

INNOVATIVE SOLUTIONS FOR SMART VIDEO CONNECTIVITY

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TV VIEWER EXPECTATIONS ARE CHANGING: “ADVANCED TV EXPERIENCE”

Yesterday

ANY SCREEN



ANY TIME

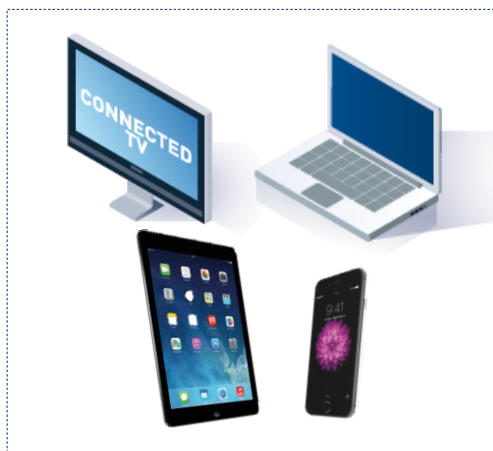
→ Linear TV



INCREASED
QUALITY



Today



- Catch-up TV
- Video on Demand
- Interactivity



iPad mini
with Retina Display

TV ACTORS COMPLEMENT THEIR BROADCAST SERVICES WITH OTT SERVICES TO FOLLOW MULTISCREEN AND ON-DEMAND TRENDS

► How to address all the viewers expectations ?

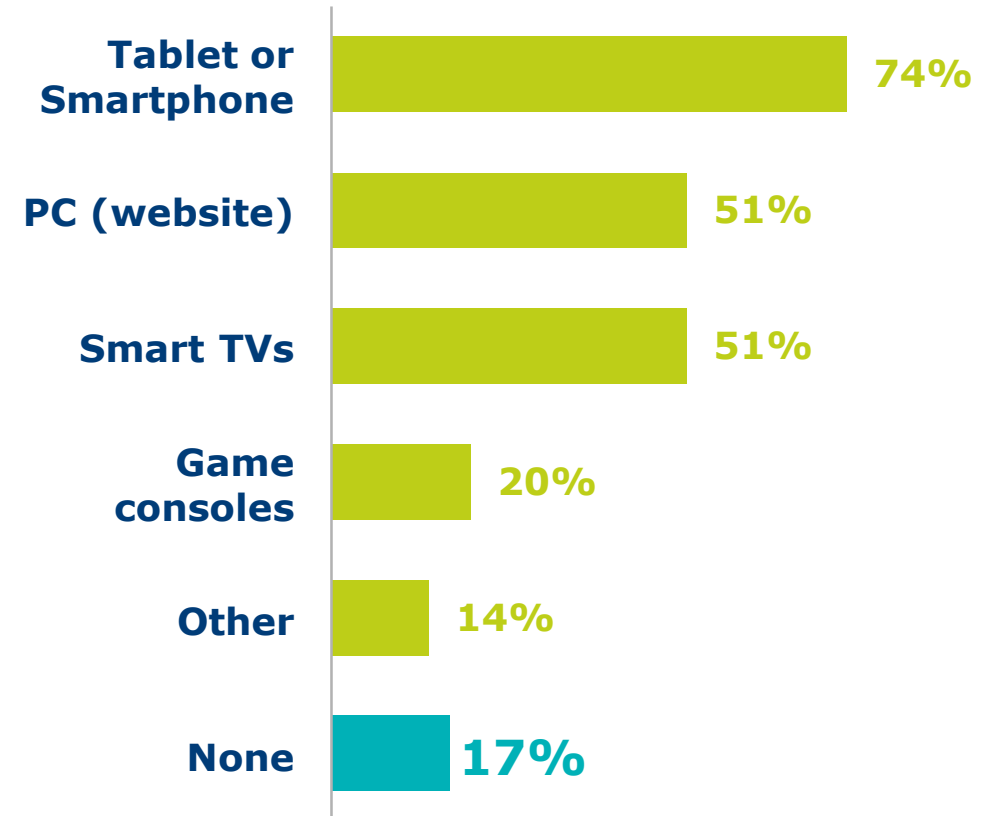
✓ Challenges:

- Watch TV on a PC or tablet
- Long-tail catalogue for video on demand
- ...

✓ Reaction as of today:

- To maintain user experience excellence, most TV platforms complemented their linear broadcast offer...
- ... with new services based on broadband infrastructure (OTT)

► Which IP devices are you addressing? (Broadcasters and DTH TV platforms)



WHILE USAGES INCREASE, OTT VIDEO DISTRIBUTION SHOWS SEVERAL WEAKNESSES

➤ Inability to reach the entire population

- ➔ Lower image quality ...
- ➔ ... Or even no video service at all

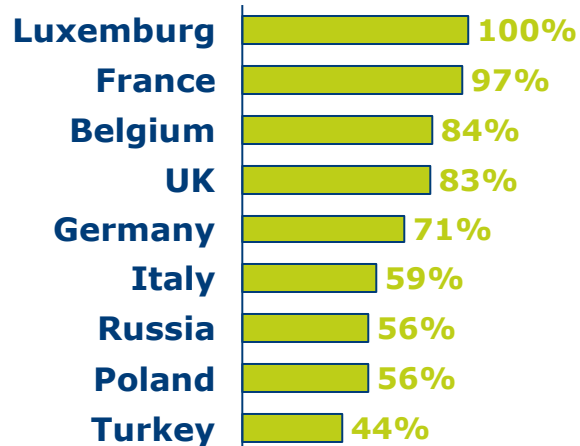
➤ Growing distribution costs

- ➔ CDN costs increase with the audience

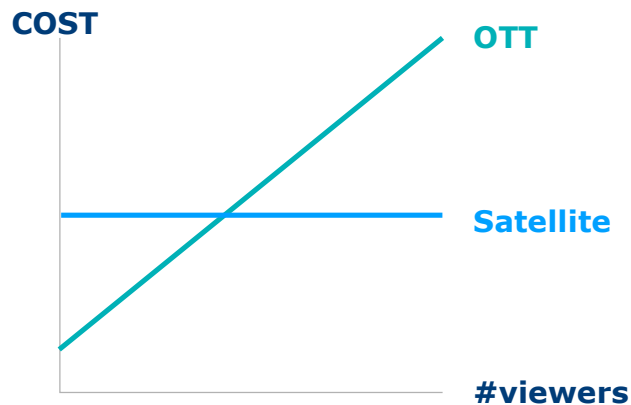
➤ Lower quality of service, especially at peak hour

