

WRC Preparations For CTU: A Satellite Industry Perspective

Global Satellite Coalition

www.gscoalition.org

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Importance of the ITU & WRC Process

- ◆ WRC is a global process convened by the ITU: the largest consensus-building forum in the world
- ◆ Countries of different sizes & economic powers with diverse needs convene on a level playing field
- ◆ Need to respect the process & its decisions to ensure harmonized markets and interoperability

Securing Balanced Outcomes at WRC-19

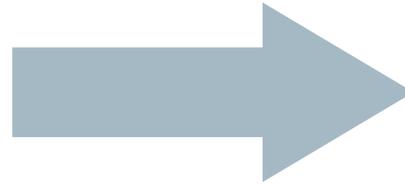
- ◆ 33 GHz of high-band spectrum identified for study for 5G for WRC-19
- ◆ Including some spectrum in use by satellite industry
- ◆ Regulators are being pushed “to choose between technologies”
- ◆ This presents a risk that services relied on today may be lost

The Caribbean is a unique Region

- ◆ Mixture of rural & urban areas, geographic challenges, dispersed communities & diverse economic interests
- ◆ WRC-19 decisions need to ensure sustainable solutions to meet all these needs: from SDGs to 5G
- ◆ The CTU region needs robust & inclusive solutions, as well as resilience & redundancy in future networks

