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# Satellite's role in the Video Evolution – opportunity for a hybrid approach

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# Agenda

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- 1 Our vision of the Video Evolution
- 2 Broadband – broadcast convergence
- 3 An opportunity to transcend access

## Abstract

The majority of Internet traffic is video related. Demands on communication networks will increase substantially as video evolves from standard definition format to high definition (HD) and ultra HD. This trend poses a challenge for network planners, as the capacity required for ultra HD requires consumption patterns and peak time access that cannot be provided economically or efficiently by terrestrial or mobile networks. Satellite distribution already is a key component in the video broadcast ecosystem and will increasingly become indispensable in hybrid networks in order to deliver smart content in a consistent user experience, across all devices and all locations.

# Our vision of the Video Evolution

## 1 A consumer driven evolution

- ▲ Video is becoming a nearly infinite and personalised choice of linear and non-linear content; anytime, anywhere and on any device
- ▲ Video related content estimated to drive up to 80% of data
- ▲ Fostering a new ecosystem and movement to OTT and other Internet enabled access methods will be critical to delivering this service

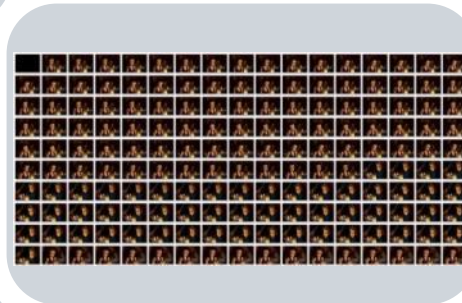
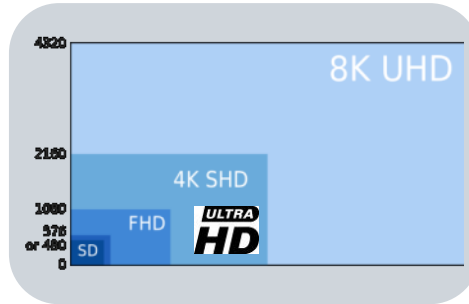


# Our vision of the Video Evolution

## 1 The upcoming quality revolution: Ultra HD

### More Pixels

8 M Pixels - 4 times more pixels than HD

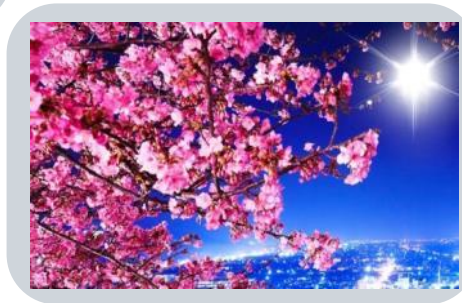


### More images per second

Up to 120 images per second for exceptional motion smoothness

### More colors

More colors, finer color nuances



### More contrast

Brighter images, more contrast and depth

# Our vision of the Video Evolution

## 1 Ultra HD: All conditions come into place

### Consumer Demand

- ▲ **2/3<sup>rd</sup> of consumers** want to have an UHD screen once they have seen it
- ▲ **Every 4<sup>th</sup> consumer** would be ready to pay more for receiving High or Ultra High quality (Ericsson Consumer Lab 2013)
- ▲ **55% of European consumers** would buy UHD TV (Strategy Analytics Consumer Metrix 2013)

### Content

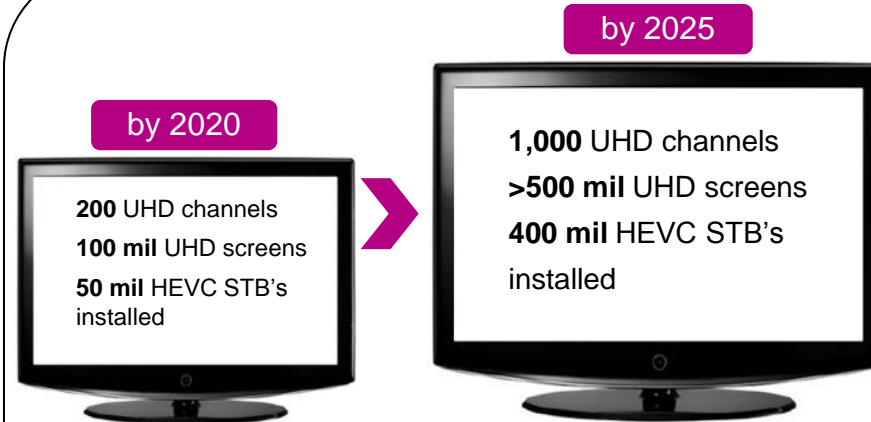
- ▲ Major feature films & sport events, e.g. FIFA WC 2014 are **captured in UHD quality**
- ▲ **150 feature films and TV shows** were available as **UHD master copy** while close to **800** were available in **UHD source format** by 2013
- ▲ **70mm films** re-mastering ongoing