- ➔ Broadband networks saturated by OTT demands

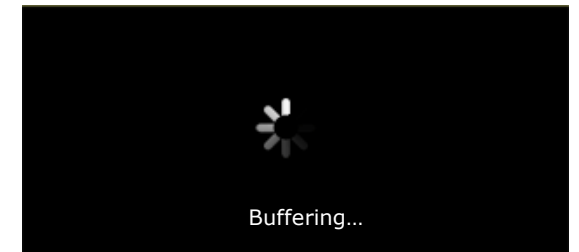
➤ Broadband penetration (2014)



➤ OTT distribution cost pattern







➤ Internet bottleneck at peak hour



**Adaptive bit rate transforms
your HD content
in SD or worse**

NEW SOLUTIONS EXIST TO LEVERAGE SATELLITE FOR “ADVANCED TV EXPERIENCE”

► Eutelsat innovations in new TV experiences

	Solutions	Pay-TV	Free to Air
Multiscreen	“Canaletto”		
Personalised TV	Sat.tv		
Connectivity	SmartLNB		



→ **"Canaletto"**

→ Sat.tv

→ SmartLNB

VIDEO: A STRONG AND GROWING CORE BUSINESS



- Over recent years, the number of smartphones and tablets has grown dramatically and their quality (both in terms of screen resolution and of computing performance) is continually improving. Smartphones have in fact become the first “entertainment” screen, capturing the largest amount of users’ viewing time.

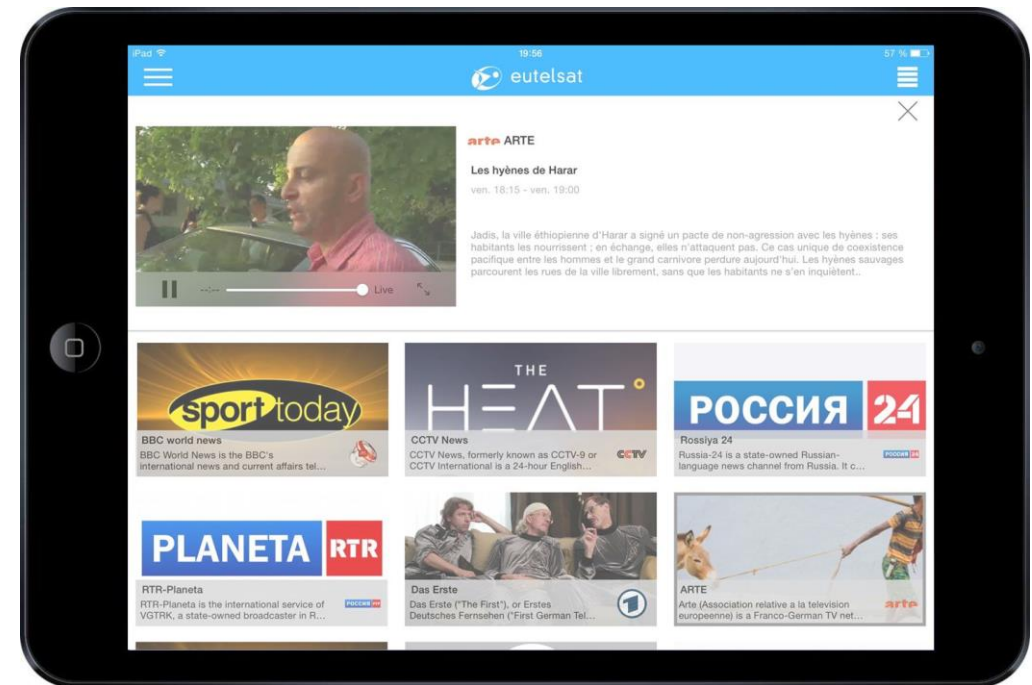
“CANALETTO” PROJECT:

IP-NATIVE MULTISCREEN DISTRIBUTION VIA SATELLITE 1/2

- // Satellite broadcasting is today the most effective way to distribute high quality video channels to hundreds millions of TV screens**
- // Beside the TV screens, there is a fast growing consumption of video on the « new screens » from portable devices (smartphones and tablets) to Smart TVs**
- // In order to reach these millions of smart devices it is necessary to implement an effective multiscreen video distribution. At Home, in Public Spaces, to POP and BTS**
- // Eutelsat is working on multiscreen solutions to address this growing number of IP-native screens, leveraging all the advantages of satellite broadcast to offer a rich video content and high-quality user experience**
 - One single IP multicast transmission serving all those screens at the same time
 - Compatible with both free-to-air and premium content
 - End to end content security
 - Supporting different video formats, both linear and non-linear
 - Enabling new video formats optimized for smartphones and tablets or larger screens

"CANALETTO" PROJECT: IP-NATIVE MULTISCREEN DISTRIBUTION VIA SATELLITE 2/2

- ✓ Eutelsat has deployed an end-to-end platform to showcase satellite distribution tailored for mobile devices
- ✓ Based on native IP technologies, this platform paves the way to:
 - Distribute dedicated content optimized for portable devices
 - Reach end-users both at home and in public spaces
- ✓ Distribution service seamlessly integrated into existing broadcaster OTT apps
- ✓ A Eutelsat user-friendly app is available on iOS and Android



TWO KEY USE CASES: "AT HOME" AND "PUBLIC SPACES"

► AT HOME



- Receive video content optimized for watching on a smartphone or tablet
- Watch TV easily, everywhere at home. Independently of the availability and quality of terrestrial networks
- Do not incur volume limitations or in additional mobile data traffic costs

