

hispasat

Una empresa de Redeia



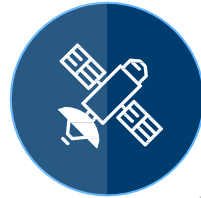
## 5G NTN

What's in it for the satellite industry?

July 2024

Who we are

**Satellite telecom operator** with a strong presence in the Iberian Peninsula and the Americas.



**8<sup>th</sup> world operator**, with 30 years of experience.



**Robust positioning in high-growth markets**, with a well established base of strategic clients.



**3<sup>rd</sup> EU based operator**, operating primarily in Ku and Ka band



**Leading content and connectivity services distributor** in Spanish and Portuguese speaking countries.



**More than 1,300 TV and radio channels**, including major DTH platforms.



Strong presence in the **governmental and defense markets** through Hisdesat

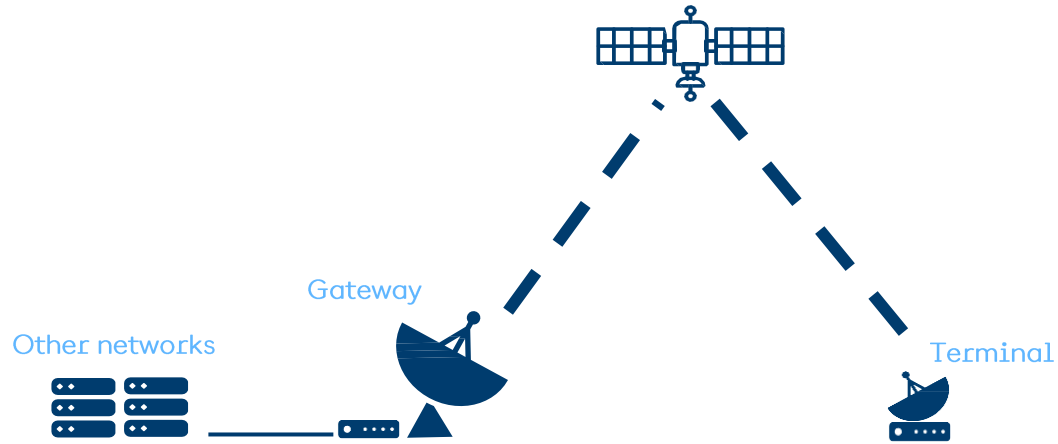


**Booster** of the Spanish and EU aerospace industry.

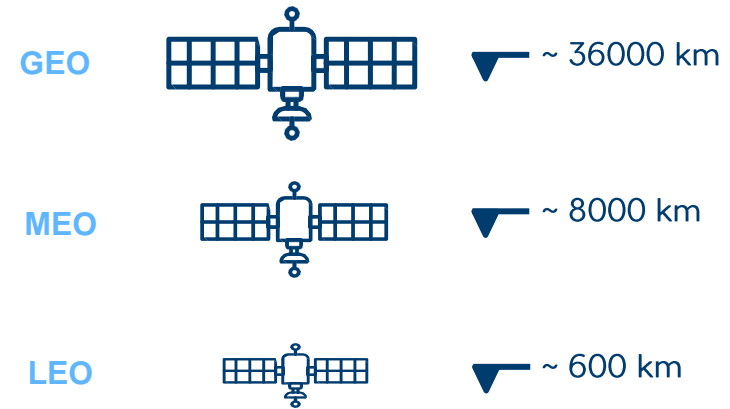


# Satellite communications 101

## Architecture and orbits



Satellite architecture



Type of orbits



# 5G-NTN – The concept

*What 5G-NTN brings to Satellite industry*

**3GPP definition:** A non-terrestrial network refers to a 5G network, or segment of networks using RF resources on board a satellite



## Technology

NTN brings new elements to the traditional SatCom architecture: the gNodeB and the 5G-Core