### Technology and CE

- ▲ **Sub \$700** 50 inches Ultra HD TVs and sub \$2,000 65 inches TVs are now available
- ▲ **HEVC codec** to facilitate storage and distribution
- ▲ **HDMI 2.0** to interface screens
- ▲ 10-bit HEVC 60 frames per seconds demonstrated over SES satellite
- ▲ **Sky Deutschland broadcast a live Bundesliga match:** a true end-to-end test of the full Ultra HD production chain

### Forecasts



- ▲ **UHD will become mass market** in the next decade – by **2025 half of all screens and STB's sold will be UHD**





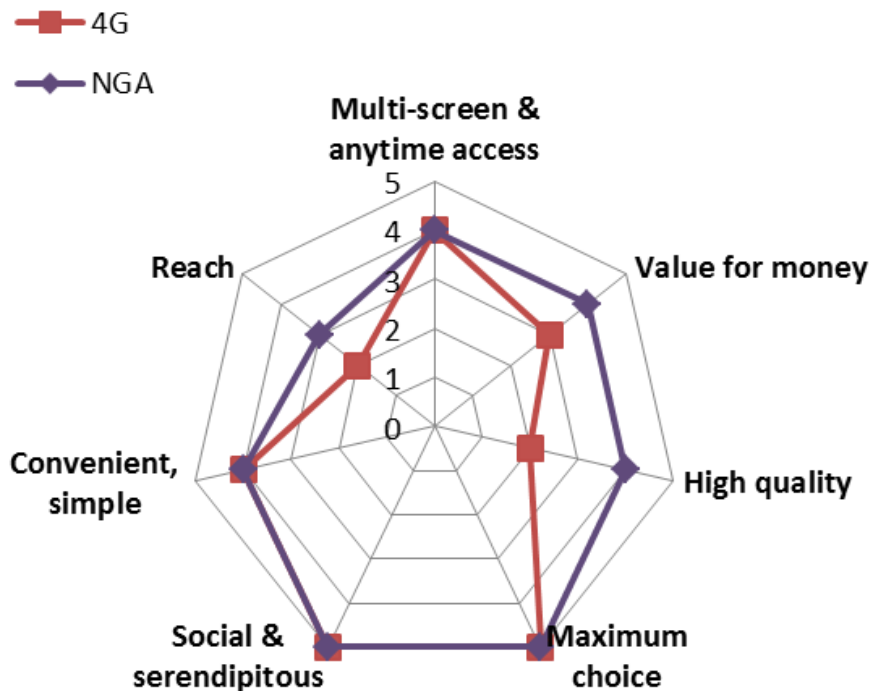
**Broadband – broadcast  
convergence**

# Broadband – Broadcast Convergence

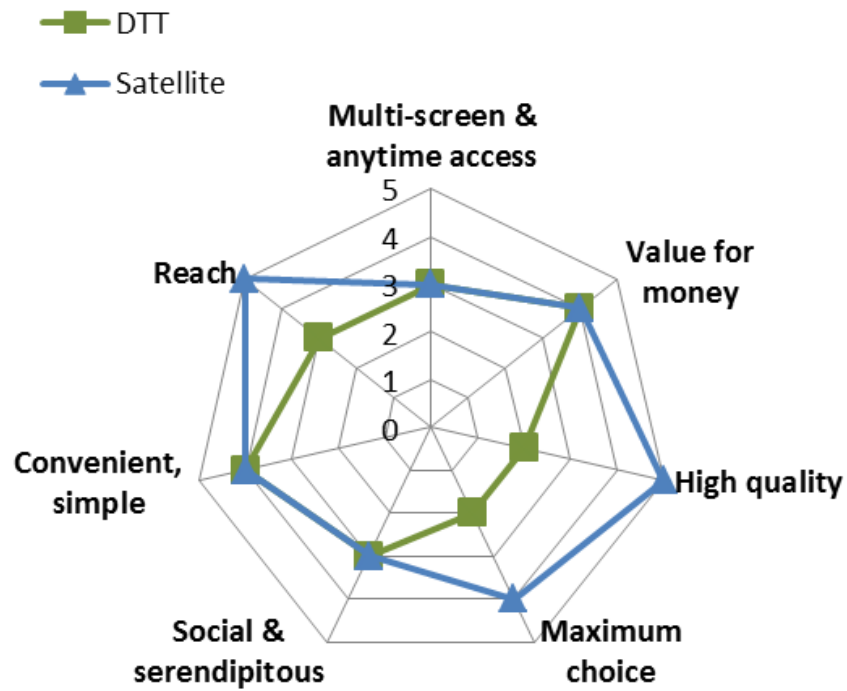
## 2 A distribution **challenge**: technologies

Making this new video experience available to all EU citizens requires distribution networks capable of enabling and supporting all required video-related features

**Broadband Technologies**



**Broadcast Technologies**



No single technology ticks all the boxes

## Broadband – broadcast convergence

### 2 A distribution **challenge**: terrestrial

Making this new video experience available to all EU consumers creates several challenges – the toughest being distribution, both from a cost and reach perspective

