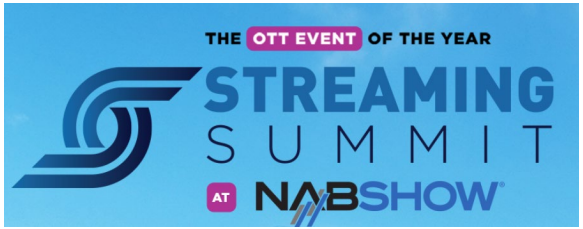


How Eutelsat and Sky Italia are Exploring Multicast Adaptive Bitrate Streaming for Large-Scale Content Distribution

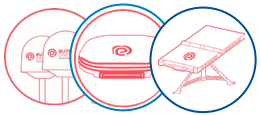
EUTELSAT GROUP – A KEY PLAYER IN THE SPACE BUSINESS

A PIONEER IN SPACE

+40
YEARS OF EXPERIENCE

UNIQUE GEO-LEO SYSTEM WITH GROUND INFRASTRUCTURE FOR GLOBAL COVERAGE

SOLID INVESTMENT PROGRAMME



EXPANDING RANGE OF FIXED & MOBILITY PRODUCTS

1.26B€
REVENUES FOR FY 2023-2024

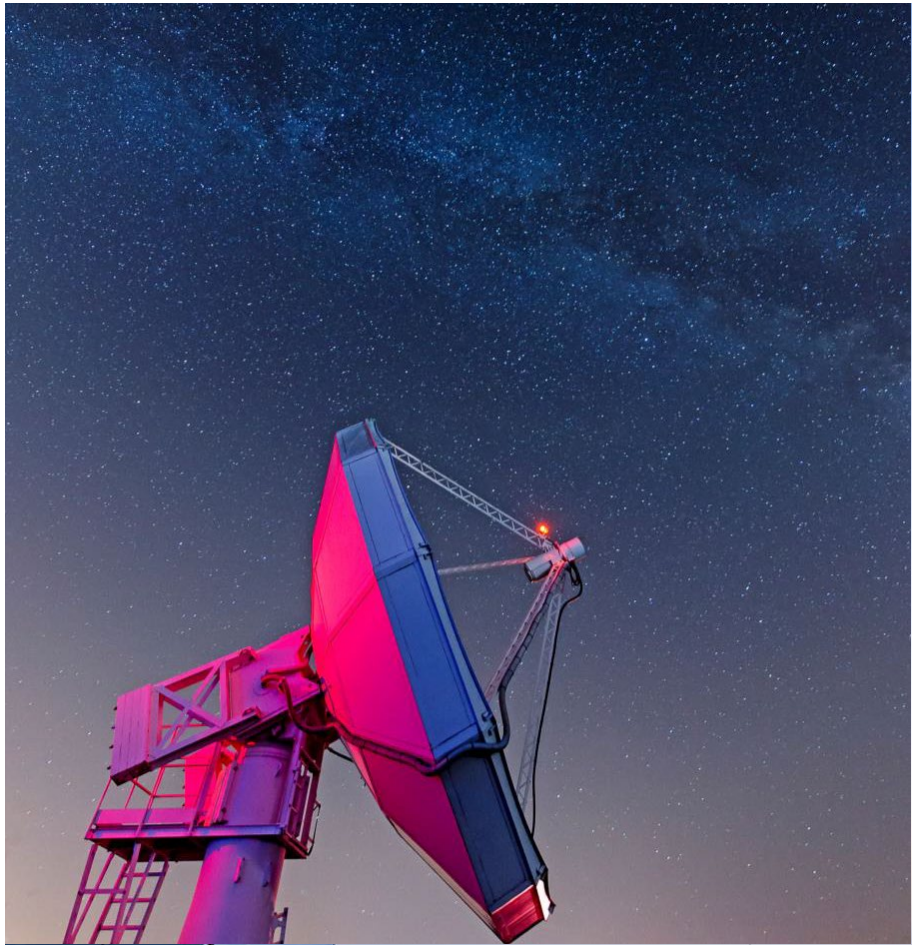
LEADING INNOVATION

Accelerating the transition to **ALL-ELECTRIC SATELLITES**

Spearheading a new generation of **SOFTWARE-DRIVEN** satellites

Pioneering **VHTS** technology to deliver high-speed broadband

Leveraging hybrid advantages of **LEO** (speed & latency) with **GEO** (throughput & density



SHAPING A NEW ERA FOR BROADCASTING

6500
TV channels

60 **TV** platforms
40% **Free-to-Air** channels

1 billion
TV viewers

BANDWIDTH FOR NEW IMAGE FORMATS

+2200 HD channels
accelerating take-up

25 Ultra HD channels
on 7 orbital positions

HD
30% OF CHANNELS

4K ULTRA HD

Working with clients on new products and services
ANYTIME, ANYWHERE, ON ANY DEVICE

AGENDA

DVB-NIP (Native IP)

- What is it?
- What does it bring?
- How does it work?
- Use Cases

SKY Italia Hospitality Service

- The Challenge: ensuring consistent QoS in the new hospitality offer
- The Solution: using DVB-NIP to bypass the Internet bottlenecks

The Trial

- What has been done
- Next steps

DVB-NIP: WHAT IT IS AND WHAT IT BRINGS

What is DVB NIP® ?

