	Morocco			X	
5	ASECNA	Senegal	X			
6	Roberts Flight	Guinea Conakry	X			
7	Ghana Civil Aviation	Ghana	X			
8	Mauritius Civil Aviation	Mauritius				X
9	Regie Des Voies Aeriennes	DRC				X

A man in a high-visibility yellow and white safety vest and a white polo shirt with a 'CREW' name tag is kneeling in an aircraft hangar. He is holding a clipboard and a pencil, looking directly at the camera with a serious expression. The background shows the interior of an aircraft with various mechanical parts and a red hanging strap.

# Civil Aviation Challenges

# Challenges

- Ubiquitous Coverage required
- New Routes opening up
  
- Able to connect and deploy overlay networks of dispersed Civil Aviation Groupings



- Operate & connect dissimilarly networks & equipment as part of a global/regional Civil Aviation's Network
- Non-Standardization of Ground Infrastructure

- Cost associated of implementation of a dedicated back-up system
- Ground Segment; and or
  - Space Segment

A satellite is shown in orbit above the Earth. The satellite has a central body with several white parabolic antennas and two long solar panel arrays extending outwards. The solar panels are covered in a grid of red and white lines. The Earth's surface is visible below, showing a mix of blue oceans and brown/green landmasses. The background is the dark space of the planet with some stars.

# C-band Spectrum Risks & Protection



# C-band facts & figures for Africa

Sub-Saharan Africa Population: 1.061 Billion (2017)

50+

Number of C-band satellites serving Africa  
(20 of which belong to Intelsat)

500+

Number of TV Channels distributed in Africa by C-band

80M+

Number of Nigerians who rely on C-band for access to TV content

20M+

Number of airline passengers in Angola, Nigeria, & DRC who relied on C-band air navigation

**Satellite services in C-band play a critical role in Africa's economy**

# Critical telecom sectors rely on FSS C-band



**Mobile Backhaul:** The most practical way to bring mobile telephony to remote areas



**Broadcasting:** The only robust way to bring TV and next generation video across the whole territory



**Oil & Gas:** The most reliable way to connect exploration sites and offshore platforms



**Humanitarian Programs:** C-band recognized as a standard by the UN for emergency communications



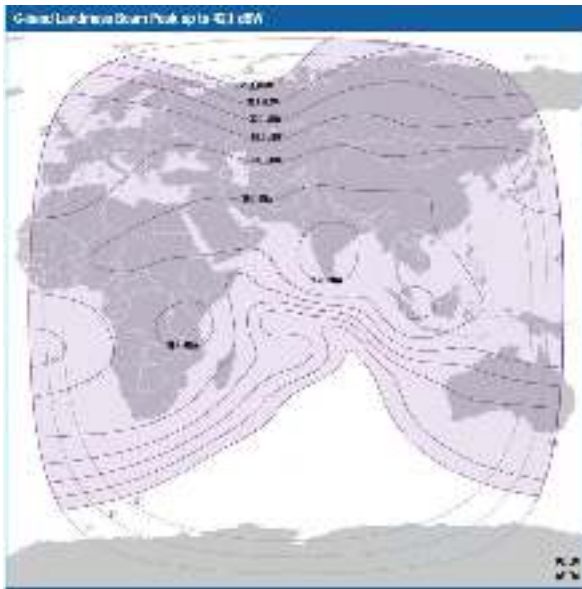
**Air Navigation & Meteorology Services:** The only solution for high reliability and wide coverage



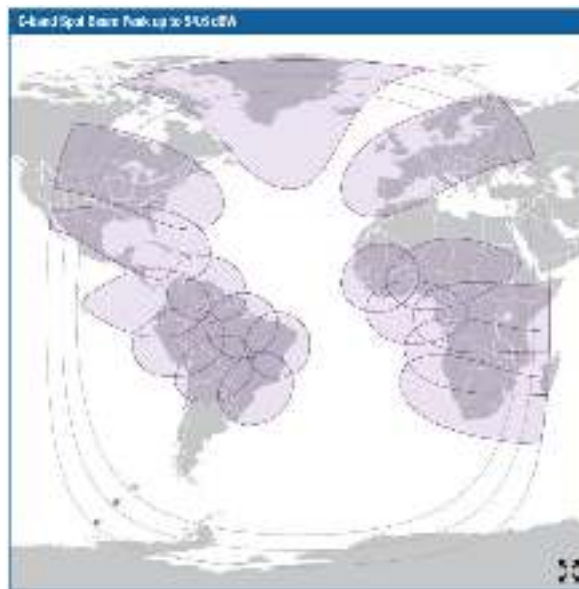
**Maritime:** The only solution for vessels in remote regions/ long routes