An individualised HD-quality full OTT video consumption

**35x**

requires **700 Gbytes per month /HH**, where EU's current average consumption is ~20 Gbytes /HH

**4x**

requires a **sustainable peak-time 20Mbit/s** access /HH, where EU's current observed average speed is 4.6Mbit/s

**54%**

would hence theoretically only reach 54% HHs currently passed for NGA, **creating another divide**

**Ultra HD**

**100x**

2.2TB / month

**10x**

50Mbit/s

**20%**

Significant upgrades would be required to go terrestrial only



# Broadband – broadcast convergence

## 2 A distribution **challenge**: terrestrial

▲ Are these significant upgrades an option?

**€150Bn**

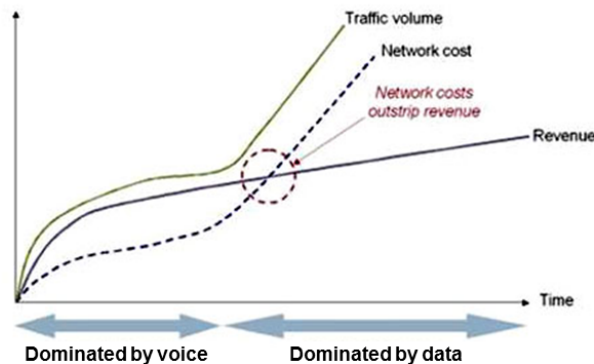
accelerating the €150+ Bn NGA/NGN deployment investments

**+OpEx**

subsidising the CDNs to stream all this video (another 10x challenge in Ultra HD: €25 / month at current CDN rates) and accepting the resulting carbon footprint

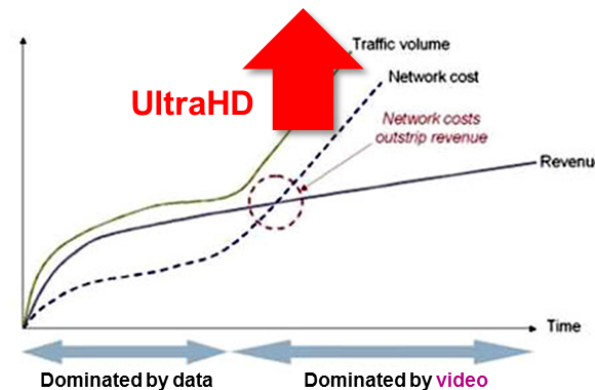
▲ Wouldn't this repeat history?