- **ETSI Standard**

ETSI TS 103 876 V1.1.1 (2024-09)

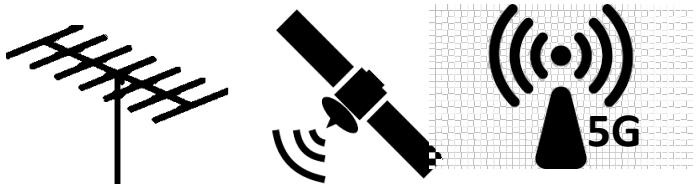
What is DVB NIP® ?

[…] a Native IP (NIP) Broadcast System based on existing DVB technologies […]

[…] for the requirements of network operators and broadcasters […]

[…] that want to leverage IP for the distribution of content […]

DVB T2 DVB S2
DVB I DVB MABR DVB DASH



DVB-NIP: WHAT IT IS AND WHAT IT BRINGS

What is DVB NIP® ?

DVB-TM

Strong support from the Satellite ecosystem and the industry

Tom Christophory

SES

Régis Moulin

EUTELSAT GROUP

ENENSYS Technologies

inverto

ST Engineering iDIRECT

broadpeak

EKT

SOFIA DIGITAL

onscreen publishing
apps. anywhere. easily.

BEST OF OTT AND BROADCAST WORLDS

OTT experience

- ✓ Multi-screen
- ✓ Live and On Demand
- ✓ Rich and modern UI

Reliability & satellite coverage

- ✓ Broadcast grade availability
- ✓ No congestion / buffering effect
- ✓ Enabling places with limited connectivity

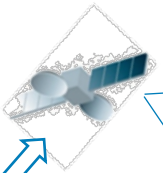
DVB-NIP: HOW DOES IT WORK?

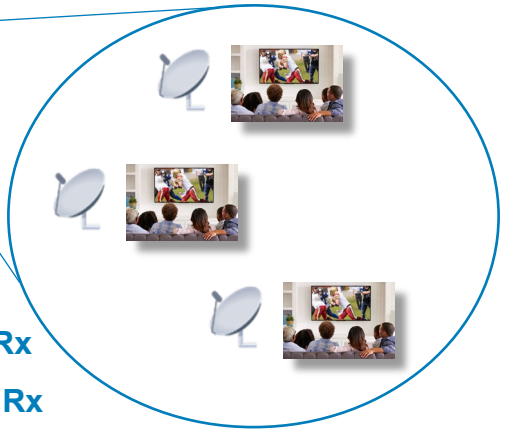
The challenge of video distribution today

MPEG Compression

High throughput/quality

Broadcast





Same signal for every Rx

Same (fix) cost to feed Rx

Video Assets
(TV Channels)

OTT

ABR
Compression

Uneven throughput/quality
(to adapt to Internet bottlenecks)

Unmanaged NW

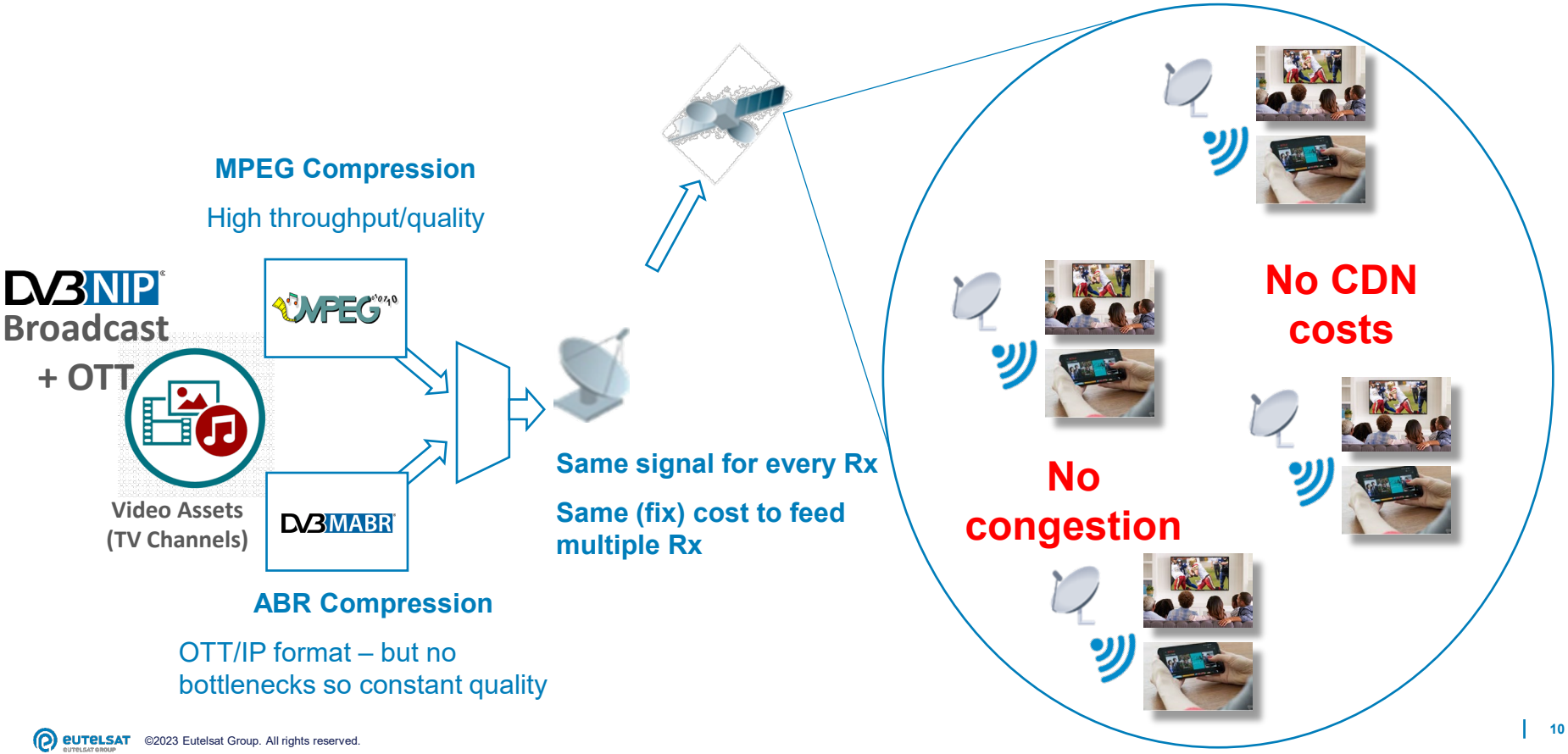
(public Internet)

