HDFI • 2021 ANNUAL CONFERENCE

15° Years Anniversary

New solutions for successful transitions to IP

Emily Dubs
Head of Technology, DVB
Rome, 4 November 2021

Agenda

In Europe, different migration paths to IP coexist across markets

DVB-I Service Discovery, a harmonized and network-agnostic service layer

The wider ecosystem: DVB's IP-centric solutions for smooth migration strategies

DVB-NIP (Native IP), media streaming over broadcast

Useful links, webinars & demos

A phased migration to IP is expected across Europe

Cost per Viewer Hour
(e.g., 4Mbps channel)

Crossover point (DTT = IP cost)

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028
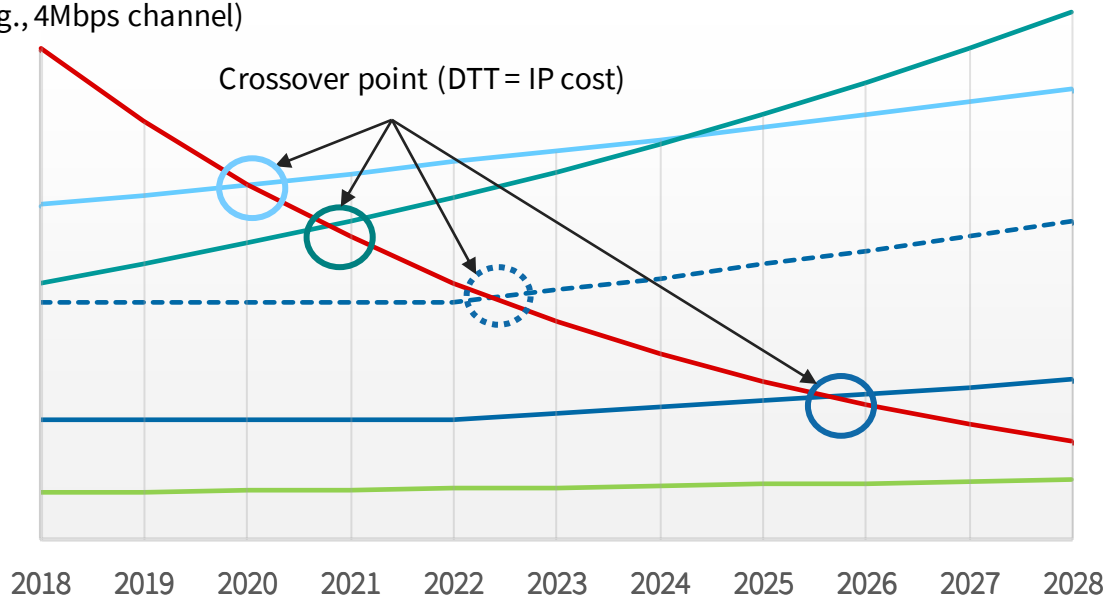
Source: Ofcom research

IP - All countries

DTT in Country A
Small nation with low population density, well-developed fibre broadband, and DTT/cable/sat equal shares.

DTT in Country B
Large nation with mainly urban population and rural, lightly inhabited areas, and DTT is the main TV network.
Niche channel
Popular channel

