ETSI Conference on
Non-Terrestrial Networks,
A Native Component of 6G

# Media and Satellite NTN

## European Broadcasting Union

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Sophia Antipolis 03/04/2024

# MEDIA AND NTN

- Non-Terrestrial Networks (NTN) are part of the 5G-3GPP system architecture, applicable to **GSO and non-GSOs,** from L/S-band to Ku and Ka band and beyond
- For **edgecasting** or **reaching end-user terminals** (direct to cellular or vehicle) EBU has launched the **5G-EMERGE** project (www.5G-EMERGE.com) financed by ESA.
- A Work Item launched in the **5G-Media Action Group** (www.5G-MAG.com) **addresses multicast-broadcast-edgecast service scenarios** with or without native return link

5G-EMERGE

5G MAG
MEDIA ACTION GROUP

# THE M.A.R.S. STRATEGY

- **M**ultilayer
  - Terrestrial IP
  - Terrestrial DTT
  - Satellite IP/NTN (interactive broadcast)
  - 5G Broadcasting (urban areas)
  - 5G Cellular
- **A**nywhere
  - Terrestrial + Satellite
- **R**esilient
  - Combining at least two delivery infrastructures for Fixed and Mobile
- **S**ustainable
  - Deciding on a per country basis which infrastructure to abandon

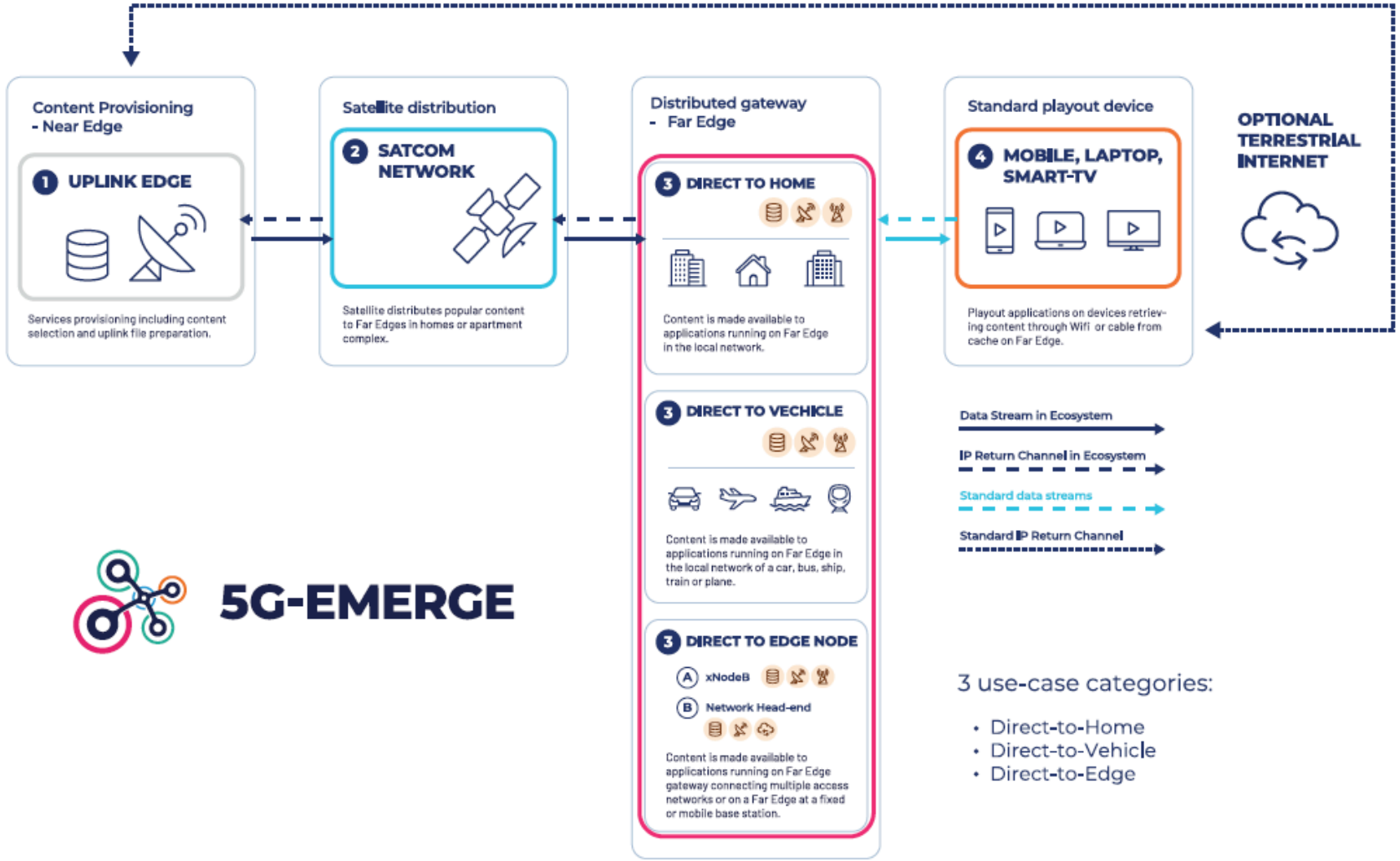
Fixed

Mobile

# THE 5G-EMERGE PROJECT

- Developing a **native IP/5G satellite and terrestrial network infrastructures following the M.A.R.S. strategy. F**unded by ESA with 20+ industrial Partners led by EBU.
- Developing an **economically and technically advantageous distribution systems for media applications** using a multi-layer edge-casting infrastructure.
- An innovative approach tailored to Media broadcasting to **reliably and sustainably reach edge devices**
  - from direct to home, to nomadic, on vehicles and on vessels, and to terrestrial network nodes;
  - with a common infrastructure, **substantially reducing the integrated distribution costs.**