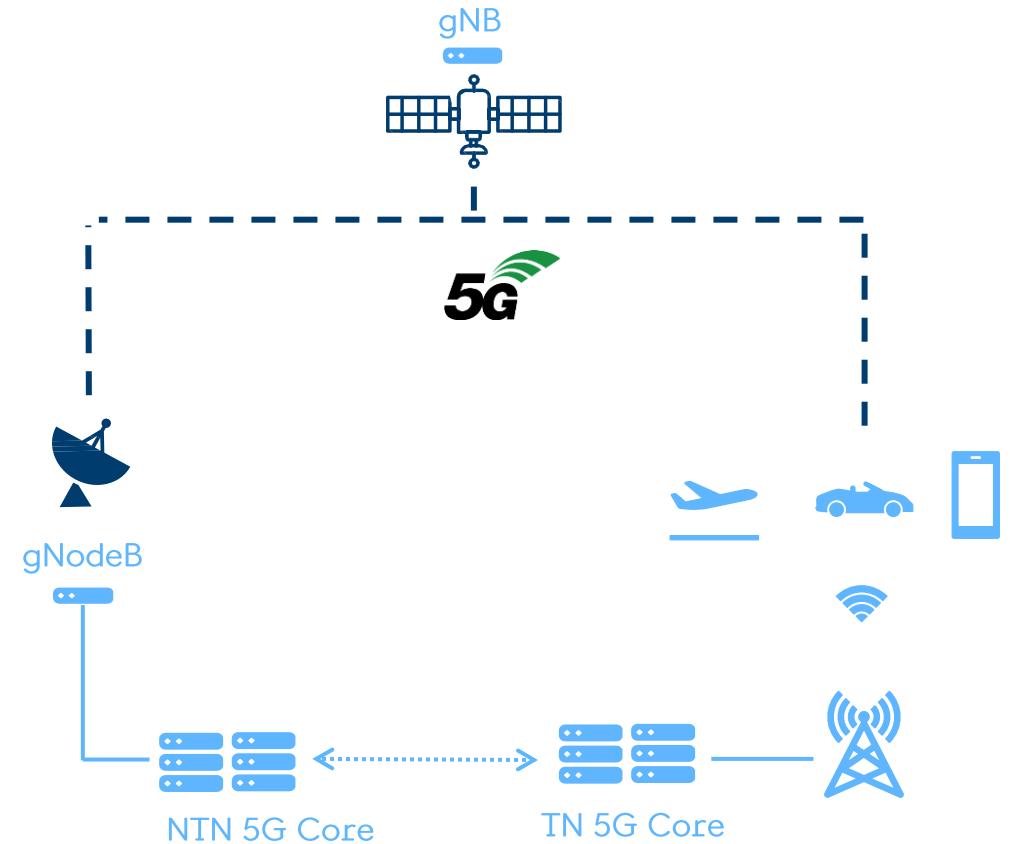
## Commercial

NTN opens two mass-market segments traditionally closed to the Sat Industry: smartphones and automotive