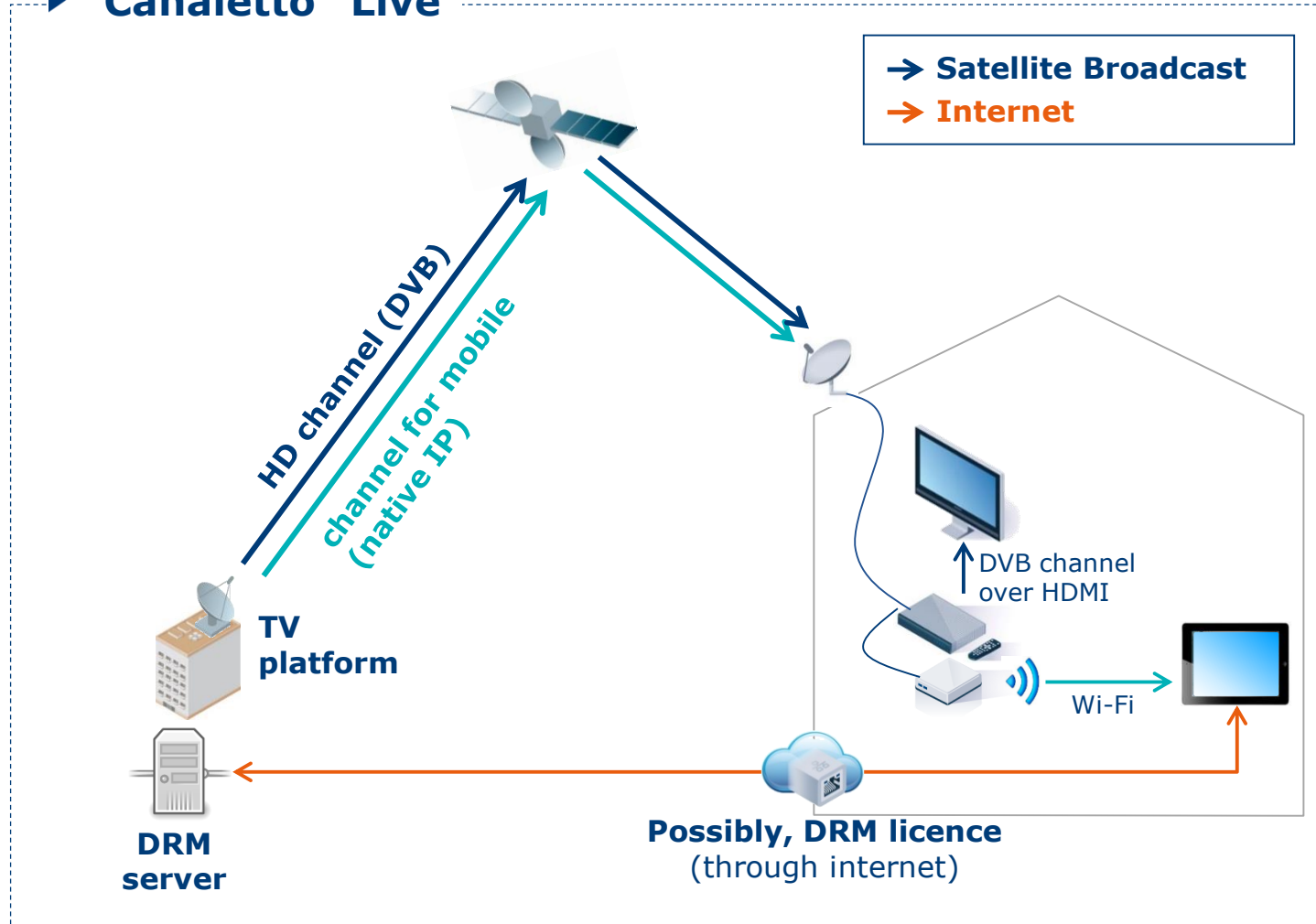
► PUBLIC SPACES



- Watch TV on a tablet while e.g. relaxing at a hotel or waiting for a plane
- A large number of users can simultaneously watch different channels
- Tenants of public spaces (hotels, airports, shopping malls, hospitals...) can improve their attractiveness and better retain their customer

"CANALETTO" LIVE: HOW DOES IT WORK?