# Why C-Band remains the distribution platform of choice

The most efficient, reliable, and economical medium for distribution of Media distribution



Intelsat 20 at 68.5° E  
(Traditional wide beams)



Intelsat 35e at 34.5° W  
(Channelized multi-spot beams)

- **REACH:** C-band beams cover large geographic areas, facilitate intercontinental and global communications.
- **ECONOMICS:** 100s of thousands of installed earth stations around the world; over a hundred satellites in orbit, global reach, and distribution efficiency
- **RESILIENCE:** C-band has unique propagation and coverage characteristics that cannot be replicated in other frequency bands

An aerial photograph of a satellite ground station. The central focus is a large, white, parabolic satellite dish antenna mounted on a complex metal structure. To its left is a large, modern, light-colored building with a flat roof. In the background, several smaller satellite dishes are visible on a hillside. The facility is surrounded by green fields and a clear blue sky. The text "Intelsat's Global Infrastructure" is overlaid in the bottom left corner.

# Intelsat's Global Infrastructure

# Global and multi-layer resilient infrastructure

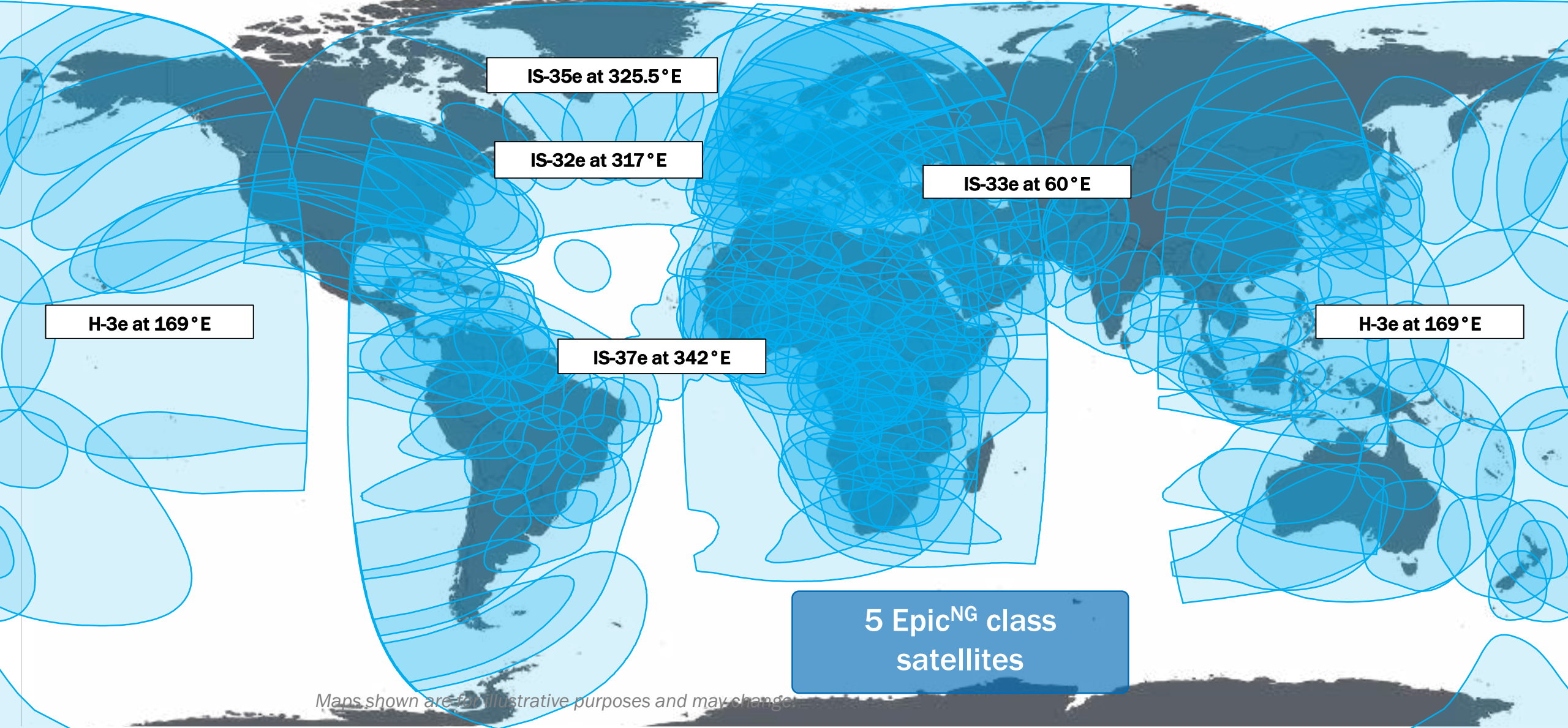
The scale of our fleet, with over 50 satellites, provides redundancies in coverage and offers performance flexibility to support your business and your customers