Country C
Large nation with mainly urban population and rural, lightly inhabited areas. DTT serves a single digit % share.
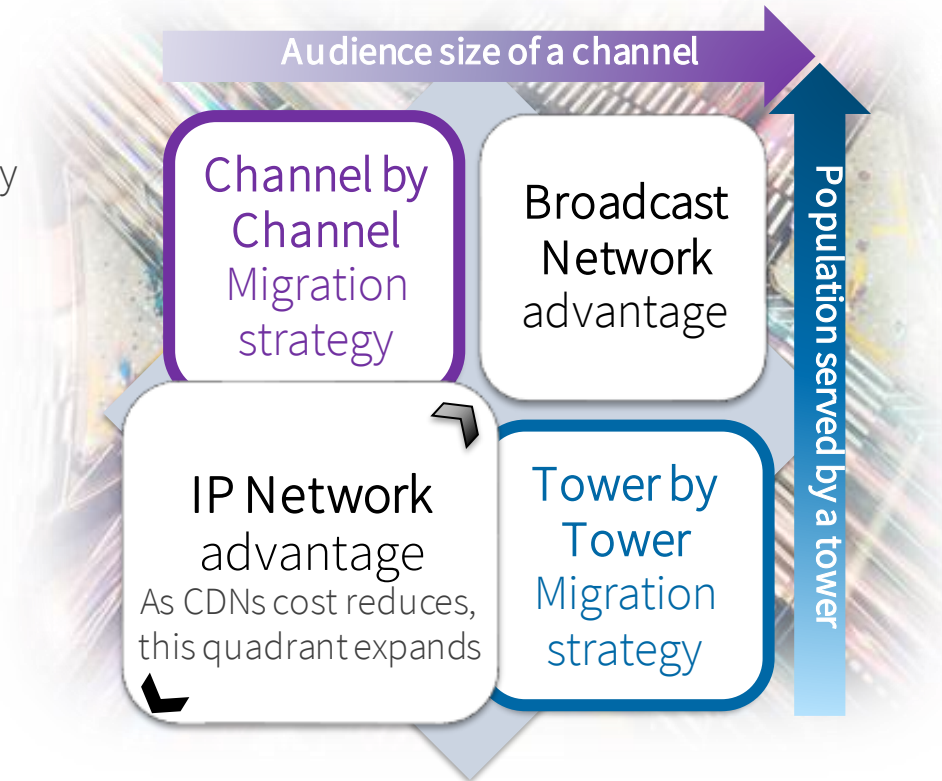DTT
VSAT

«Per channel» and «per tower» migration paths will coexist

Different forms of DTT migrations paths:

- Tower by tower migration strategy
- Channel per channel migration strategy

➔ Different forms hybrid networks usage will remain for long

The right tools are needed for successful migration journeys

Audience size of a channel

Population served by a tower

Channel by Channel Migration strategy

Broadcast Network advantage

IP Network advantage
As CDNs cost reduces, this quadrant expands

Tower by Tower Migration strategy

All roads lead to DVB-I

Migration to IP /
Fragmentation
everywhere

New industry challenge
➔ New DVB focus

DVB is creating the much-needed transition model

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DVB-I

Alone

08:01 - 11:00, 90 mins remaining
Genre: News/Current affairs

➜ DVB-I breaks down the barriers between broadcast and broadband worlds

	10:00	10:30	11:00	11:30	12:00	12:30
DVB-T channel 1	Wild About Animals	Cities		Jason Peterson's In	Jungles	
DVB-T channel 2	London		Like Father, Like Sun		International Situation	
IRT test channel	NASCAR Race Hub			TMZ Sports	Sports Scene	The Fantasy Show
	Alone		Jungles			We Bought a Zoo
Akamai	Wild About Animals	Cities		Jason Peterson's In	Jungles	