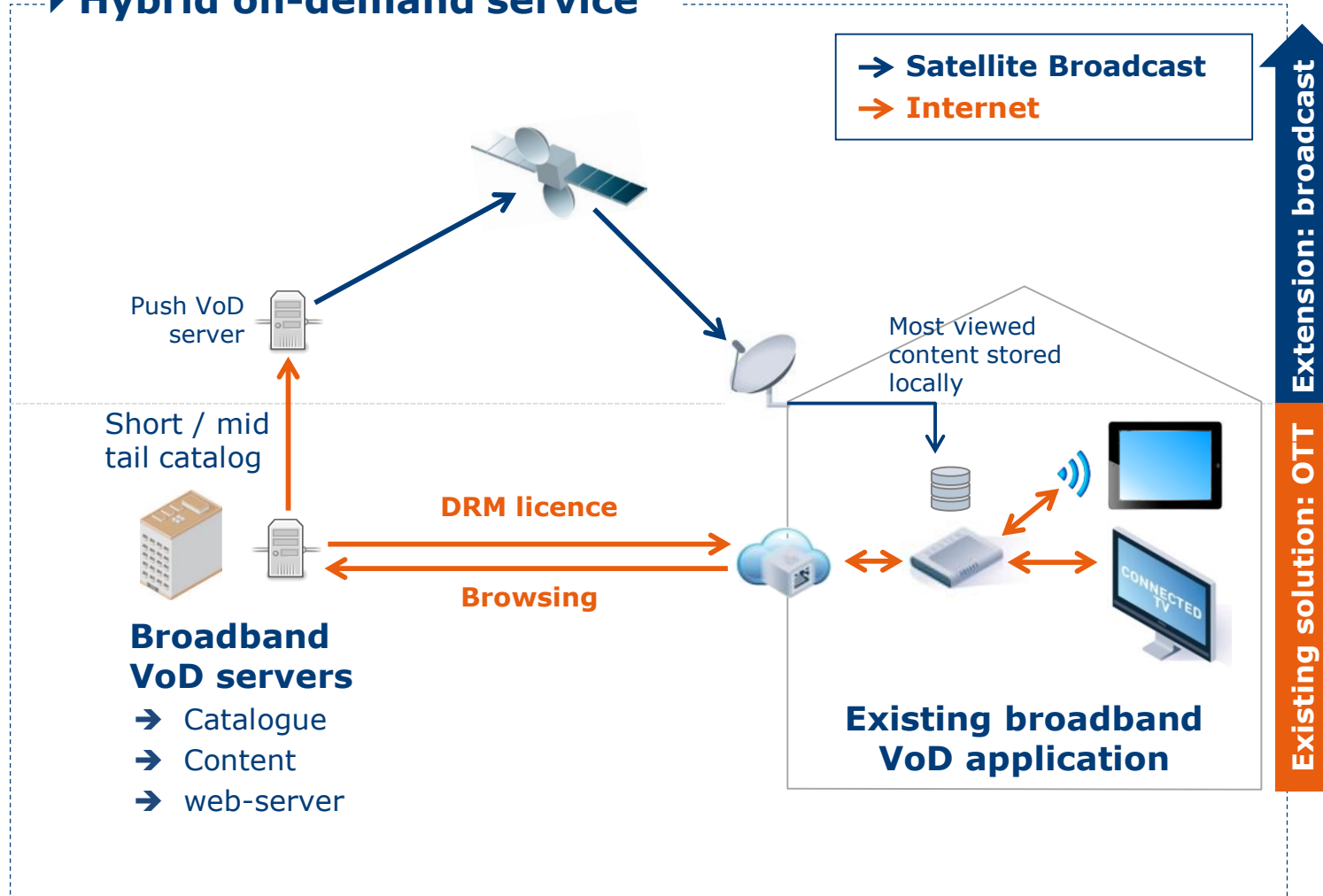
► "Canaletto" Live



- **IP native channel**, simulcast with existing DVB channel
 - Streaming format (HLS, Dash ...)
 - FTA or protected with a DRM
- **Modifications to distribution chain**
 - Dedicated head-end, packaging existing OTT live streams
 - CPE: adds a specific function to convert multicast to unicast
 - Address existing OTT app, with minimal impact (add STP identification in the LAN)
- **Deliver video streams tailored to second screen**
 - e.g. complementary content to main channels (alternate angle / camera in a sport event)

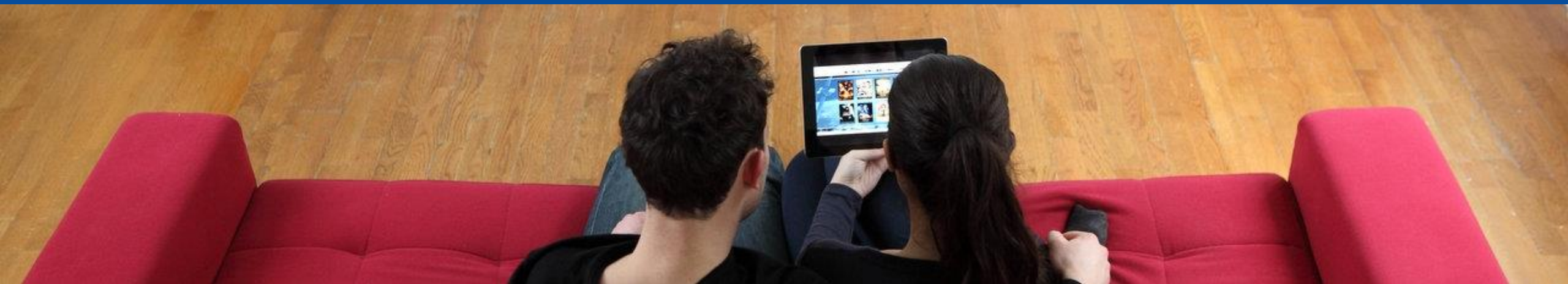
"CANALETTO" ON-DEMAND: INTEGRATE SEAMLESSLY BROADCAST CAPABILITIES IN EXISTING OTT SERVICE

► Hybrid on-demand service



► "Canaletto" on-demand

- Distribute via satellite, store content locally, pre-packaged for tablets/PCs, ready for immediate viewing, ...
- ... fully compatible with existing OTT VoD services:
 - same back-end (incl. DRM)
 - Same customer applications
 - Access to long-tail catalogue through internet (in lower quality)



→ "Canaletto"

→ **Sat.tv**

→ SmartLNB

SATELLITE BROADCAST ALLOWS TO REACH MILLIONS OF HOMES WITH UNMATCHED VIDEO DISTRIBUTION QUALITY

► HOT BIRD at 13°E



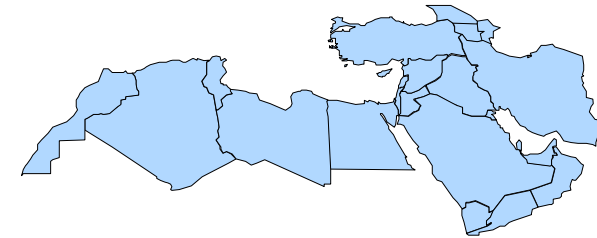
→ 66 M DTH homes

of which

→ 54 M Free-to-Air homes

> 400 FTA channels

► Eutelsat / Nilesat at 7/8°W



→ 52 M DTH homes

of which

→ 51 M Free-to-Air homes

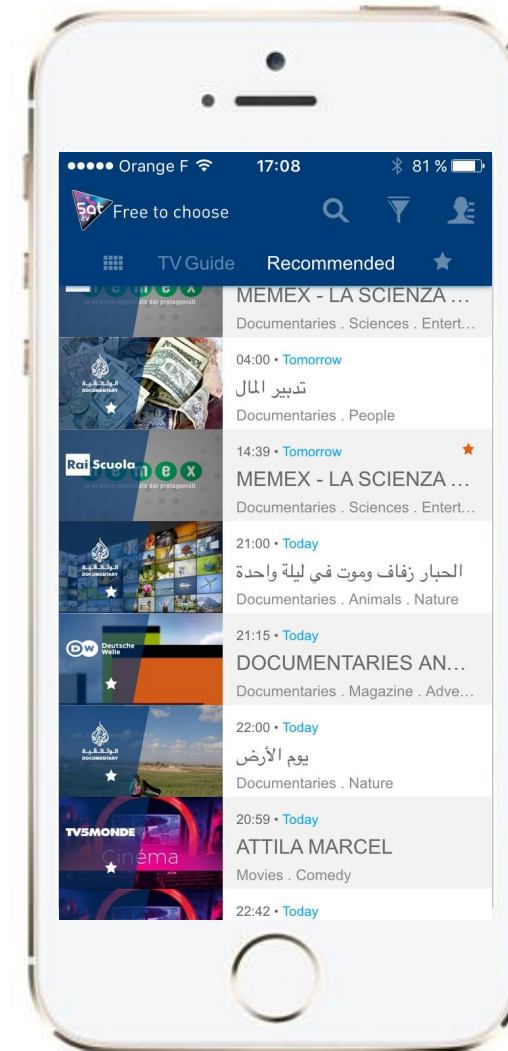
> 1 000 FTA channels

EUTELSAT IS TRANSFORMING HOT BIRD FTA EXPERIENCE INTO A MODERN USER-CENTRIC ONE

▶ “Sat.tv” project on HOT BIRD

- ▶ TV program guide covering all Free to Air channels on HOT BIRD
- ▶ Available on smartphone, tablet and PC
- ▶ Embeds rich programme information
 - Programme images
 - Classified by genre, theme, language, ...
 - Link to additional (non linear) content
- ▶ Included services
 - Recommendation engine
 - Alerts/PVR-record on relevant content, favourite series
 - Zap on a selected program from the app