# Layering of the Epic<sup>NG</sup> satellites:

## An Overlay to the Existing Global Network Capacity



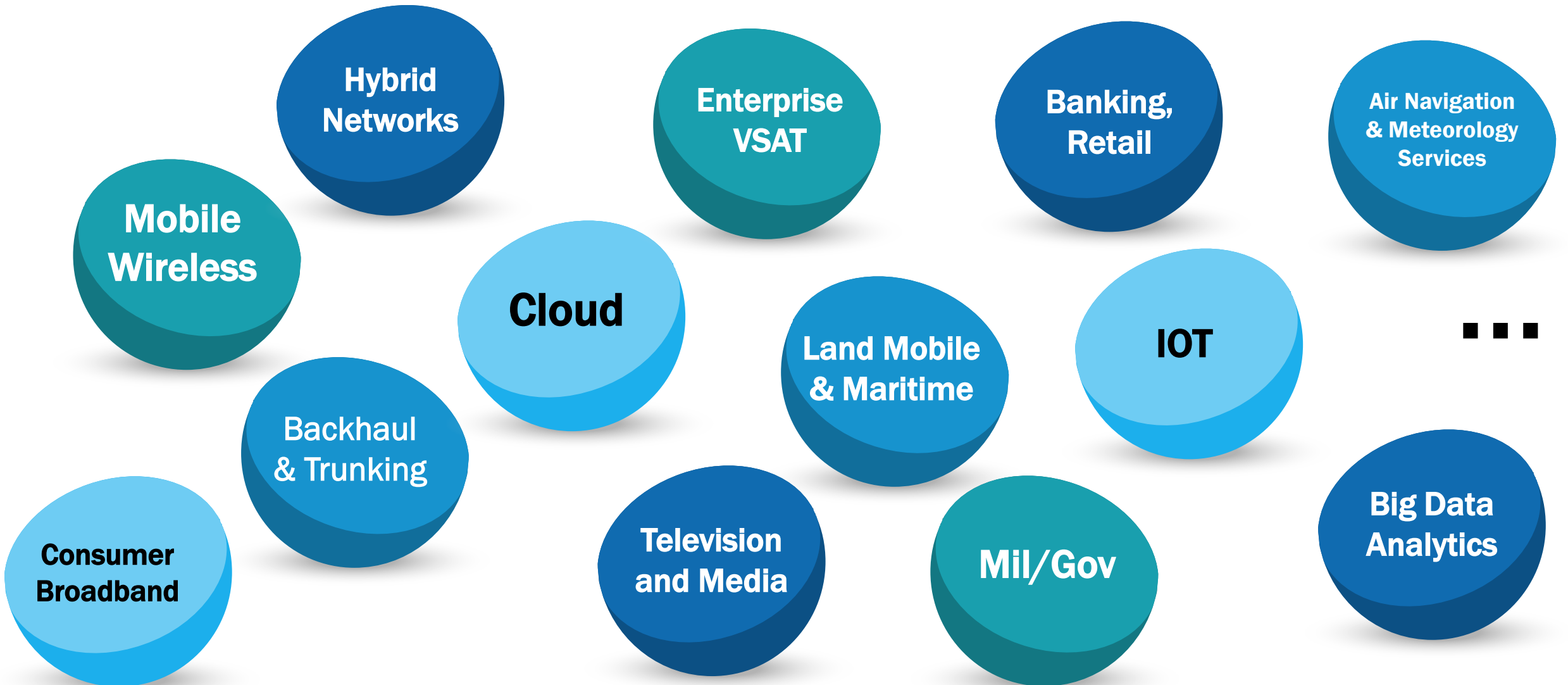
*Maps shown are for illustrative purposes and may change*