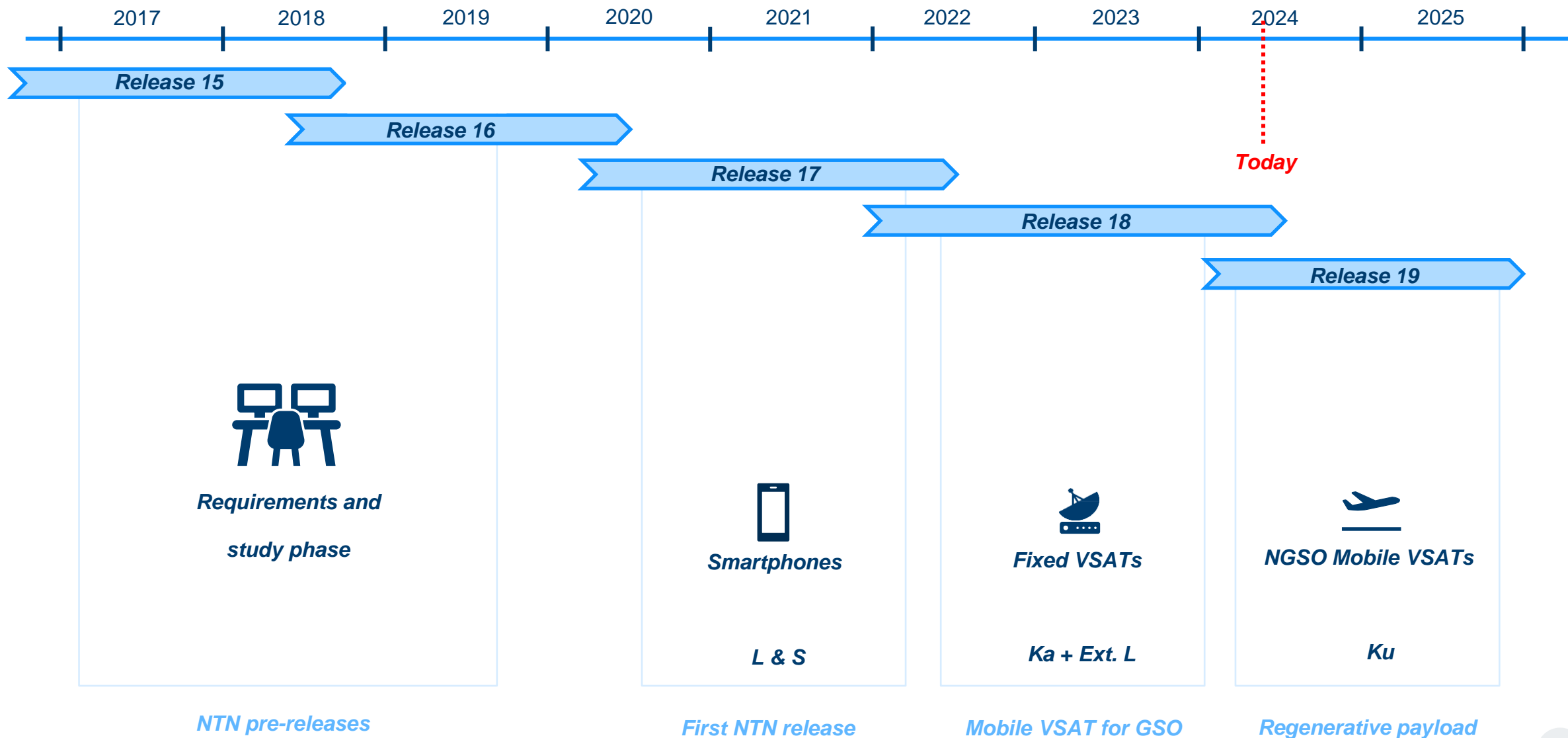
## Operations

To provide a seamless service to the customer, fine integration with TN MNOs is required