ok Select   ◄◄ -5   ►► +5   I◄ First   ►I Last

DVB-I defines services discovery over the internet
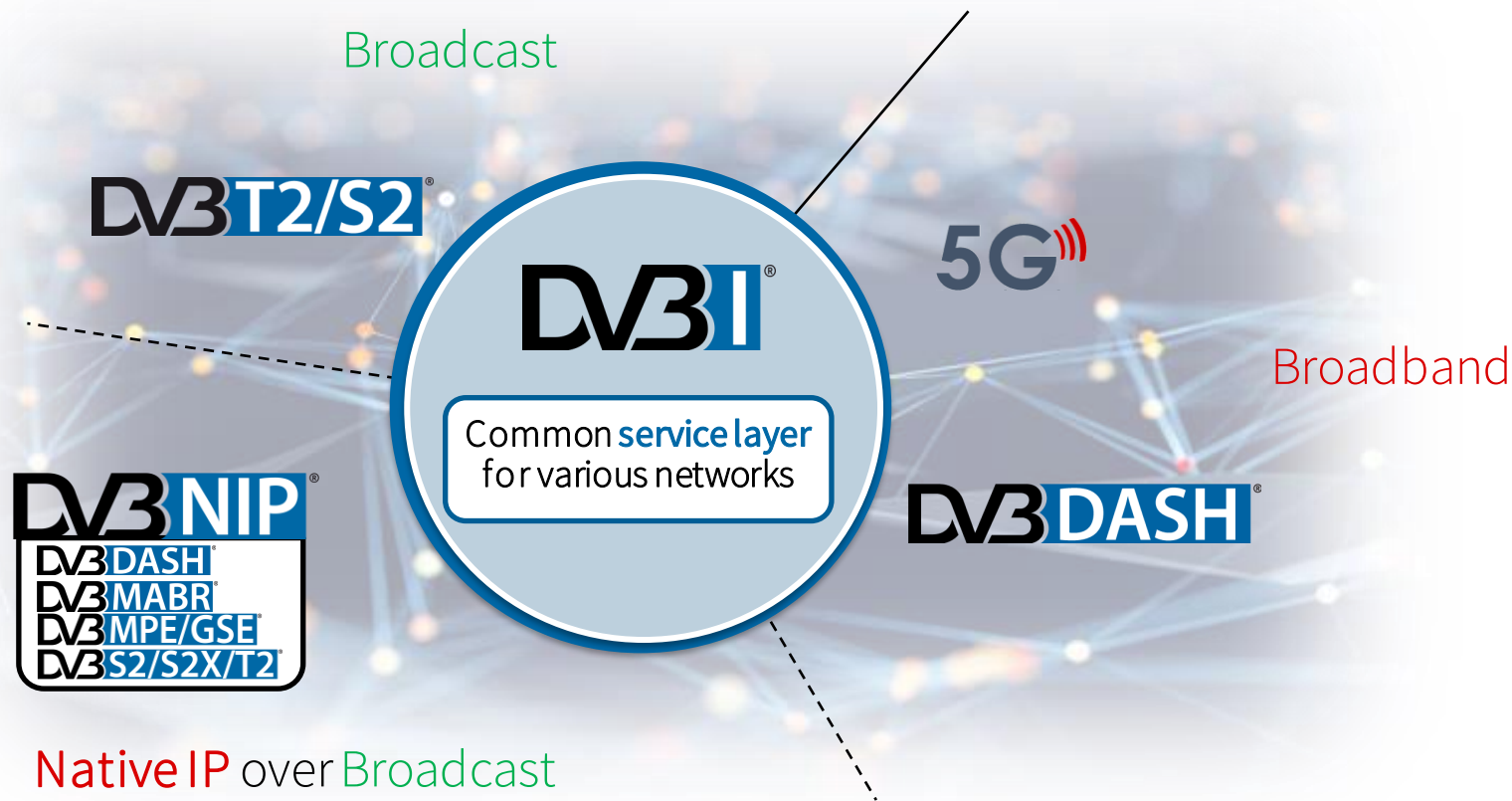