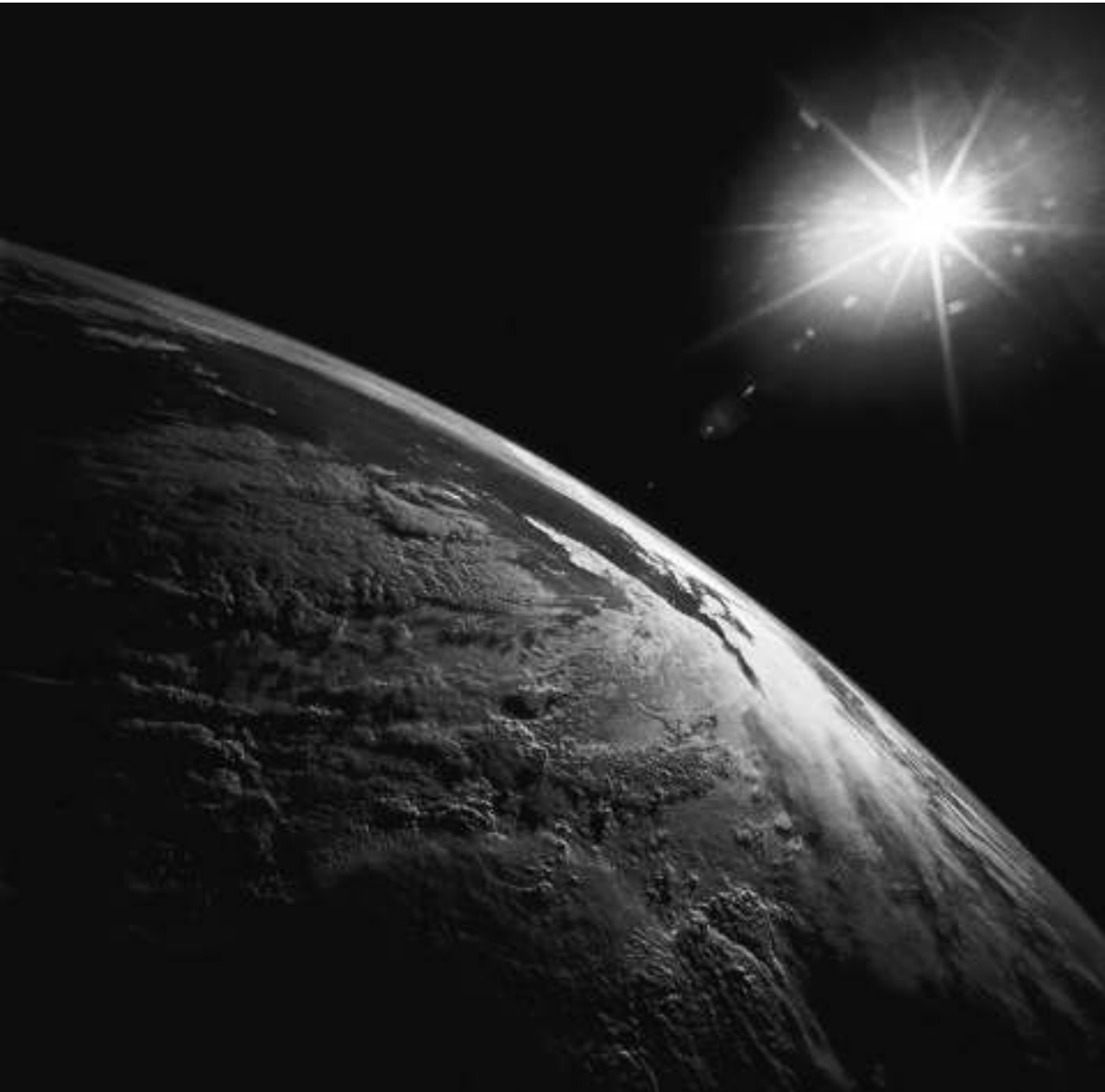
# Satellite Trends

A view of Earth from space, showing the horizon and a starry sky. The Earth's surface is visible at the bottom, with a bright blue glow along the horizon. The sky is dark blue with many small white stars.



# Satellite Plays a Key Role in the Global Market Trends





# The next generation of high throughput satellites

## New level of service flexibility

- Software-defined, can adapt to changing market demands
- Can operate from any orbital position
- Advanced digital beam forming payload
- 1000's of beams, 100 Gbps
- Faster time to market: 18 months
- 15-year life
- Small generic HTS (lower cost)
  - 5-6 beams, 2-10 Gbps
  - 7-year life




# Thank you

Lare Atcha-Oubou

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 <https://www.youtube.com/user/IntelsatMedia>