Decoupling of **mobile** revenue and network cost



Source: Analysys Mason

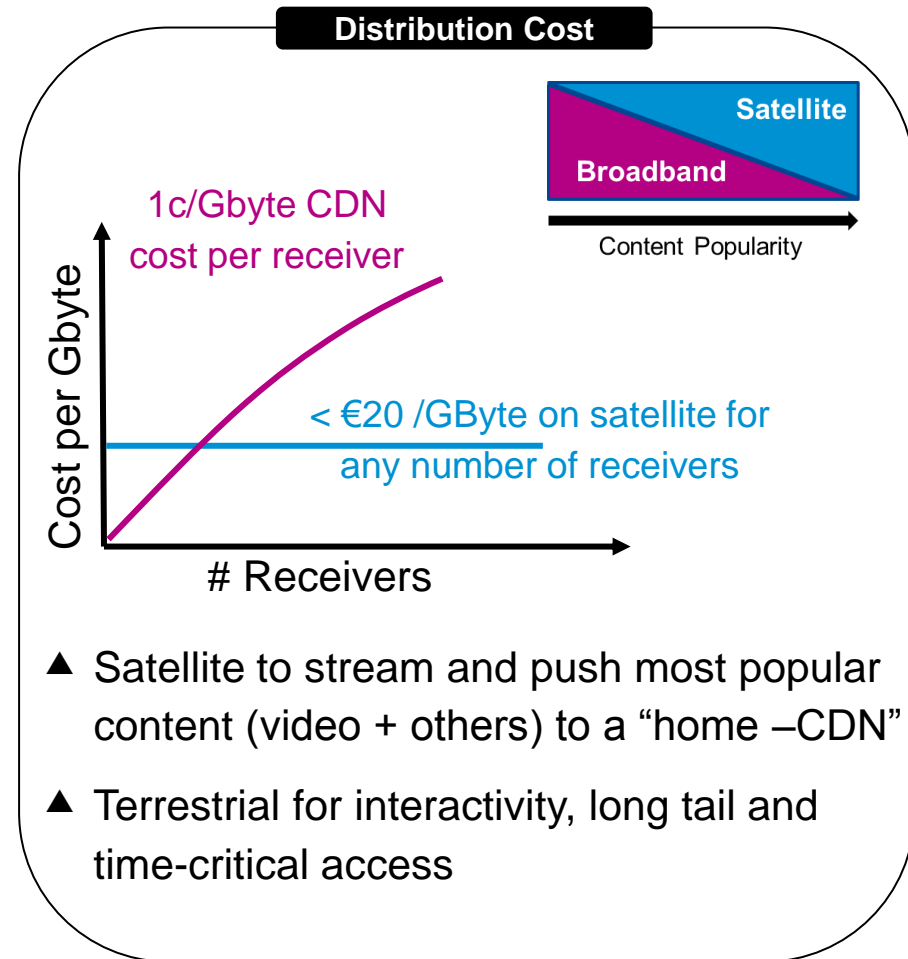
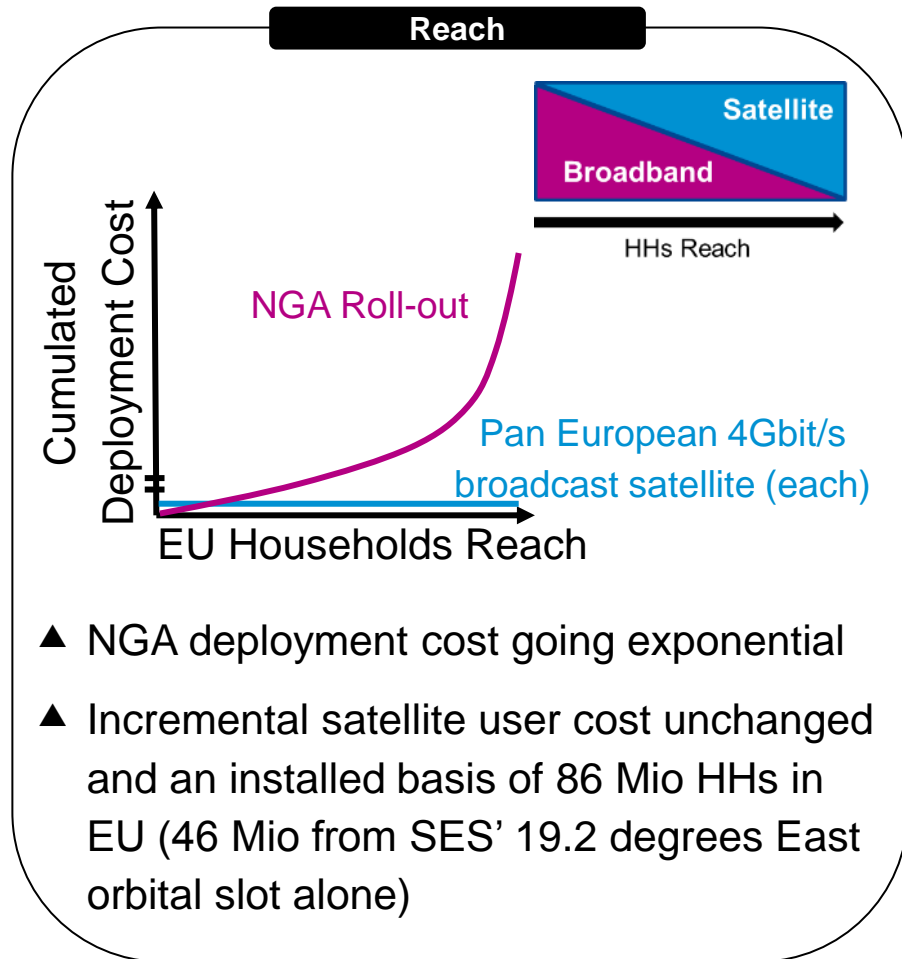
Decoupling of **fixed** revenue and network cost



