



Striking a balance in the 3.8 4.2 GHz Band: Evolving Models and Emerging Opportunities

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Kevin Eisenhauer,
Senior Principal Regulatory Engineer , SES
GSOA



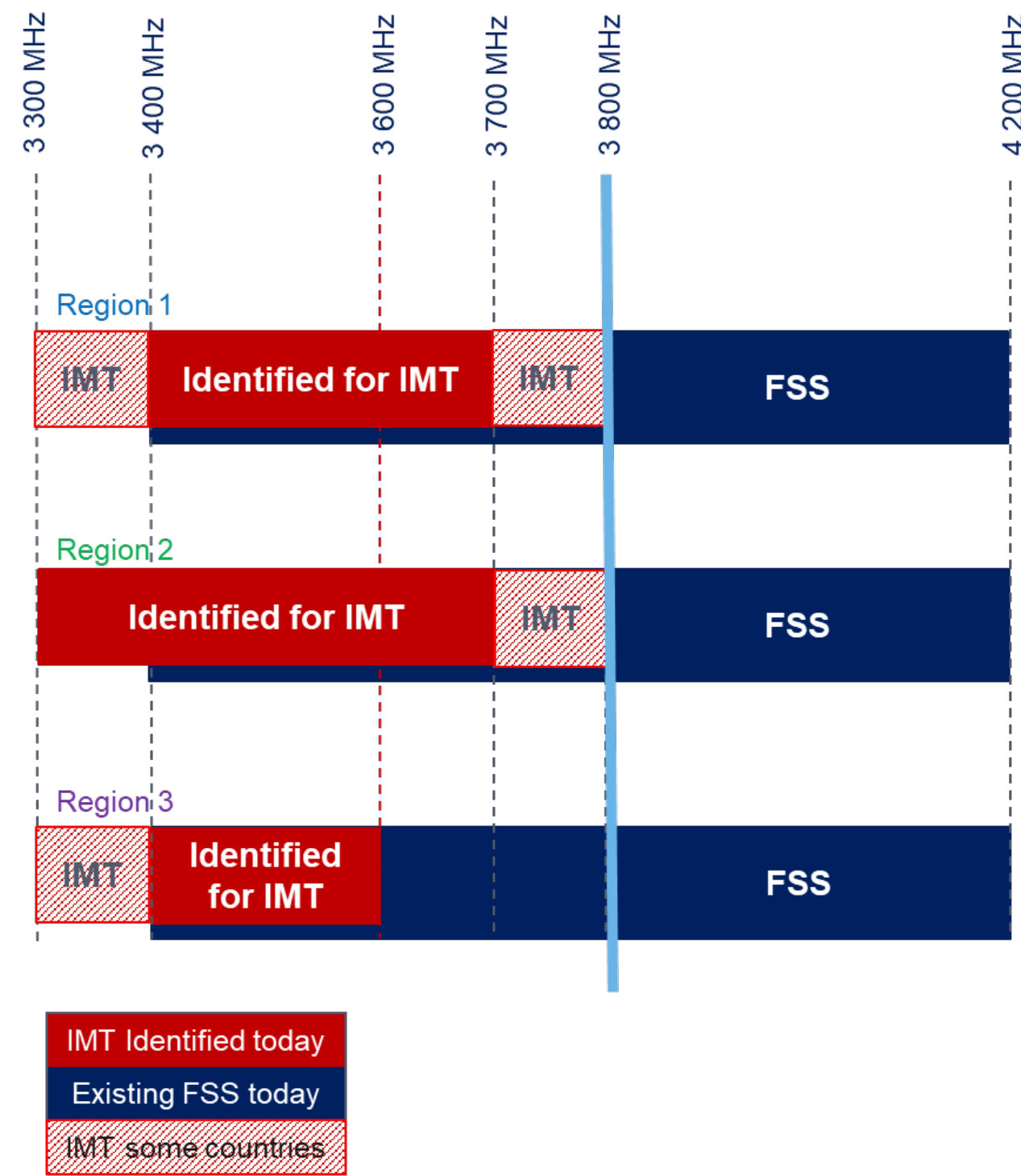
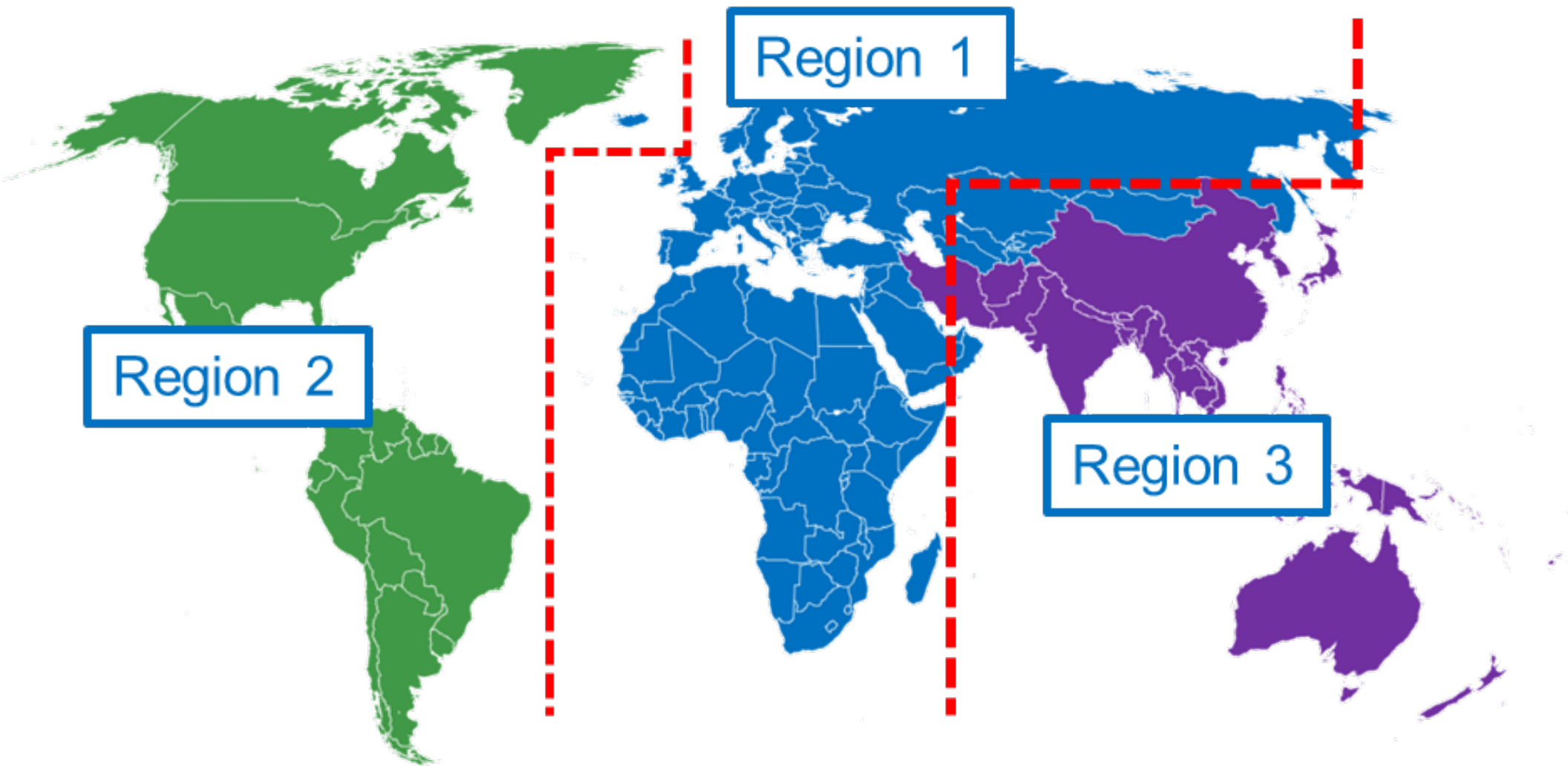
Global Association Representing the Entire Satellite Industry