Live



SAT.TV REINFORCES THE VALUE PROPOSITION FOR FTA CHANNELS

► Extend DTH value proposition

- // From “access millions of Households” ...
- // to “Maximize your audience by presenting your contents and programs efficiently to millions of viewers”

► Benefit from the advantages of both worlds

- // Reach, quality of image, flat cost from the broadcast
- // Easiness to expose the content / flexibility to reach the audience of internet

ROLES OF THE DIFFERENT SAT.TV STAKEHOLDERS: COLLABORATIVE APPROACH

► Eutelsat

// Set-up the infrastructure

- Central data repository, open to all broadcasters on the orbital position
- Mobile applications development, maintenance and distribution

// Promote application to end users

- Modern display-window for broadcaster's content
- Comprehensive HOT BIRD TV guide for the end user

► Broadcasters

// Provide program information

- Provide EPG meta-data on their programs
- through one of the different way proposed by the system

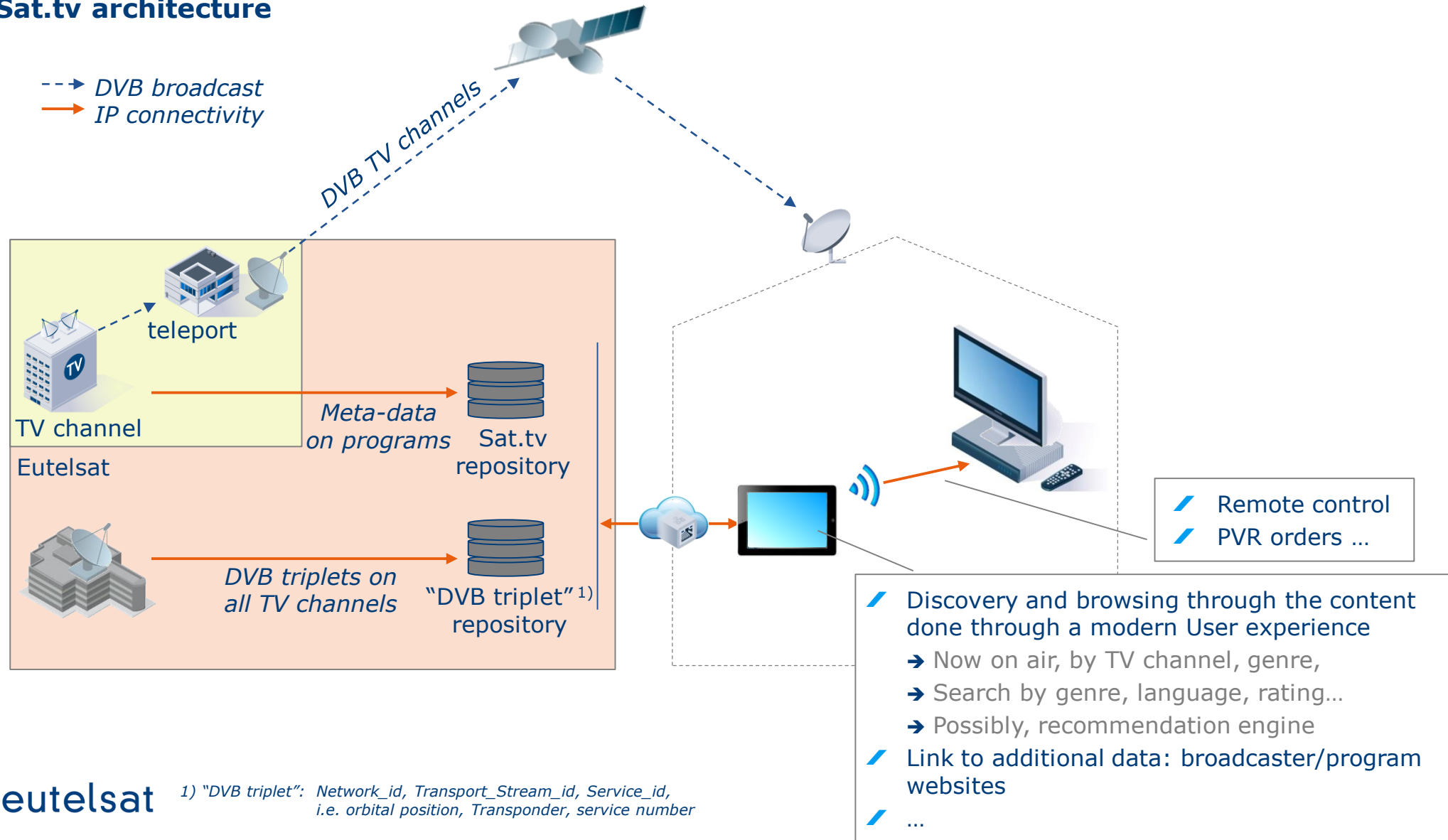