Harmonized Service **Discovery** and EPG
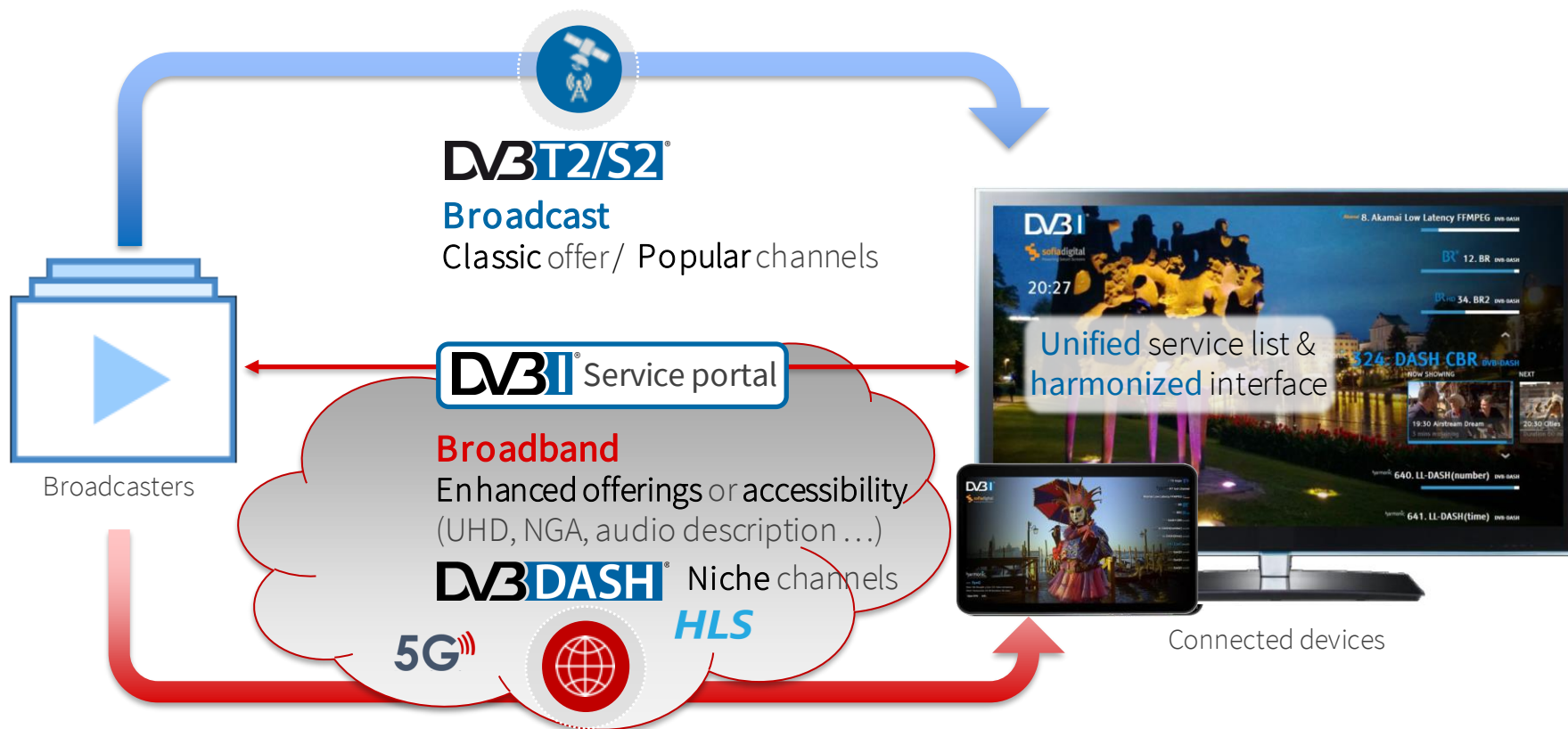
&

Optimized service **Delivery** over internet

DVB-I (TS 103 770) defines the mechanisms for the **discovery of service lists** and to retrieve EPG over the internet

DVB-DASH (TS 103 285) is the optimized streaming format defined for the **delivery of DVB-I services** over the internet

DVB-I offers a common service layer across networks

DVB-I allows enhanced offerings / smooth IP migrations

DVB T2/S2

Broadcast
Classic offer / Popular channels

DVB I Service portal

Broadband
Enhanced offerings or accessibility
(UHD, NGA, audio description …)

DVB DASH Niche channels

HLS

5G

Broadcasters

Unified service list &
harmonized interface

Connected devices

DVB-I for 5G (or for **any** future distribution standard)

Harmonizing broadcast TV and cellular: DVB approves commercial requirements for DVB-I over 5G
23.07.2021

News

❑ In July, Commercial Requirements (CRs) for the use of **DVB-I as the service layer on top of 5G** were published (__DVB BlueBook C100)__

  ➢ Support Rel-16-based 5G operation modes (5G Broadcast, 5GMS)
  ➢ Collaboration with 3GPP to monitor the work beyond Rel-16

❑ DVB-I services over 5G will support integrated DVB-I hybrid services, whose basic broadcast distribution is augmented with unicast for:

  ➢ extended service coverage,
  ➢ lower distribution costs,
  ➢ improved quality and additional user experiences.