An affordable move?

# Broadband – broadcast convergence

## 2 A distribution **solution**: Hybrid



Joining forces to deliver a sustainable state-of-the-art experience

## 2 Existing hybrid solutions

▲ Increasingly combining broadband and broadcast



### Broadcast Combination

- Satellite augmenting DTT; TNTSat, Tivusat, FreeSat
- Satellite feeding DTT emitters (cellular - 4G tested)

### Hybrid IPTV

- Hybrid IPTV-Satellite-OTT STBs and multi-play services
- Deployed by Telecom, Cellular and Pay-TV operators
- Orange, Deutsche Telekom, PT / Oi, Bharti, Sky, Dish,
- Combining with **fixed and mobile** (tower feed and 3/4G HHs)



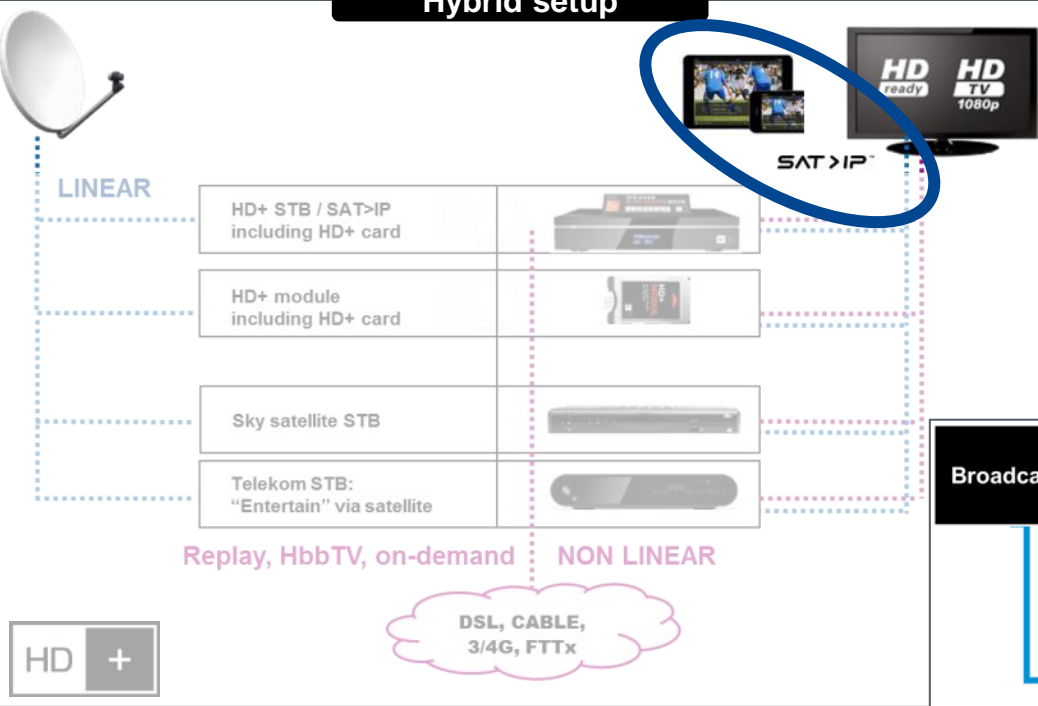
- German Free-to-view ecosystem delivering high quality content to consumers and enabling new monetisation opportunities