# THE 5G-EMERGE PHASE 1 USE CASES




5G-EMERGE

3 use-case categories:

- Direct-to-Home
- Direct-to-Vehicle
- Direct-to-Edge

# BROADCASTING AND EARLY WARNING SYSTEMS

- According to the UN Secretary General "*early warning can cut the ensuing damage* (of natural disasters) *by 30%*" and yet "*50% of countries worldwide are not protected by early warning systems*"

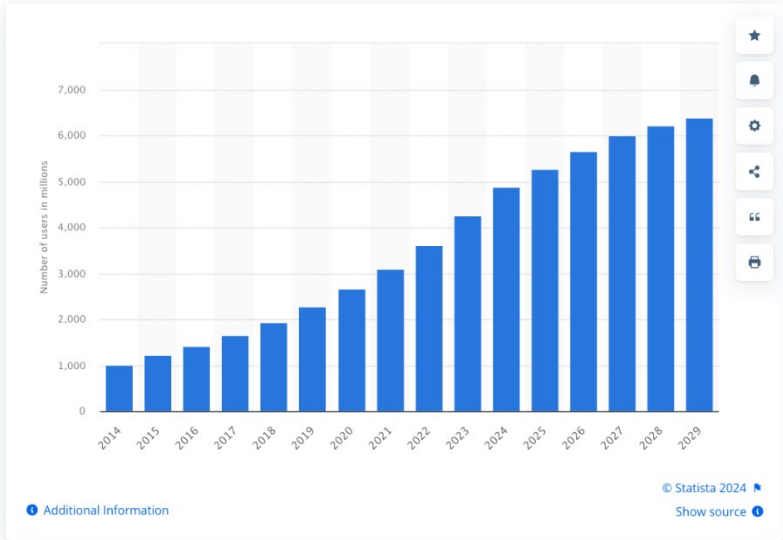
- Today the most pervasive media reaching the largest share of the world population is broadcasting ( > 90%) with a major role in times of crisis and operating reliable networks on a 24/7 basis.

- The role and importance of broadcasting in times of crisis is largely recognized. It educates and informs the population before, during and after disasters.  It effectively reaches populations in the dissemination of alerts.

- 2/3 of the world population has a smartphone today and this figure will increase in the coming years. Cellular terrestrial-only coverage has limitations in times of crisis: NTN is the ideal complement.

Number of smartphone users worldwide from 2014 to 2029

*(in millions)*

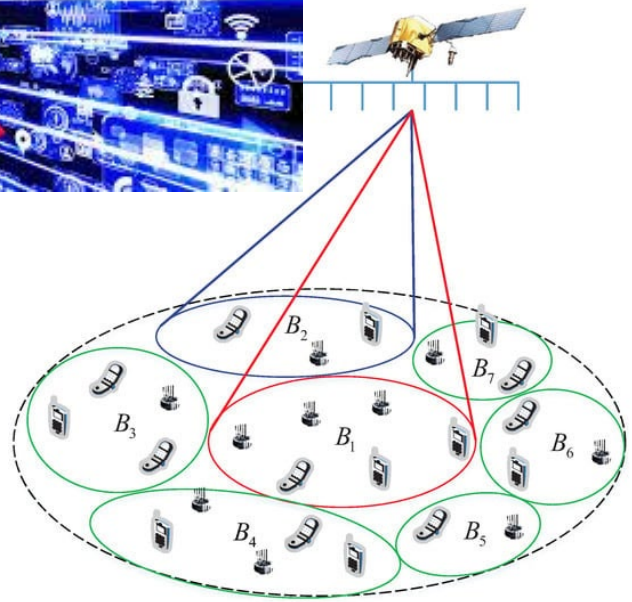


# FROM MEDIA OVER NTN TO EMERGENCY MANAGEMENT

- Cellular networks maybe be subject to long interruptions due to **power cuts and/or unavailability of coverage in rural areas**
- **To manage emergencies, a satellite-based solution should reach populations delivering media services on a daily basis**
- User terminals need to be:
  - **consumer grade**
  - **easily deployable** (self-pointing antenna)
  - **battery powered**
  - **providing a return channel** to acknowledge reception and essential local information during emergencies.
- **Future NTN specifications** will benefit from the one-to-many advantage of broadcasting and should **integrate those user terminal requirements** on personal devices, vehicles, terminals for first respondents, home gateways, etc.

# KEY TECHNOLOGY ENABLERS ON GROUND AND ON BOARD

- **AI technologies to extract information from a very large number of devices** (millions) is essential for a cost-effective answer to emergencies. Retrieving information in real time from any terminal increases the ability to provide essential support to populations eg identifying areas in need of assistance or predicting disaster patterns.
- **The management in quasi real time of millions of messages over satellite spots covering hundreds of Kms** by Asynchronous Multiple access techniques is key to optimize support to end users
- **Flexible satellite performance** (e.g. variable EIRP, spot size) would ideally complement the deployment of different categories of terminals on a daily basis and during emergencies

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# Thank you !

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