// Promote application to end users

- Accurate meta-data, free of charge for the service



THE SYSTEM COMPLEMENTS BROADCAST WITH METADATA ACCESSIBLE THROUGH AN INTERNET-ENABLED DEVICE

Sat.tv architecture

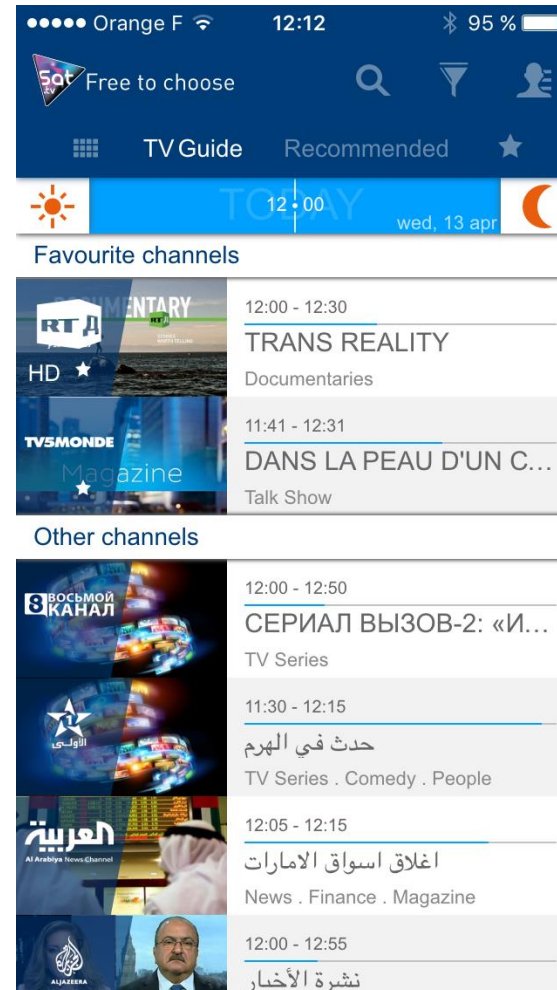


THE APP OFFERS 3 WAYS OF BROWSING THROUGH THE CONTENT

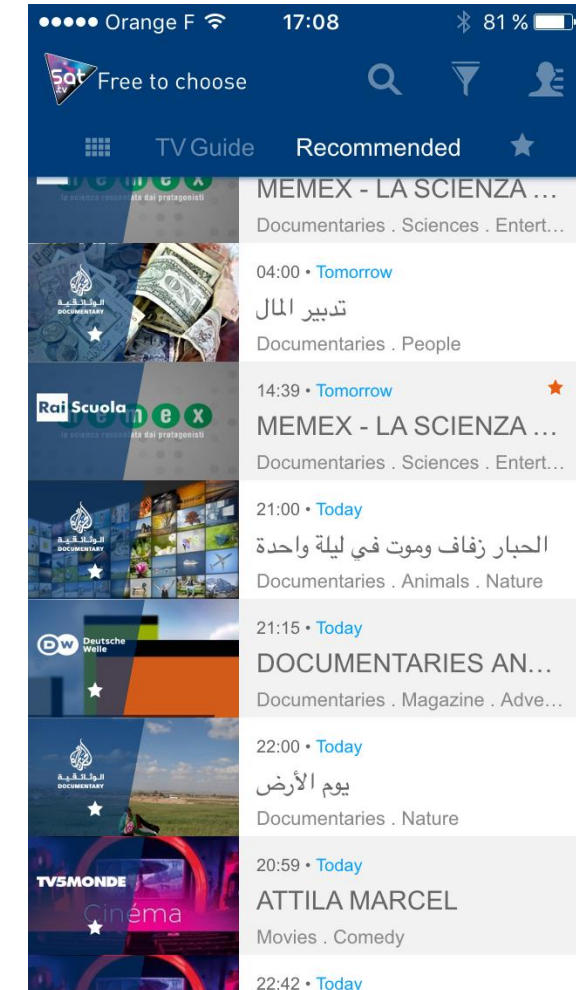
Mosaic of TV channels



TV channel grid



User specific recommendations



WHAT DOES IT MEAN FOR OUR INDUSTRY PARTNERS?

- ✓ **New set-top boxes compatible with the end-to end service (embedding an API yet to be defined)**
 - Set-top-box remote control from the app : zapping and PVR
 - Set top box able to stream content to the app (streaming format yet to be defined)
- ✓ **... allowing to differentiate from basic FTA receivers on the market, thanks to a certification program and service logo**





→ "Canaletto"

→ Sat.tv

→ **SmartLNB**

THE SMART-LNB: WHAT IS IT?

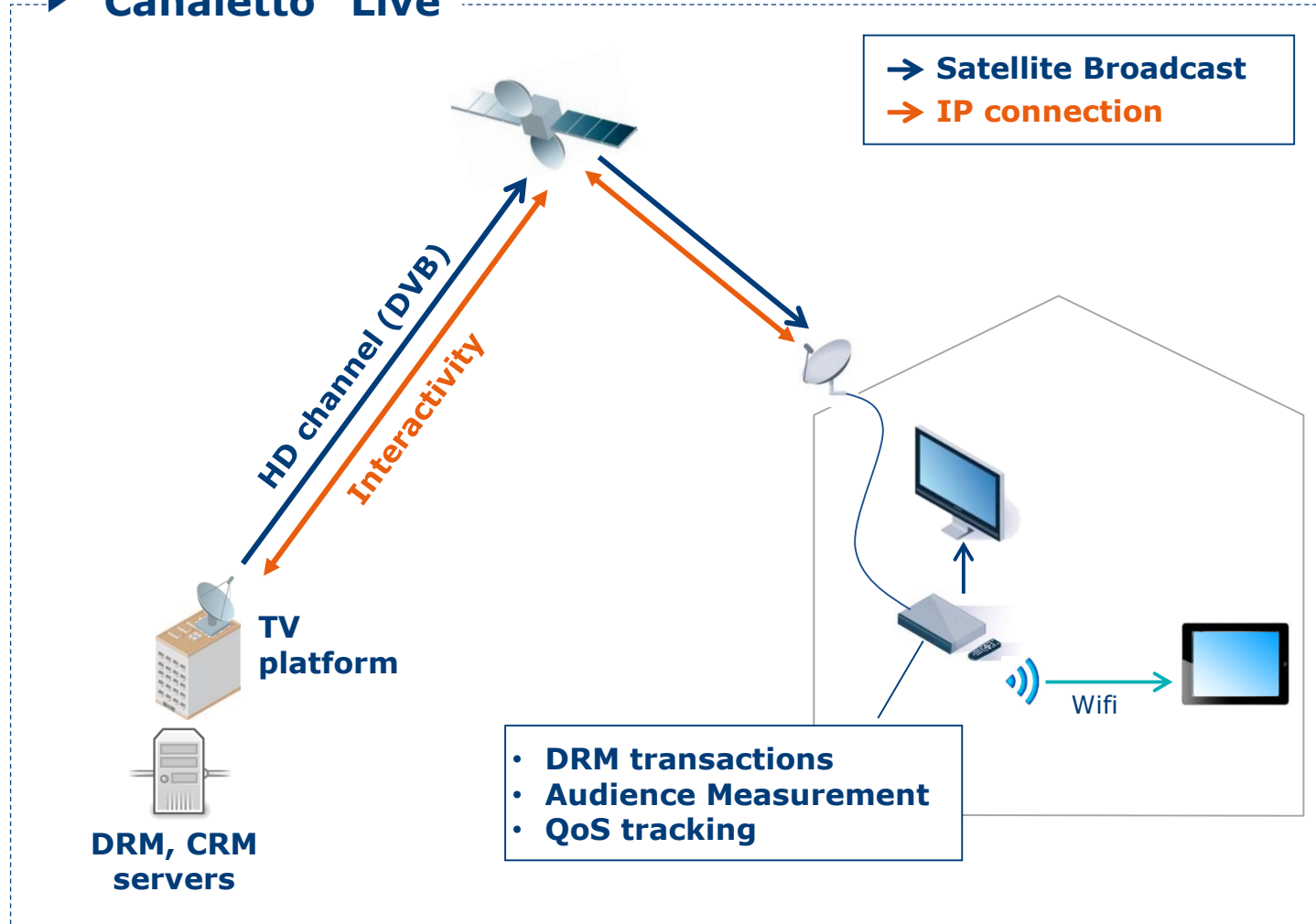
The Eutelsat "SmartLNB":