# Broadband – broadcast convergence

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## HD + : a German hybrid ecosystem

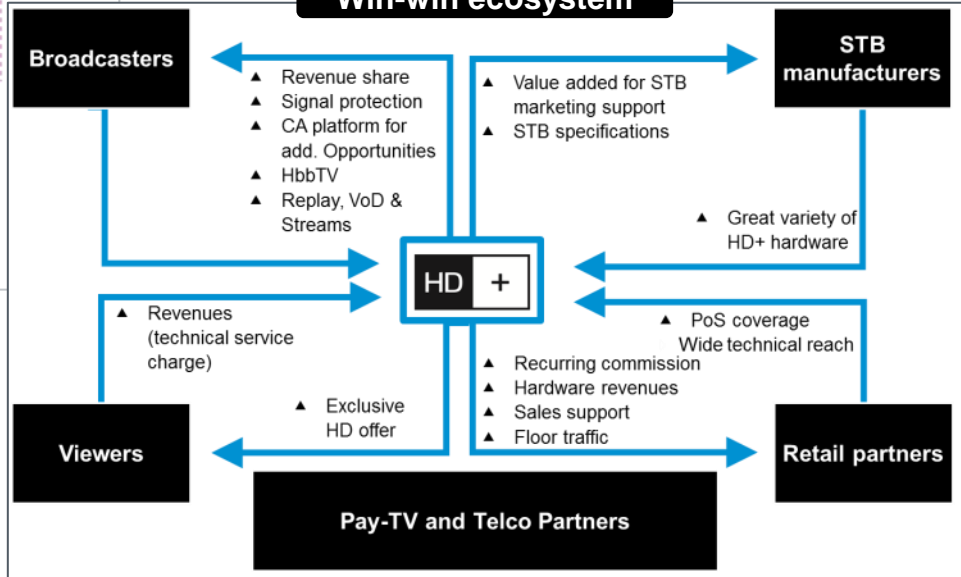
### Hybrid setup



### SAT>IP

SAT>IP, an open standard, enables converting legacy satellite TV signal to IP, so that it can be received on any connected IP device