CDN costs

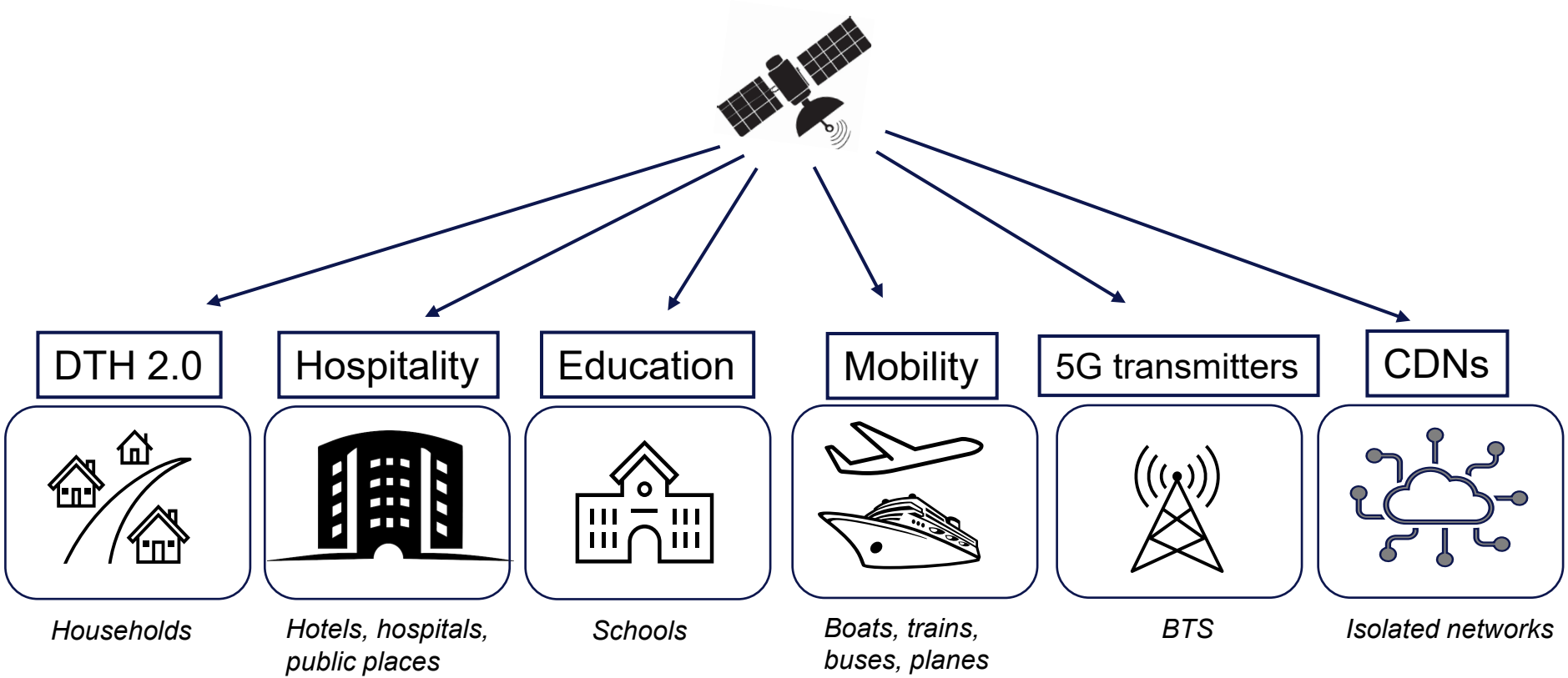
(+user +cost)

DVB-NIP: HOW DOES IT WORK?

The benefit of OTT over satellite



DVB NIP MAIN USE CASES



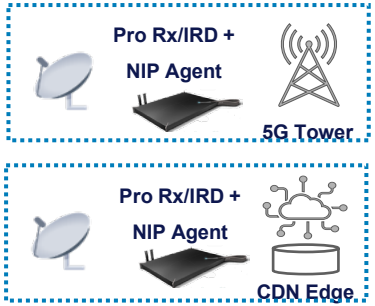
DVB-NIP: USE CASES (1/2)

DVB NIP

Next-Gen DTH (FTA/Pay)

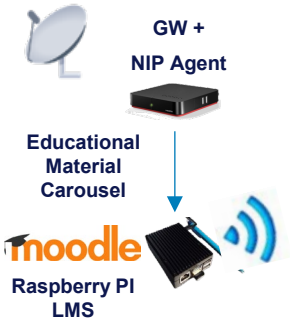
Hospitality + Venues

Edge Feeding (CDN / 5G)