Satellite systems are evolving: here's why it matters to CTU

From wholesale
providers of
bandwidth



To value-added
partners

Satellite
Innovations

HTS

GEO

VHTS

MEO

NGSO

LEO

Multi-media /
Video

Broadband
Access

IoT / M2M

Connected Services

Smart Cities

Smart Agriculture

Aero-
connectivity

Connected Cars /
Trains / ITS

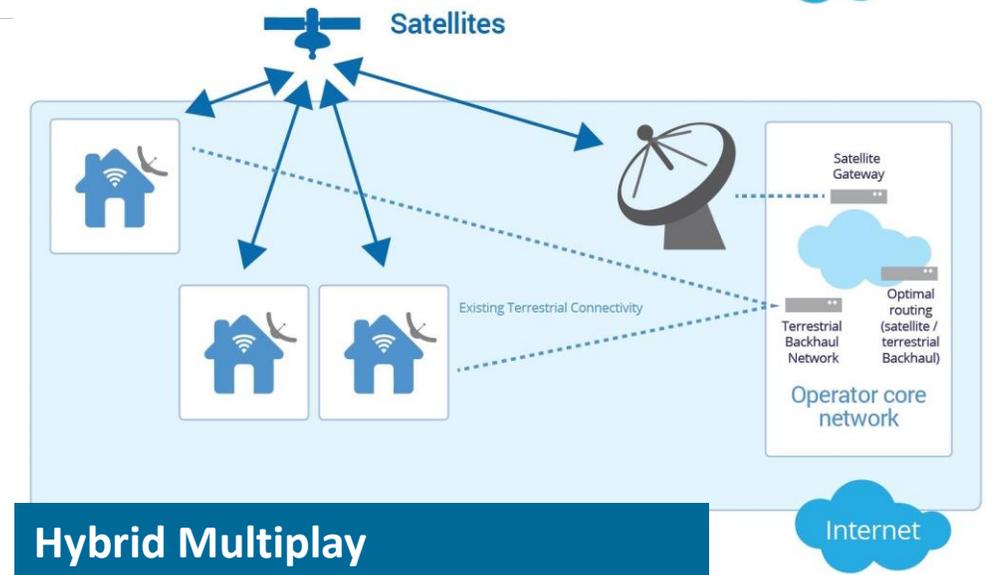
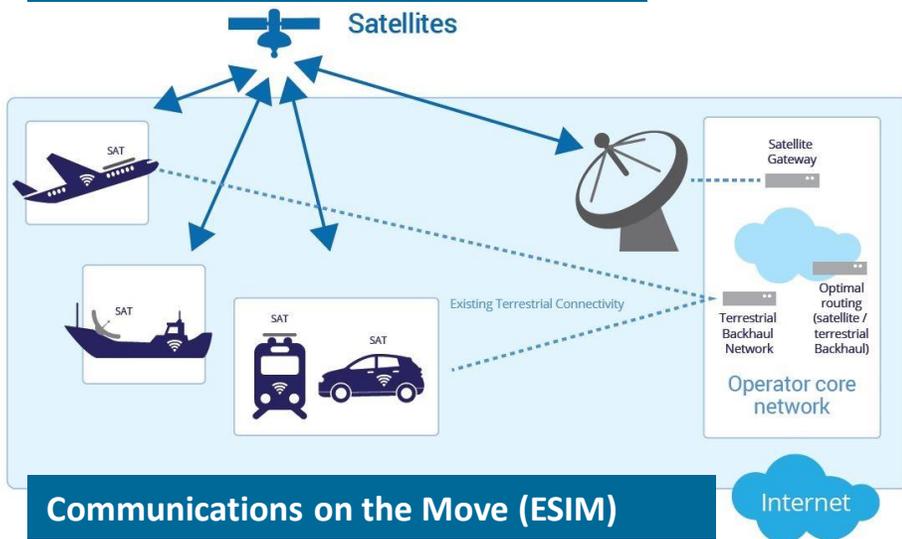
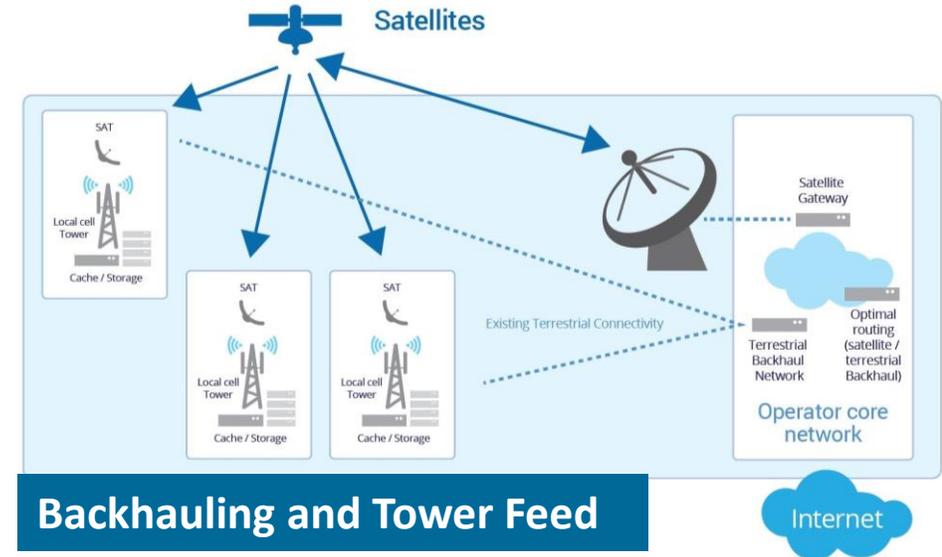
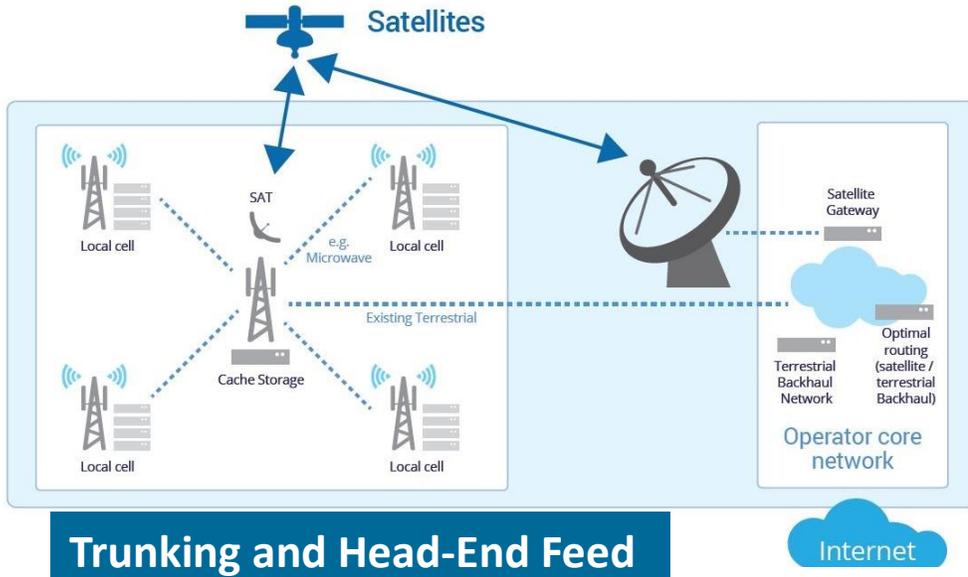
E-learning - E-health -
E-government - E-farming