DVB-I can serve as the "service aspect" of any IP centric distribution platform, creating interfaces and APIs to distribute services over any IP network.

# DVB-I Central Service List Registry (CSR) - PoC

Work begins on Central Service List Registry for DVB-I

22.09.2021

News

❑ A DVB-I CSR will enable **fast and efficient access to the Service Lists**, which may be created by content providers, service operators, national regulators, …

❑ In August, Sofia Digital has been selected to build a skeleton DVB-I CSR
  ➢ The 1st phase is a PoC to validate the technical approach taken in the DVB-I standard
  ➢ Under the 2nd phase, the implementation will be made freely available for others to test their own DVB-I services and clients.

"Relevant services can be found among thousands"

"A CSR opens the door for existing closed platforms to a huge new variety of alternative content."
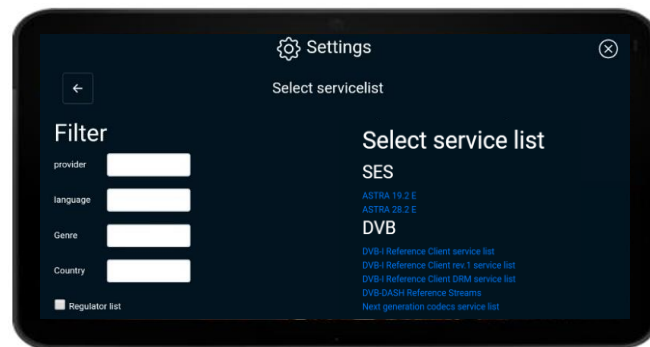
DVB-I Reference application

DVB-I, a game changer for broadcasters

Wider **audience** and **devices** reach,
better service prominence (not relying on apps visibility)

Common services deployed across devices, without custom
integrations or agreements with manufacturers

Lower distribution costs thanks to an optimised (broadcast
/ broadband) network usage

Higher **interoperability** and **quality**

New opportunities thanks to

Personalized content
Targeted Advertising
Role to play in the 5G ecosystem

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Useful links, webinars & demos