DVB-NIP: USE CASES (2/2)

Education



Mobility

SKY ITALIA – BUSINESS SERVICES

sky business

sky

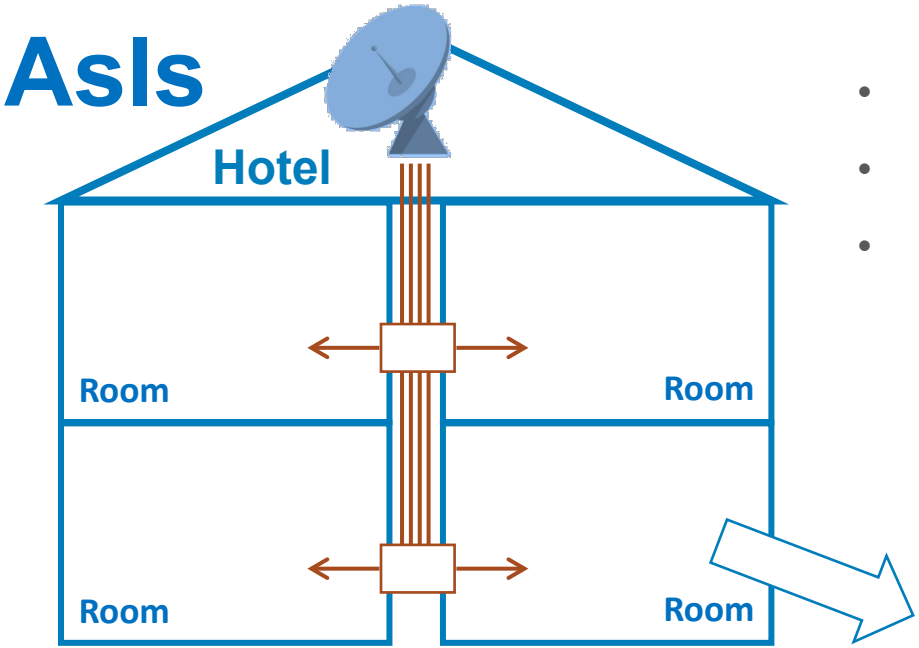
Bars

Hotels

Shops & Offices

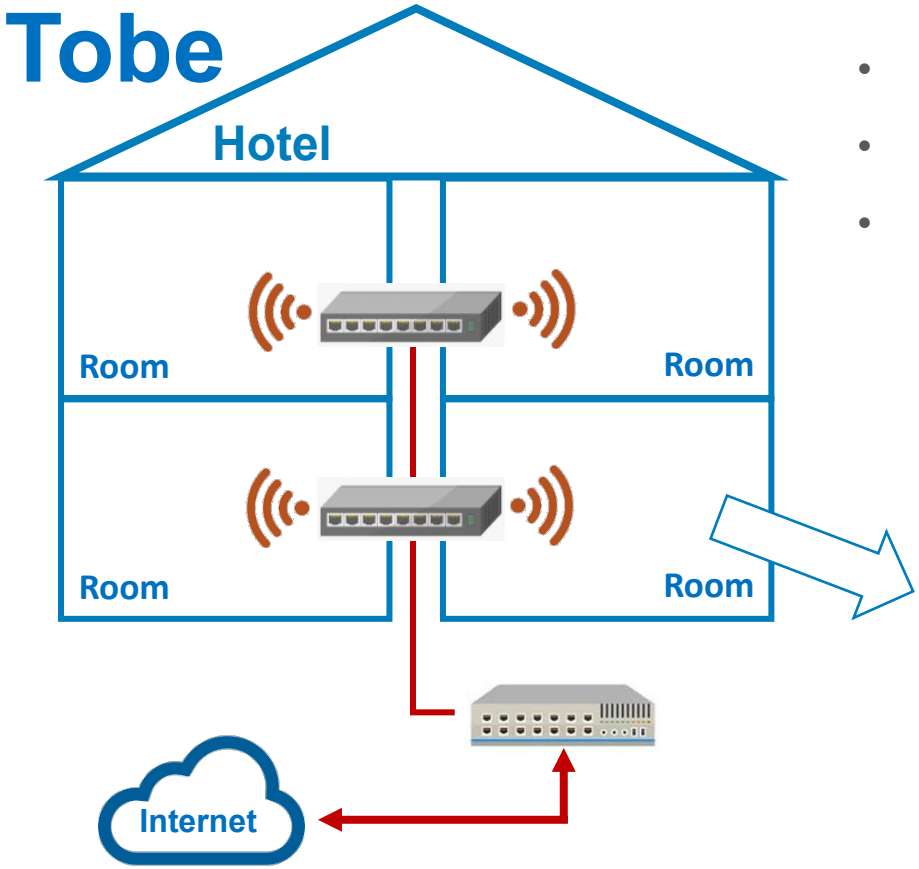
Other Venues

SKY ITALIA – HOSPITALITY FOR HOTELS



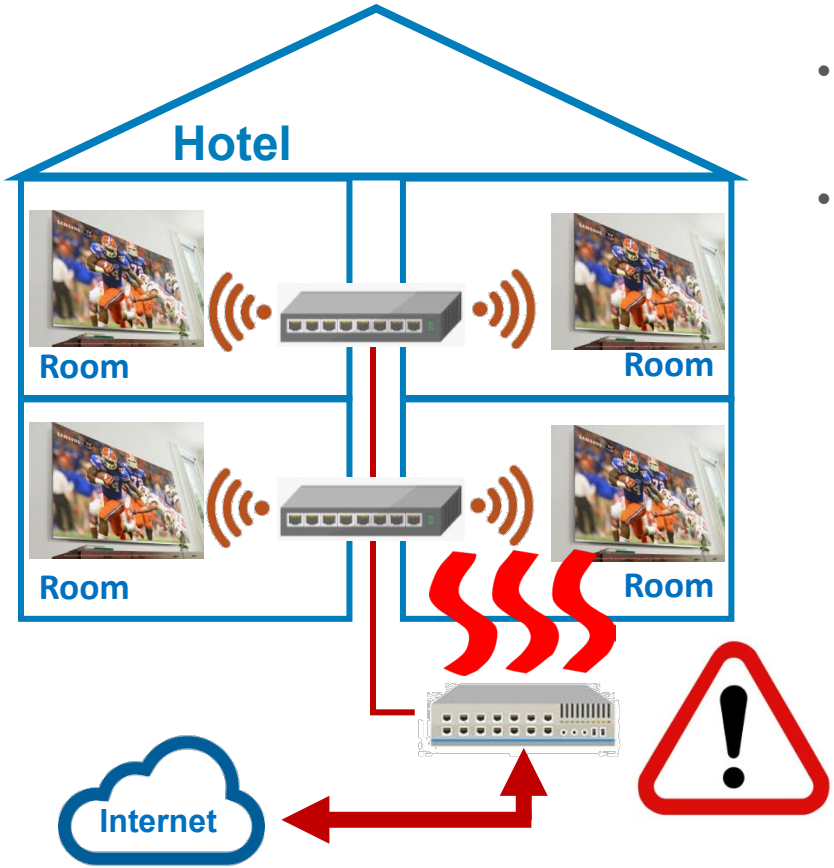