# 5G-NTN – The reality

3GPP standardization journey



# Revolution for the end user

*Ubiquitous coverage*

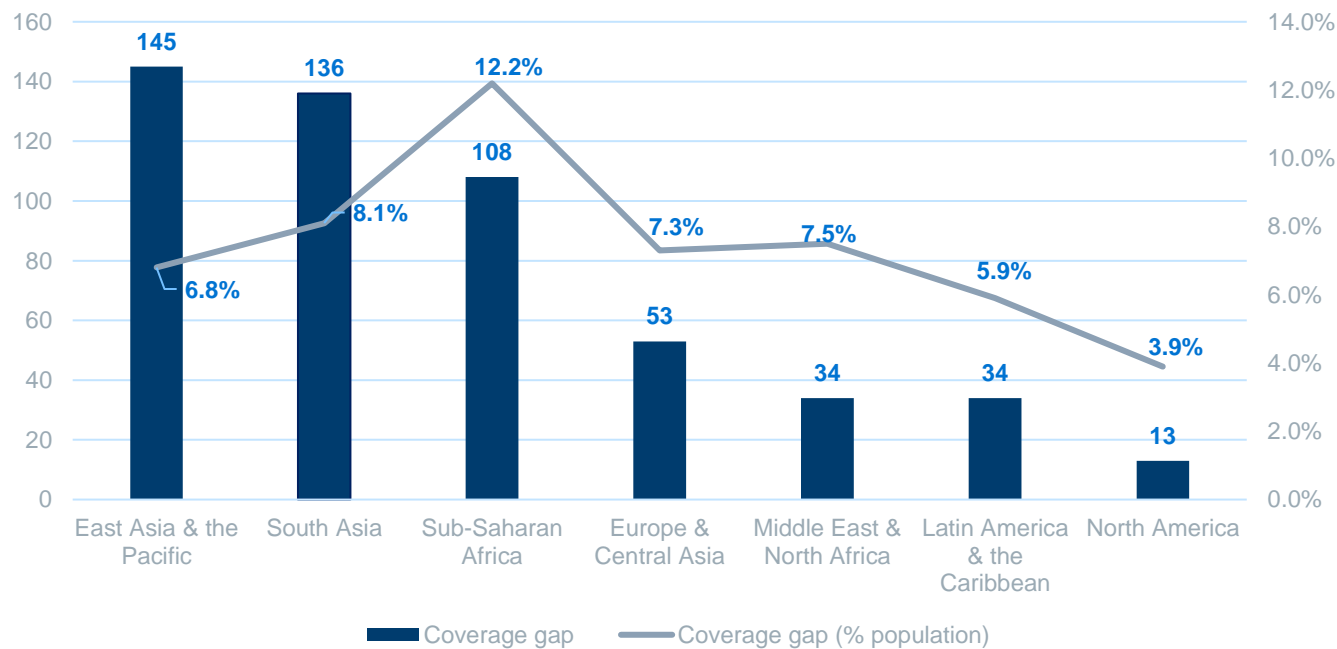
## Ubiquitous coverage

- D2D
- Terrestrial coverage extension (backhaul)