DVB-I wider ecosystem offers a complete transition toolset

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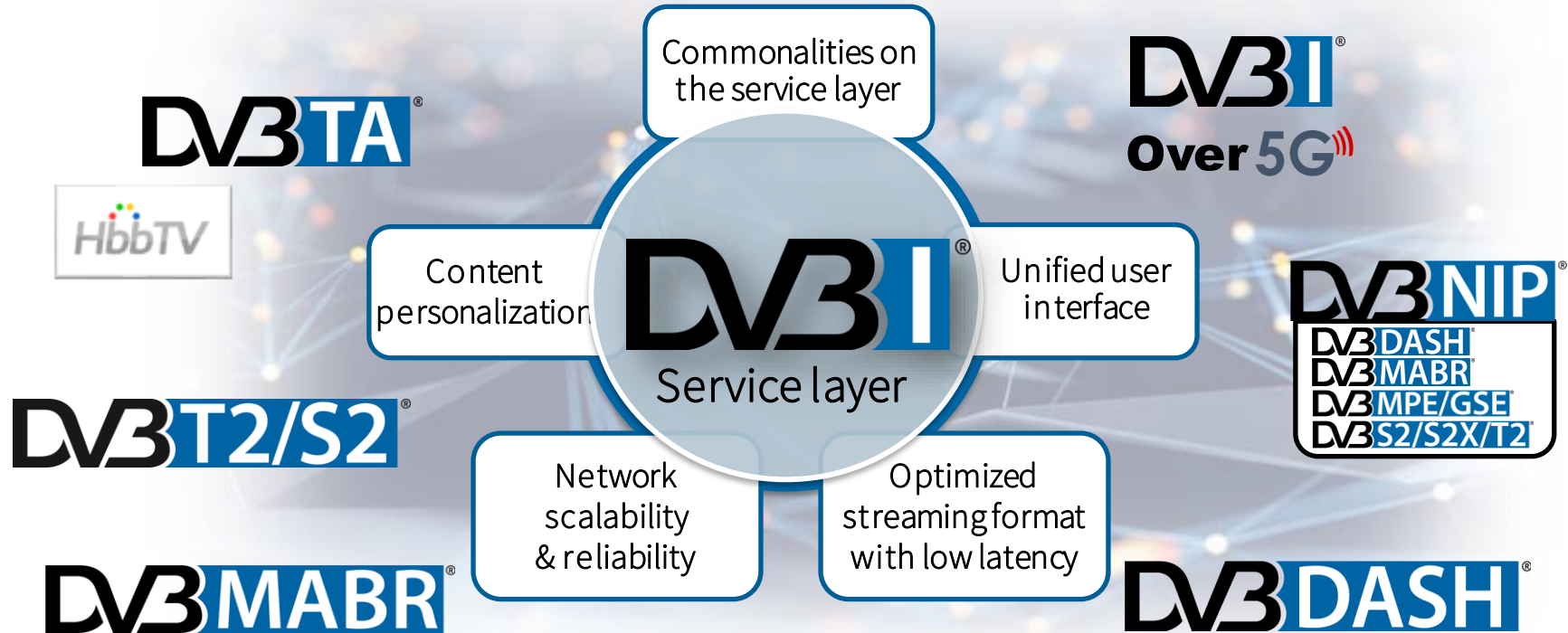In Europe, different migration paths to IP coexist across markets

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DVB's Native IP solution: Media streaming over broadcast

...A vision for the future

1990s-20xx

(Linear MPEG-TS video)