Government Services

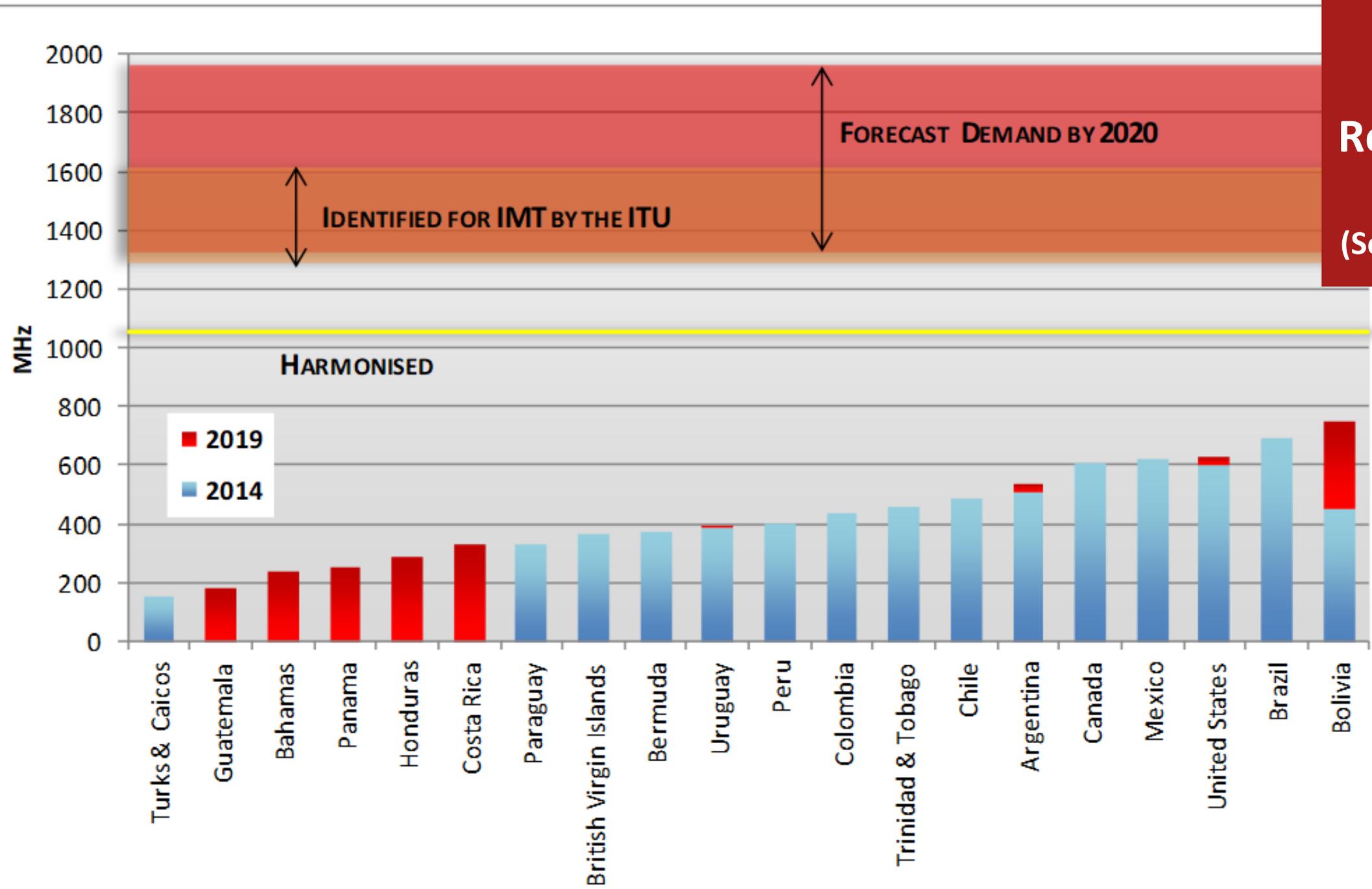
Access to information &
broadcasting services