### Win-win ecosystem



A 2.7 Mio HHs ecosystem benefiting all stakeholders

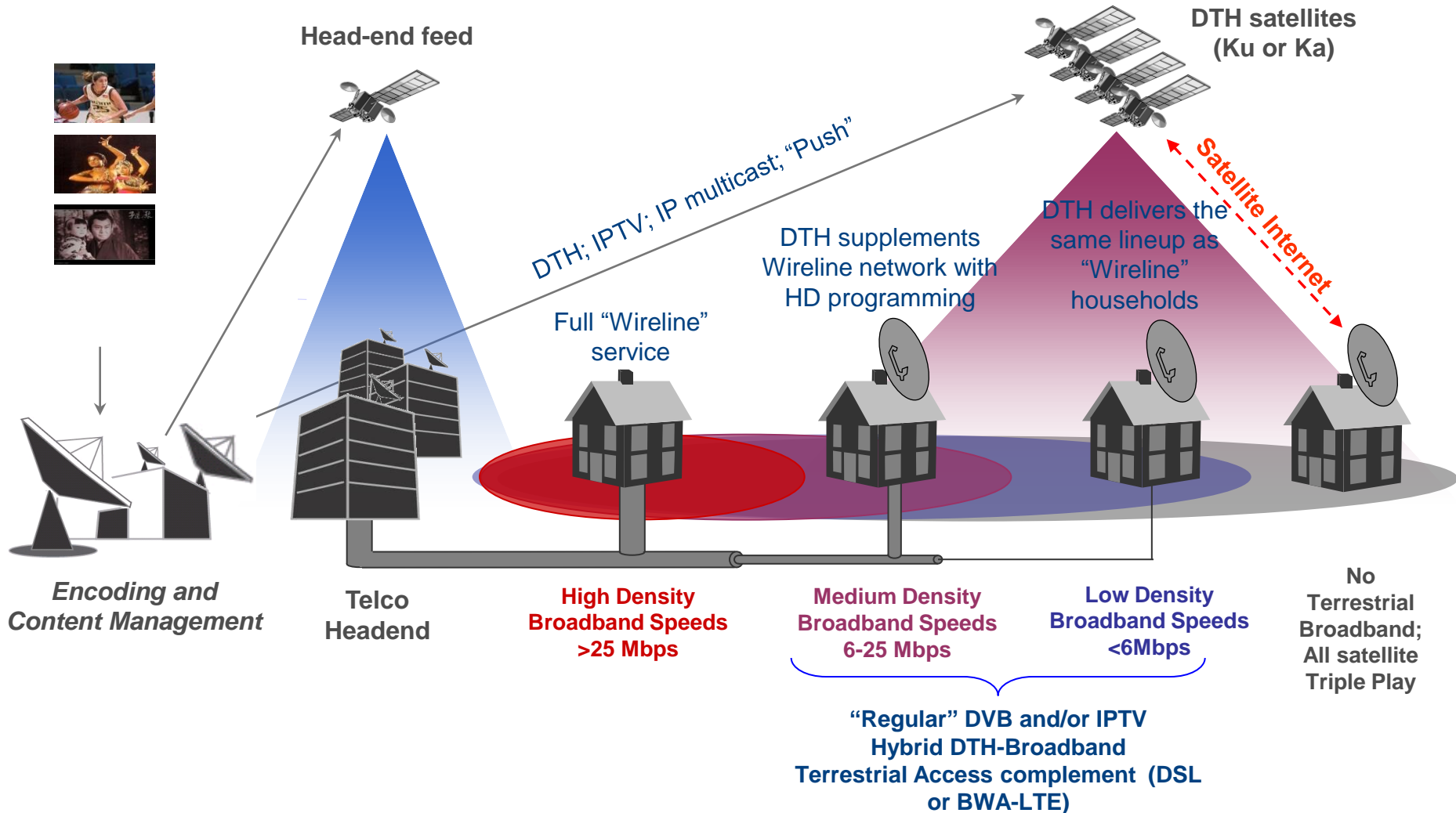
# An opportunity to transcend access





# Hybrid DTH / Terrestrial Broadband Concept

Hybrid DTH-broadband bridges the fixed line gap and enables wireless operators to roll out full market reach offerings. This will help achieving the European Digital Agenda 30 Mbps objective.



## An opportunity to transcend access

### 3 **Unlocking untapped hybrid potential**

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- ▲ SES strongly believes that hybrid solutions will create additional growth relays, on top of the reach and time-to-market benefits, by enabling
  - delivery of smart content in a consistent user experience, across devices and locations
  - creation of a smart network, a content delivery environment dynamically selecting the least cost and optimal QoE access and storage points
  - optimising the application environment on basis of a pragmatically optimised network
- ▲ SES and partners continue developing the technical and standard environment to enable this vision
- ▲ Our HD+ experience demonstrated that complete end-to-end ecosystems, involving all value-chain players, must be in place to unlock that additional potential

Smart content requires smart distribution networks and ecosystems

A long-exposure photograph of a rocket launch at night. A bright orange arc of light curves across a dark blue sky, starting from a point on the horizon where the rocket is launching. The launch site is visible as a small cluster of lights and smoke on the left. The text "Thank You!" is overlaid in white, bold, sans-serif font in the center of the image. The bottom of the image shows a dark horizon line with a small, illuminated structure on the right side.

**Thank You !**