> 20xx

File-based IP-delivered video

DVB NIP®
Release: Q1 2022

STB

iDTV
TV

STB

IP Gateway

IP Player Media Stick

iDTV
TV
TV
TV
TV
Tablet
Phone
PC

Terrestrial
TV Tower
5G Tower
Mobility
CDN

TV
Tablet/Phone
PC

- - - -> MPEG-TS
- - - -> Native IP
- - - -> HDMI
- - - -> Unicast
- - - -> Feeding other IP networks
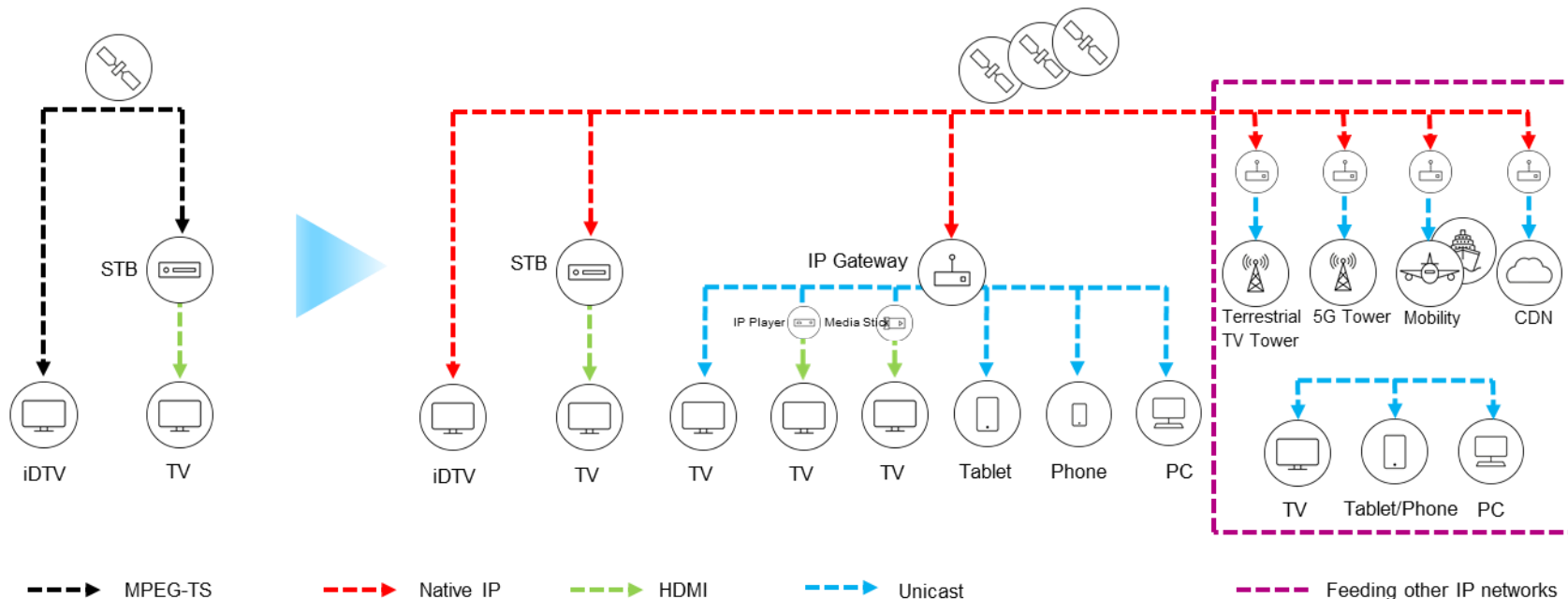
Native IP leverages existing DVB solutions
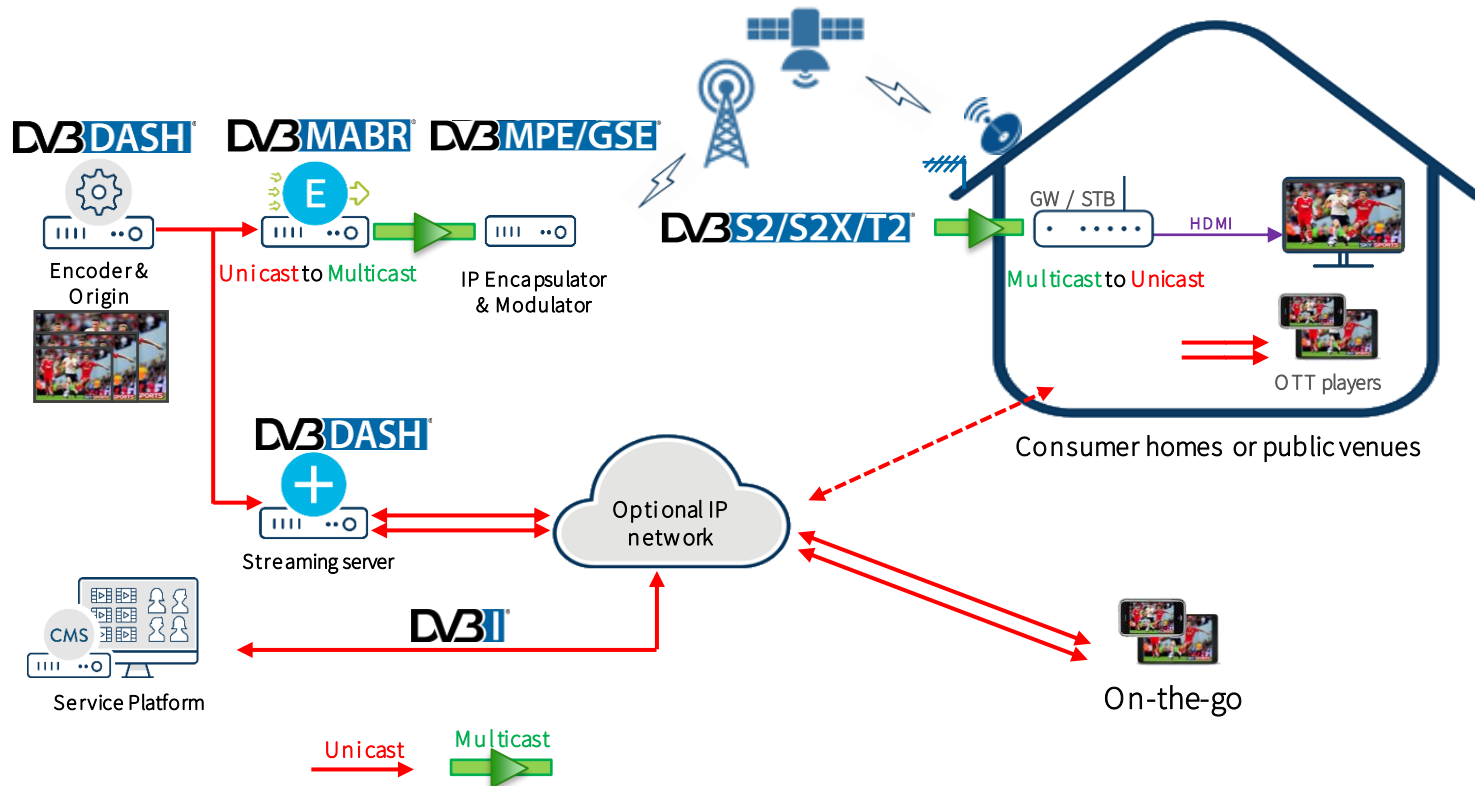
DVB DASH — Encoder & Origin