## Verticals

- Automotive
- Aviation
- Maritime

7% of the world's population without mobile coverage



\* Fuente: GSMA Intelligence

# Revolution for the telco sector

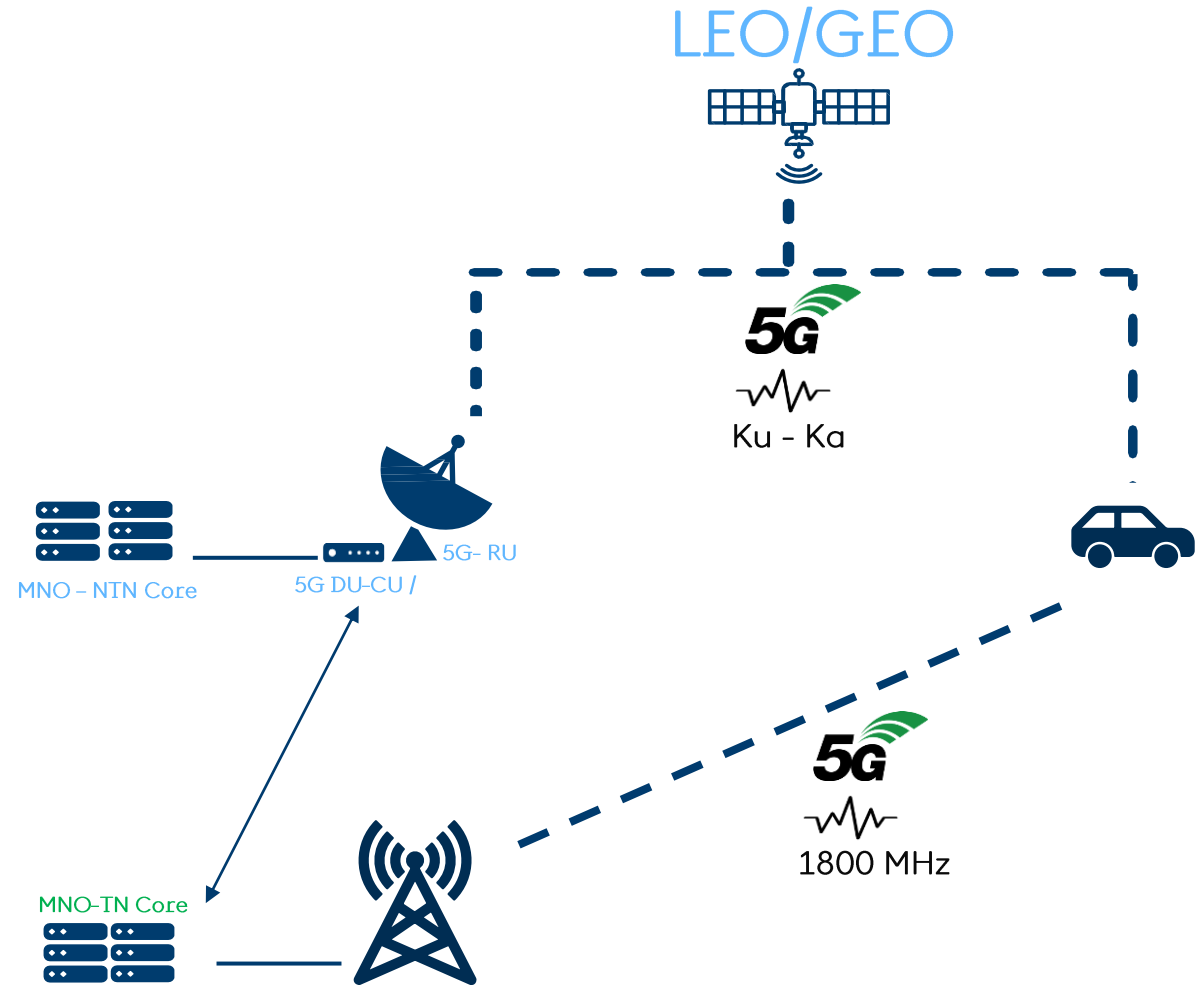
*Filling the gaps*

## Filling coverage gaps

- Mountains
- Deep rural
- Non profitable areas

## Requires integration

- Roaming
- Active sharing

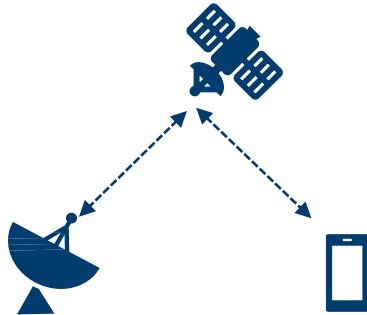


# Revolution for the Satellite industry

*Dual paradigm shift – Access to mass markets*

## Smartphone compatibility

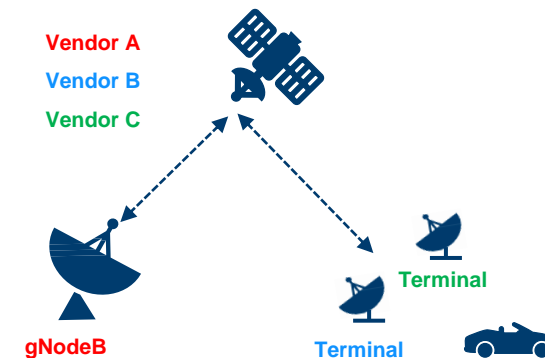
Brings economy of scale to the traditional low volume satellite sector



*Low-cost chipsets for L and S bands*

## Vendor interoperability

Opening the automotive sector previously closed due to vendor lock-in



*Low-cost chipsets for Ka & Ku bands and FPA cost reduction (80M new cars / year)*