- Satellite MATV Network in the hotel
- Each room has its own satellite receiver
- Consistent user experience

SKY ITALIA – HOSPITALITY FOR HOTELS



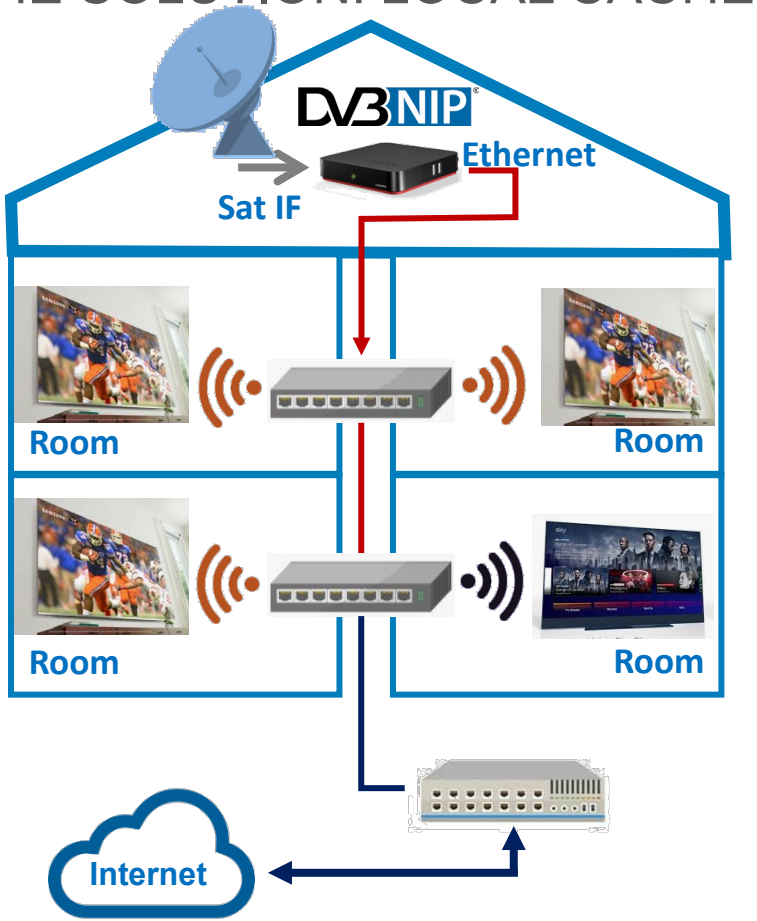
- Sky Stream OTT Box in the room
- Relying on hotel internet connectivity
- Potential risk of congestion at hotel backbone