GSOA provides a platform for collaboration between member companies involved in the satellite ecosystem globally and a unified voice for the sector

C-Band Status outcome – WRC -23

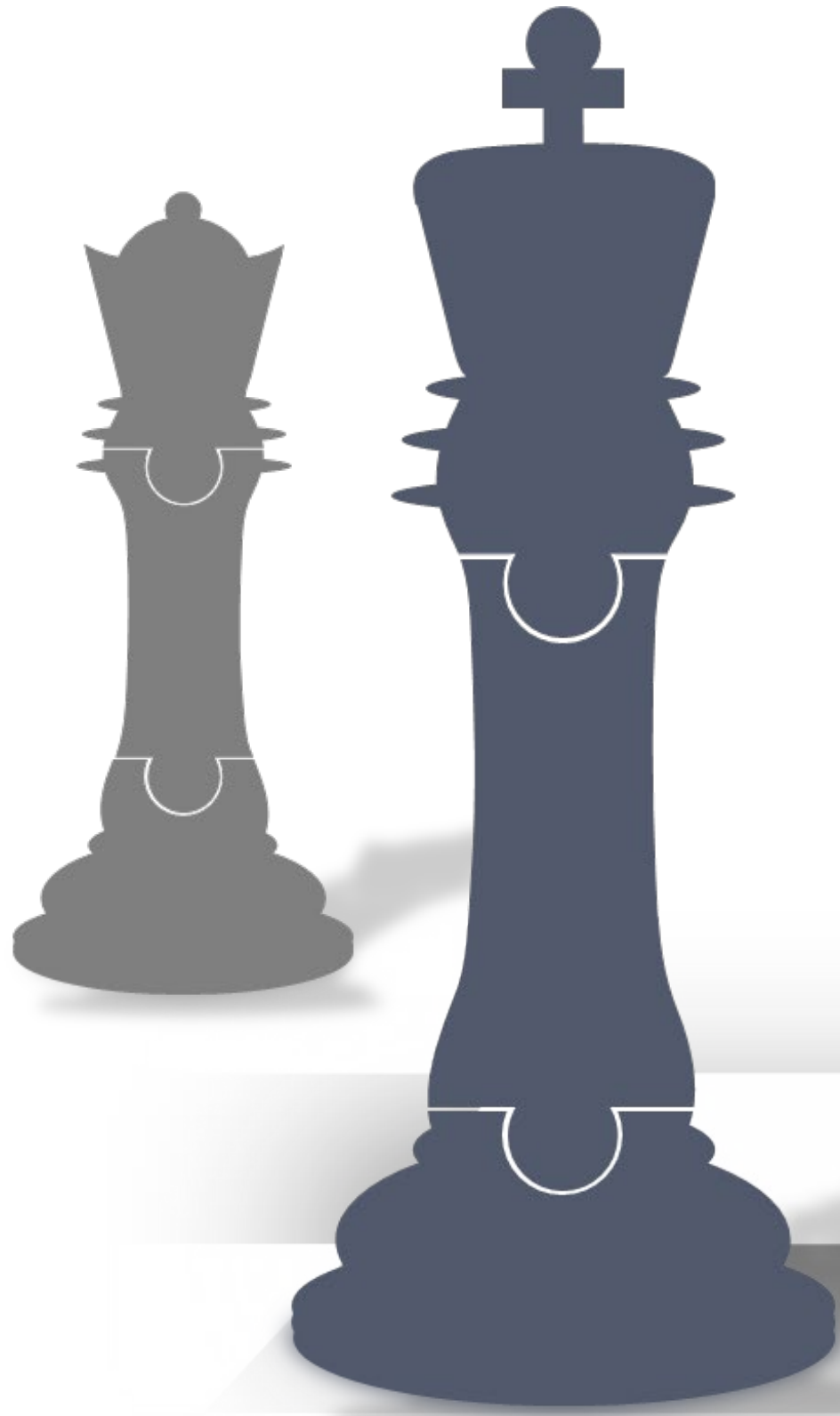
ITU Regions



3.8-4.2 GHz will largely remain as FSS band globally (with some exceptions)

C band spectrum: global trends

The rules are changing, we are well positioned but need to adapt



Convergence

- Convergence of satellite services (FSS/MSS/BSS)
- Mobile and satellite competing for the same spectrum
- Standardization of all services around 3GPP

5G / Private Networks

- **C-band energized 5G deployment around the world mainly up to 3.8 GHz**
- Regulators are moving towards spectrum sharing concepts (e.g. Private Network share with FSS)

Spectrum Sharing

- Regulators are pushing against exclusive spectrum allocation model, particularly for mobile
- **Europe is pushing for sharing upper C-band (3.8-4.2 GHz) among all users (FSS and others)**

3.8-4.2 GHz private network

– Overview

Proposed framework in Europe:

FSS usage: **Limited** number of FSS ES in 3.8-4.2 GHz at known registered locations



Power level limits

Medium power: max. EIRP 51dBm/100MHz

Low power: max. EIRP 31dBm/100MHz



Private networks licensed on case-by-case basis after coexistence analysis with incumbents

Aspects for consideration

In some regions FSS ES usage more pervasive and often **not registered**

Studies performed still outlined **coordination distances of 40km** between Medium power and FSS

This requires databases with complete information of national usage of incumbents as well as available tools to perform the coexistence analysis