- /// A new-generation intelligent LNB (Low-Noise-Block) integrating in one block
 - ➔ DVB receiver
 - ➔ Two way IP modem
 - ➔ IP router
- /// Provides DTH (direct-to-home) reception + bi-directional IP connectivity
- /// Key features:
 - ➔ Low power consumption
 - ➔ Cost efficient terminals
 - ➔ Optimised for millions of terminals
 - ➔ Dedicated and scalable network architecture
 - ➔ Reuse existing cabling

- /// Forward link quasi unlimited
 - ➔ Ku-band
 - ➔ Traditional DVB broadcast system performance (e.g. 60 Mbps over 36 MHz)
 - ➔ From narrowband content to full 4K UHD over IP
- /// Return link from 5kbps to 160kbps per user
 - ➔ Ku-band or Ka-band
 - ➔ Based on asynchronous CDMA technology (E-SSA)
 - ➔ F-SIM (Fixed Satellite Interactive Multimedia), protocol developed by Eutelsat
 - ➔ High spectral efficiency up to 2 bit/sec/Hz

SMART LNB PROVIDES A RETURN LINK, IRRESPECTIVE OF ANY TERRESTRIAL INTERNET CONNECTION

► “Canaletto” Live



Benefit for TV platform

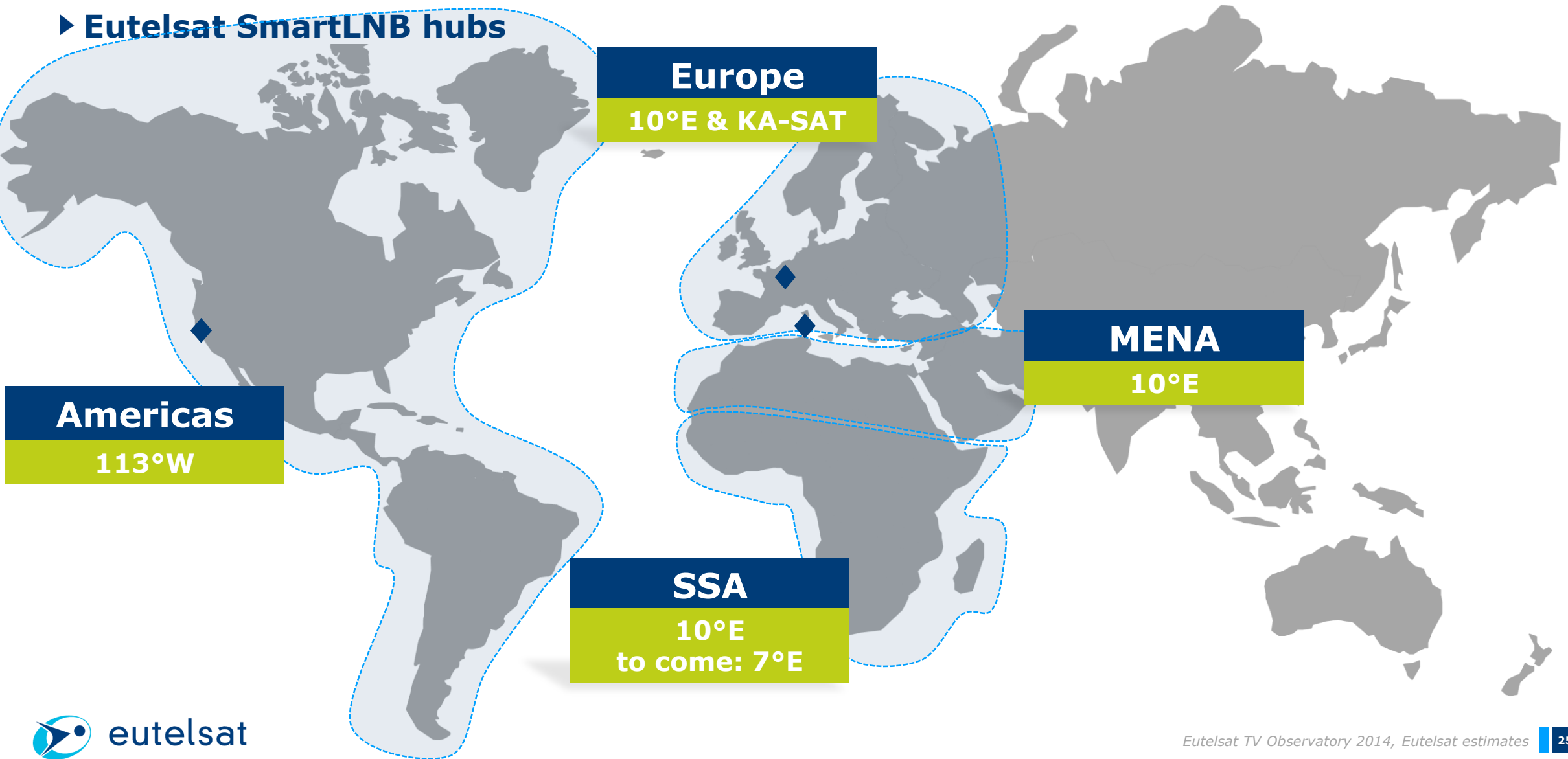
- Attract new customers by offering ‘Canaletto’ services
- ARPU increase, by facilitating the transactions
 - ➔ Easy subscription upgrade
 - ➔ Impulse purchase...
- Churn reduction and subscriber loyalty improvement
 - ➔ Better user experience thanks to user profiling and personalized recommendation
 - ➔ usage tracking allows setting-up warnings on low usage clients
- Technical churn reduction through quality of service improvement
 - ➔ Installation accuracy improvement
 - ➔ Proactive quality of service improvement