SKY ITALIA – HOSPITALITY FOR HOTELS



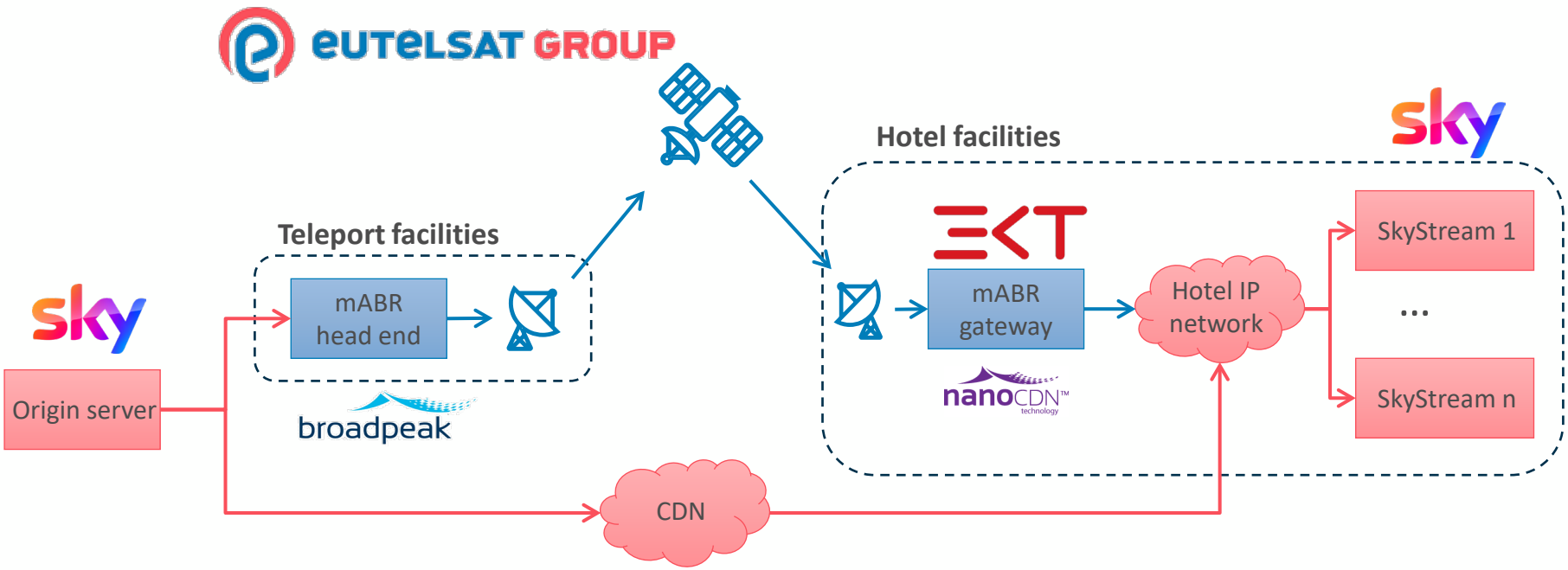
- Potential risk of congestion at hotel backbone when users watch simultaneously
- Popular content is more prone to create congestion on the backbone

THE SOLUTION: LOCAL CACHE VIA DVB-NIP



- The Solution consist in deploying a local Cache feeding the most watched channels via satellite
- A DVB-NIP receiver will provide these channels to the local IP network
- The Room Player (SKY Stream STB) will receive the popular Channels in IP mABR via satellite and the less requested content in IP mABR from the internet backbone of the hotel