Future Services Enabled by Satellite: 5G brought to you by Satellite



Mobile Spectrum Requirements : CITEI
 (Source: LS Telcom)



Key Spectrum Principles for Satellite Operators

Based on technical feasibility

- ◆ **Certain spectrum cannot be shared**
 - ⇒ E.g. for ubiquitously deployed satellite user terminals. This cannot be shared on a co-primary basis with IMT
- ◆ **Need to maintain access of individually licensed earth stations**
 - ⇒ Such spectrum can be shared, but there must be adequate protection measures
- ◆ **Protection measures should recognize the risk of aggregate interference of millions of mmWave base stations**
 - ⇒ Regulatory measures needed, such as EIRP limits above the horizon

Terrestrial 5G Frequency bands

Enabling long term Digital development in CTU

Consider only candidate bands for IMT under AI 1.13 (Res. 238)

26 GHz (24.25 - 27.5 GHz)

Candidate Band for Global Harmonisation

- Support IMT globally, with protection for FSS
- Appropriate shared basis for coordinated FSS earth stations, including the possibility for future gateways

28 GHz

NOT on the WRC-19 Agenda

- Many satellite networks extensively use 28GHz globally
- US position comes from a historically different approach to this band

37 – 40.5 GHz

No Change in Regions 1 and 3 . 37-40 GHz possible for Regional Harmonisation in Region 2 only

- NOC in Regions 1 and 3.
- Need to preserve spectrum for other services, including HDFSS spectrum for satellite terminals

40.5-43.5 GHz

Possible Regional Harmonisation for IMT in Regions 1 and 3

- OK for IMT in Regions 1 and 3, with protection for FSS
- Appropriate shared basis for coordinated FSS earth stations, including the possibility for future gateways

45.5-52.6 GHz

No Change

- No change, since already significant amounts of spectrum are supported for IMT at 26 GHz (globally), 40.5-43.5 GHz (R1 & R3), and 66 GHz (globally).

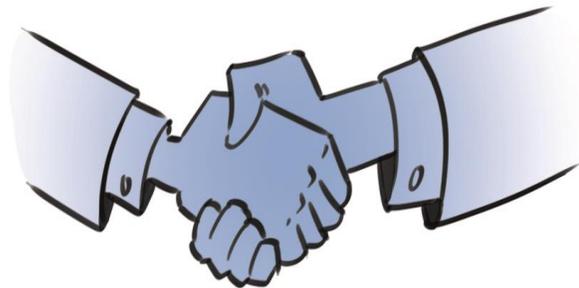
66 - 71 GHz & above

Candidate Band for Global Harmonisation

- Support for IMT globally
- Close to 57-66 GHz: already designated / used for WiGig

Conclusion & Recommendation

- ◆ The CTU is a diverse territory with very diverse needs
- ◆ One size does not fit all
- ◆ Stick with the WRC-15 bands identified for study for IMT/Terrestrial 5G
- ◆ Safeguard the services you rely on, that IMT can't reasonably substitute
- ◆ Safeguard the satellite bands they are provided in: L, C, Ku, Ka, Q/V (in future)
- ◆ Foster cooperation between industries to secure better connectivity for more people



Only a mix of technologies will deliver the benefits of 5G and a Win : Win for all