Key Sectors & Services Benefiting from D2D

Remote Connectivity



Emergencies & Disasters



Fishing Communities



Transport



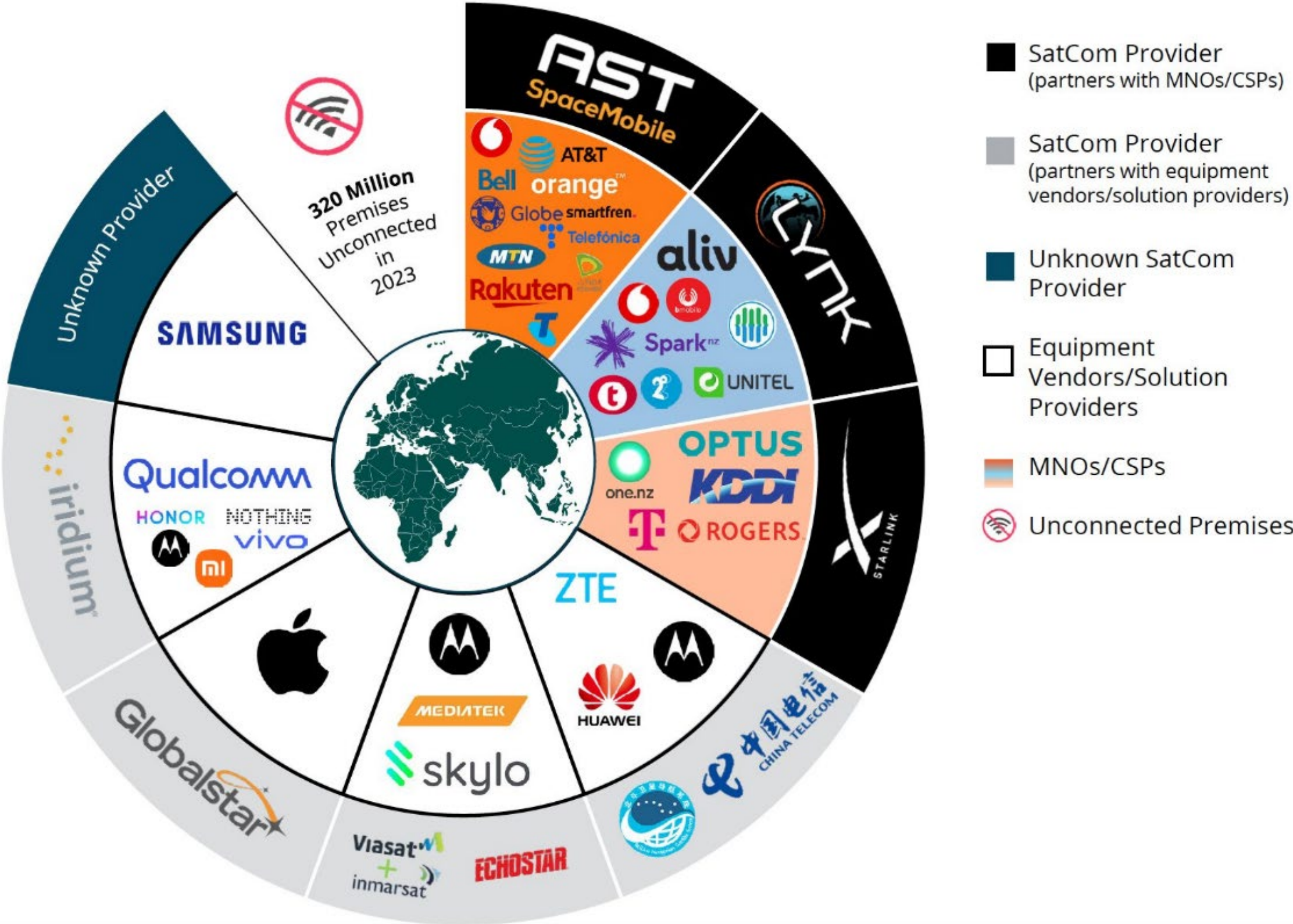
Agriculture



Early Warning, Monitoring
& Climate Change



Existing Satellite - Mobile Partnerships



At the end of 2024, up to 3% of the ~7 billion active smartphones support D2D, most of them using proprietary solution

Two Variants of D2D

D2D in MSS bands

- *Uses spectrum allocated to Mobile Satellite Service*
- *Leverages 3GPP Release 17 and later NTN specifications*
- *Requires no additional regulatory action if MSS authorized*
- *Support L- and S-Band, and Ka- Ku in future release*
- *Additional MSS spectrum allocations studies in WRC-27 Agenda Items 1.12 and 1.14*

Challenges:

- *Needs mobile chipset vendors to include those 3GPP bands*

D2D in Terrestrial bands

- *Uses terrestrial spectrum*
- *Can use off-the-shelf mobile handsets*
- *Requires partnerships with MNOs*
- *Complements existing mobile coverage*
- *Using IMT bands < 3GHz*
- *Coexistence being studied under WRC-27 Agenda Item 1.13*

Challenges:

- *Interference management between MNOs and satellite operators*
- *International regulatory hurdles (ITU RR 4.4)*



Thank You!

 gsoasatellite.com

 info@gsoasatellite.com

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