MABR SOLUTION IN SKYSTREAM HOSPITALITY ENVIRONMENT



Solution is non-intrusive and cohabits with existing SkyStream environment

TRIAL SETUP

Sat Rx

sky tg24

sky

Origin Server

sky sport

- Ingest from Origin

broadpeak

- Layer Filtering

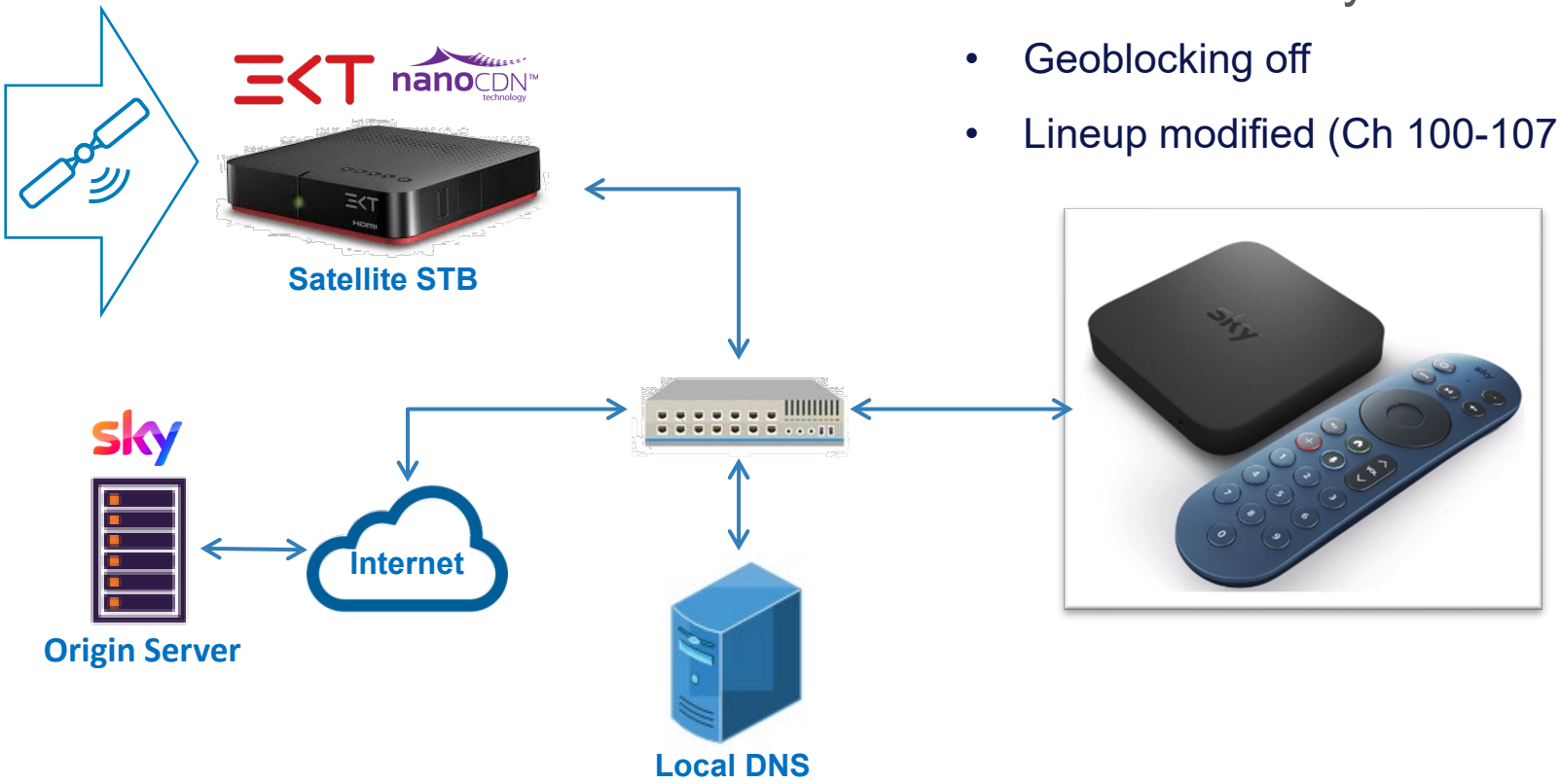
- HTTPS with DRM and Certificates

EKT nanoCDN™ technology

- Porting NanoCDN on 6828 HW Platform

TRIAL SETUP

- SKY modified SkyStream STBs
  - Geoblocking off
  - Lineup modified (Ch 100-107 via Satellite)



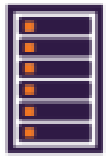
TRIAL SETUP

- SKY modified SkyStream STBs
  - Geoblocking off
  - Lineup modified (Ch 100-107 via Satellite)