DVB MABR — Unicast to Multicast

DVB MPE/GSE — IP Encapsulator & Modulator

DVB S2/S2X/T2

GW / STB — Multicast to Unicast — HDMI

OTT players

Consumer homes or public venues

DVB DASH — Streaming server

Optional IP network

DVB I

CMS — Service Platform

On-the-go

Unicast   Multicast

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DVB-I – Useful links, Webinars & Demos

30.09.2021

- [DVB-I specification](#)

- [DVB-I verification & validation](#) (DVB-I ref. app & other tools)

- Webinars on DVB-I
    - I.   [DVB-I general introduction](#)
    - II.   [Encoding and packaging for DVB-I services](#)
    - III.   [DVB-I Service lists and metadata](#)

- [DVB-I microsite](#)

DVB-I demos:

- **TPV Technology**
  https://youtu.be/X1p-7uP17UY?t=338
- **NESTED (ATEME, ENENSYS,…)**
  https://youtu.be/X1p-7uP17UY?t=758
- **Kineton**
  https://youtu.be/X1p-7uP17UY?t=1287
- **Dolby**
  https://youtu.be/X1p-7uP17UY?t=2151
- **Huawei**
  https://youtu.be/X1p-7uP17UY?t=4578
- **Qualcomm**
  https://youtu.be/X1p-7uP17UY?t=5018
- **DTG Testing**
  https://youtu.be/X1p-7uP17UY?t=5966

DVB-NIP – Webinars & Demos

Webinar:

Embracing Native IP media distribution over broadcast

DVB-NIP demos:

•**Native IP multi-vendor demo introduction**
https://youtu.be/X1p-7uP17UY?t=2588
•**Broadpeak**
https://youtu.be/X1p-7uP17UY?t=2781
•**ST Engineering iDirect**
https://youtu.be/X1p-7uP17UY?t=3319
•**EKT**
https://youtu.be/X1p-7uP17UY?t=3716
•**EasyBroadcast**
https://youtu.be/X1p-7uP17UY?t=4041
•**ENENSYS**
https://youtu.be/X1p-7uP17UY?t=1666

Thanks!

DVB Project Office

17a Ancienne Route CH-1218 Grand Saconnex Geneva

✉ dvb@dvb.org

Emily Dubs

Head Of Technology

in linkedin.com/in/emily-dubs

✉ dubs@dvb.org

DVB is an industry-led consortium of the world's leading media & technology companies designing open technical specifications for digital media delivery.