# Revolution for the Satellite industry

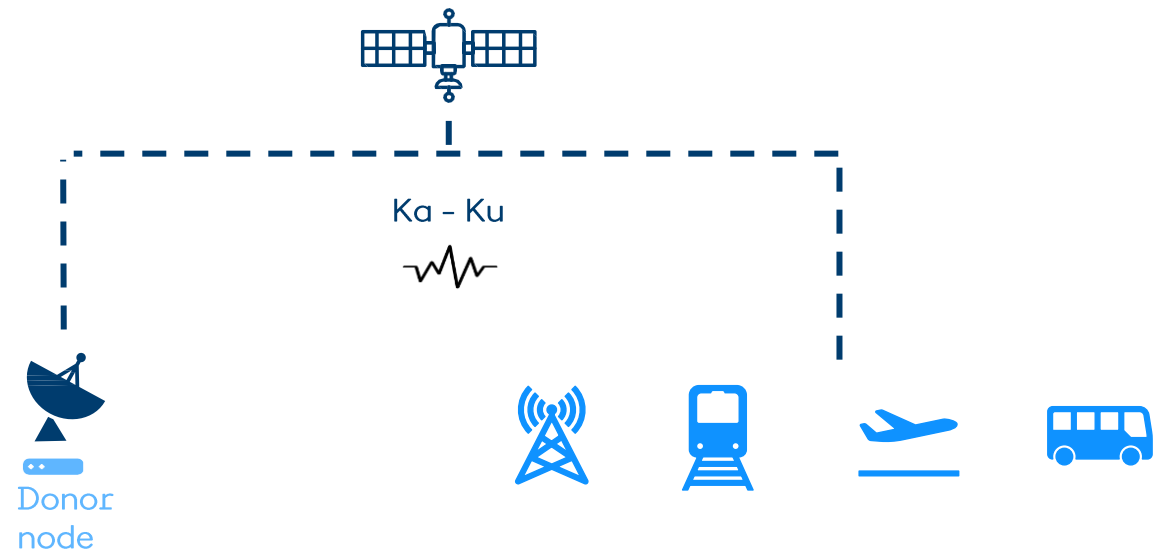
*New services based on 5G*

## Integrated access backhaul

- Broadband 5G coverage for end-users
- Move from Wi Fi to 5G
- CPE Cheaper and simpler than a gNB
- Coordination with MNOs required

## Use cases

- MNO Coverage extension
- High speed trains
- Planes
- Pullmans

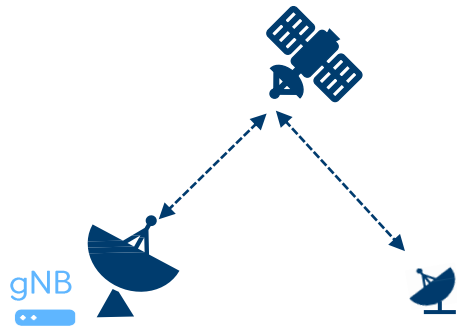


# Revolution for the Satellite industry

## Regenerative satellites

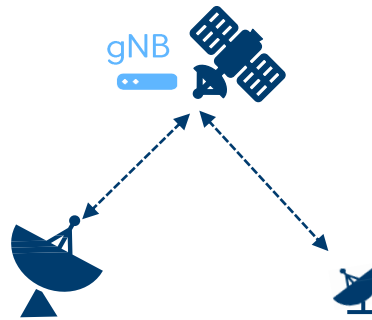
### Transparent

gNodeB on the ground +  
Bent pipe satellite



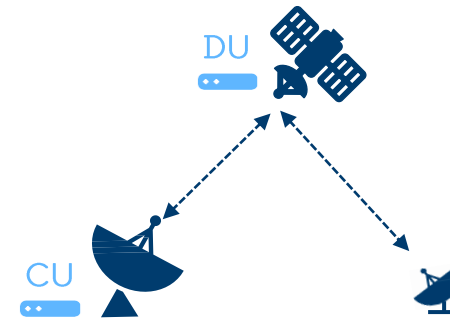
### Regenerative

Full gNodeB onboard



### Regenerative-v2

Part of gNodeB onboard



# redeia

El valor de lo esencial

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