Satellite STB

Ch 100-107

sky



Origin Server

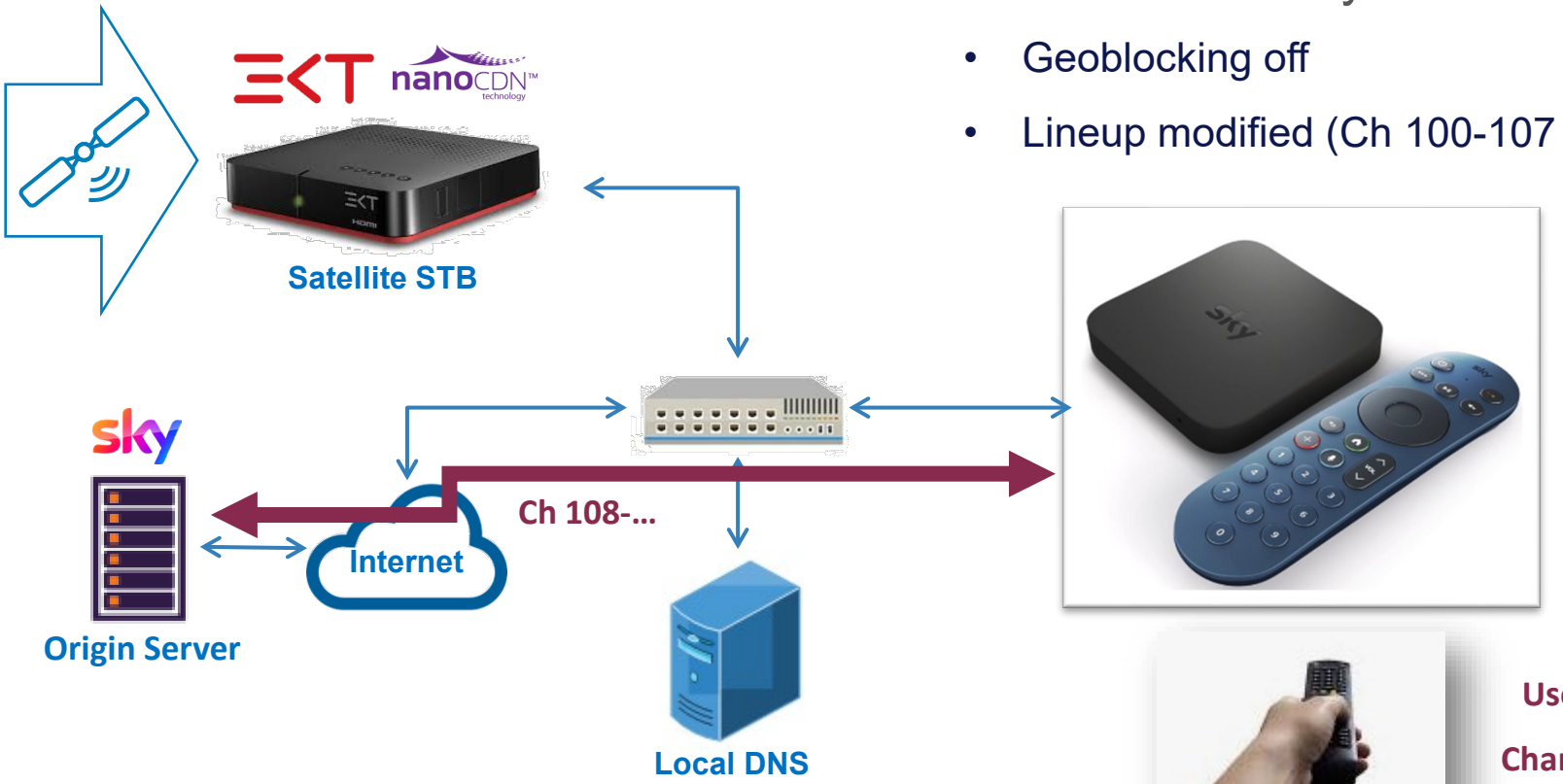
Local DNS

User selects

Channel 100-107

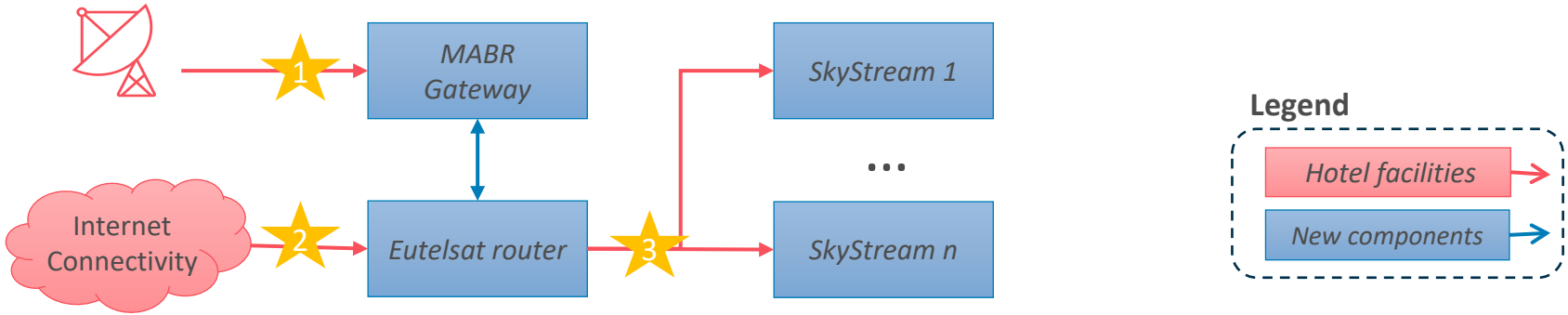
TRIAL SETUP

- SKY modified SkyStream STBs
  - Geoblocking off
  - Lineup modified (Ch 100-107 via Satellite)



SETUP IN THE HOTEL

The solution tested is illustrated below:



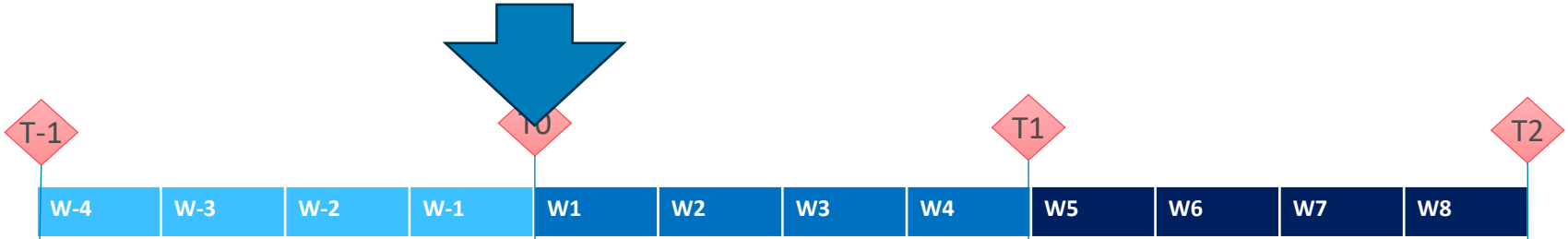
Impacts for the hotel are limited to:

1) HOTBIRD satellite reception over L-band to be plugged directly into the Gateway's tuner

2) Internet connexion for SkyStream STBs to access online channels through the Router

3) Ethernet wiring between the router and the rooms (alternatively, Wi-Fi can be used)

WHERE WE ARE TODAY



T-1 > T0 – Study phase:
- Agree on channel list & profiles
- Prepare SkyStream STBs
- Clarify hotel network configuration

T1 > T2 – Full pilot:
- Increase number of rooms
- Potentially run A/B testing

T0 > T1 – Limited number of rooms:
- On-site installation & testing
- Start collecting metrics

T2 – Results compilation:
- Aggregate metrics from different sources
- Compile final report & findings

THANK YOU!

Cristiano BENZI – cristiano.benzi@eutelsat.net
Albin DU PASQUIER – albin.dupasquier@eutelsat.net

SKY ITALIA – HOSPITALITY FOR HOTELS

- Challenges
  - Deliver content carried from the satellite without impact for the STB
  - Comply with quality and security expectations
- Results
  - All the traffic is delivered by local gateway in HTTPS as if it was retrieved from the CDN directly
  - The rest of the communication goes through Internet, including DRM licenses acquisition
- Advantages
  - The solution integrates transparently within SkyStream environment
  - Channels are played with best QoS without any rebuffering, event during peak hours

SKY ITALIA – HOSPITALITY FOR HOTELS

- How does it work
- Channel ingest
  - Channels are ingested from CDN in HTTPS
  - Only a selection of layers is carried on the satellite
  - Manifest are manipulated on the fly on the NIP gateway
- Local https traffic
  - The TV lineup is configured with a specific manifest URL
  - The local router act as DNS for these channels routing demand to the Gateway
  - The gateway serves the content in HTTPS using signed certificates