SMARTLNB TECHNOLOGY HAS BEEN DESIGNED FOR COST EFFECTIVE BIDIRECTIONAL VIDEO EXPERIENCE

Goal	Specs.	Results
Low equipment cost	<ul style="list-style-type: none">Massive reuse of mass market componentsStandard 80cm parabolic dishReuse of existing cabling	<ul style="list-style-type: none">Target: 40\$/unitCost effective upgrade of the antenna
Very low operational cost	<ul style="list-style-type: none">High spectrum efficiency for return linkReturn link usage tailored to best usage of 2way connectivity: Return link from 5kbps up to 160kbps for each end userForward link quasi unlimited	<ul style="list-style-type: none">Cost: a few Euros / year / user ¹⁾
Scalable system	<ul style="list-style-type: none">Return-link with dedicated and scalable network performanceAbility to multicast content to all the "smart LNB"	<ul style="list-style-type: none">Several million users per 36 MHz transponder (return link)
Proven technology	<ul style="list-style-type: none">DVB-S2 in forward linkEthernet over CoaxReturn link hub technology largely tested since 2010	

SMARTLNB HUBS ARE ALREADY OPERATIONAL ACROSS HALF OF THE WORLD

► Eutelsat SmartLNB hubs



SMARTLNBS ARE UNDER INDUSTRIALISATION

► Gen1: prototypes

Produced in 2013 and 2014

- Versions: C-Ku, Ka-Ku, Ku-Ku
- Several units



► Gen2 & 3: industrialisation

Production started in 2015

- 10s thousands units
- Versions Ku-Ku, Ka-Ku

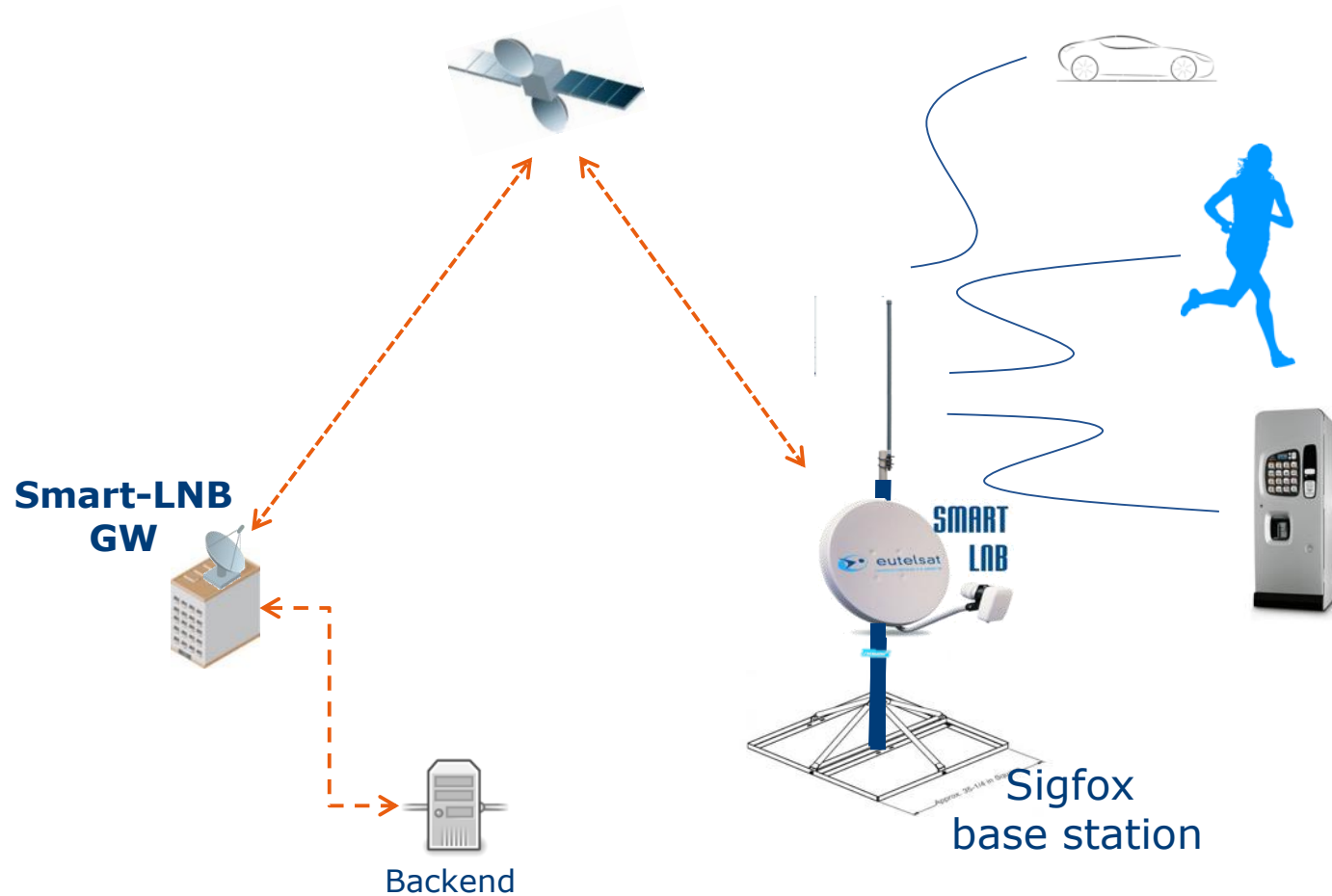


► Gen4: preparation

- Studies have started to optimise performance, BOM and weight

FIRST COMMERCIAL DEPLOYMENT IS DONE WITH IOT SERVICE PROVIDED SIGFOX

► Backhauling for IoT terrestrial networks



► The LPWA base stations connected via the Smart LNB to the operator backend

- High availability
- Independent connectivity
- Secure communications
- Low cost connectivity
- 100% coverage of territory
- Standardized and fast network deployment
- Guaranteed QoS
- Low power consumption
- Stand alone and easy installation

CONCLUSIONS

/ For the operators

- Using Hybrid solution allows operators to offload their networks something impacting the overall service experience of the end user
- Better user experience with the best possible content image quality

/ For the broadcaster

- Better understanding of the viewers and their needs and habits
- Possibility to provide personalized content

Thank you