DVB-I Introduction

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DVB-I

- What is DVB-I?
- What can it do and how can it be used
- Current status

What is DVB-I?

- DVB already has **DVB-T** (terrestrial), **DVB-S** (satellite) and **DVB-C** (cable)
- **DVB-I** is a new addition, where the **I** stands for **Internet**
- **DVB-I** enables **discovery** and **delivery** of **TV services** over the Internet to devices with **broadband access**
  - …meaning “over the top”
  - …but also over managed networks, with operator support
- **All devices** with Internet access are in scope, not just TVs and STBs

What is DVB-I?

- **DVB-I does for IP services what DVB-T/S/C do for broadcast**
- It offers **equivalent functionality to broadcast**...
  - Linear TV, free and pay services, HbbTV apps, accessibility, integrated service list and content guide, ...
- ...and also supports **IP-specific use cases**
  - Video on Demand, personalised services, ...
- But why do this?

DVB-I: Disadvantages of Apps

- In the receiver:
  - **IP services** are usually delivered to a **dedicated app** for each service provider
  - **DVB-T/C/S** are usually presented by a **native client** which presents **all services** complying with the standard
- Apps have been great at enabling **innovation**, but they bring several disadvantages, for example:
  - Content and metadata is restricted to each app
  - Dedicated apps must be provided for all platforms
  - No single UI is available, hard to get content noticed
- The **standardised approach** has some advantages...
- (Note: DVB-I can also be used with a dedicated app in the receiver)

DVB-I: Native UI

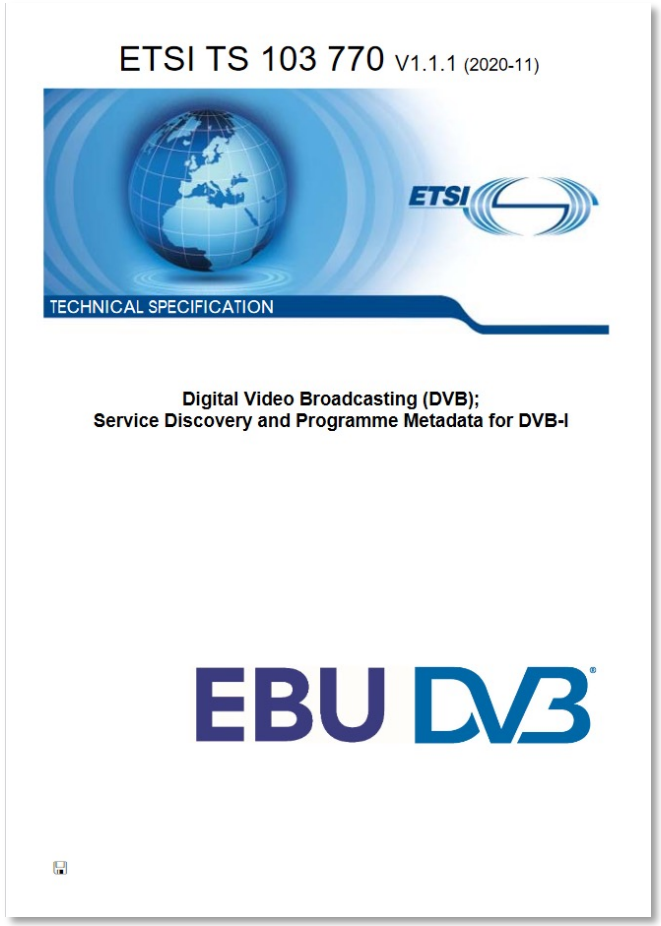
- **Service Discovery:** All services in a broadcast network are easily found in a single UI, and most popular channels are given prominence.
- **Navigation:** Channel list, P+/P-, channel numbers and EPG are easy ways to quickly reach a service and find relevant content, or users can “channel surf” to see what is available.
- **Unified Interface:** All services, and information about those services, are available in the same UI. There is no need to install and search through several applications.
- **Content Control:** All channels in a broadcast network are regulated and meet legal standards of taste and decency, and also for accessibility.

- DVB-I enables (but does not mandate) these characteristics for IP services too

DVB-I is not only an alternative to DVB-T/S/C

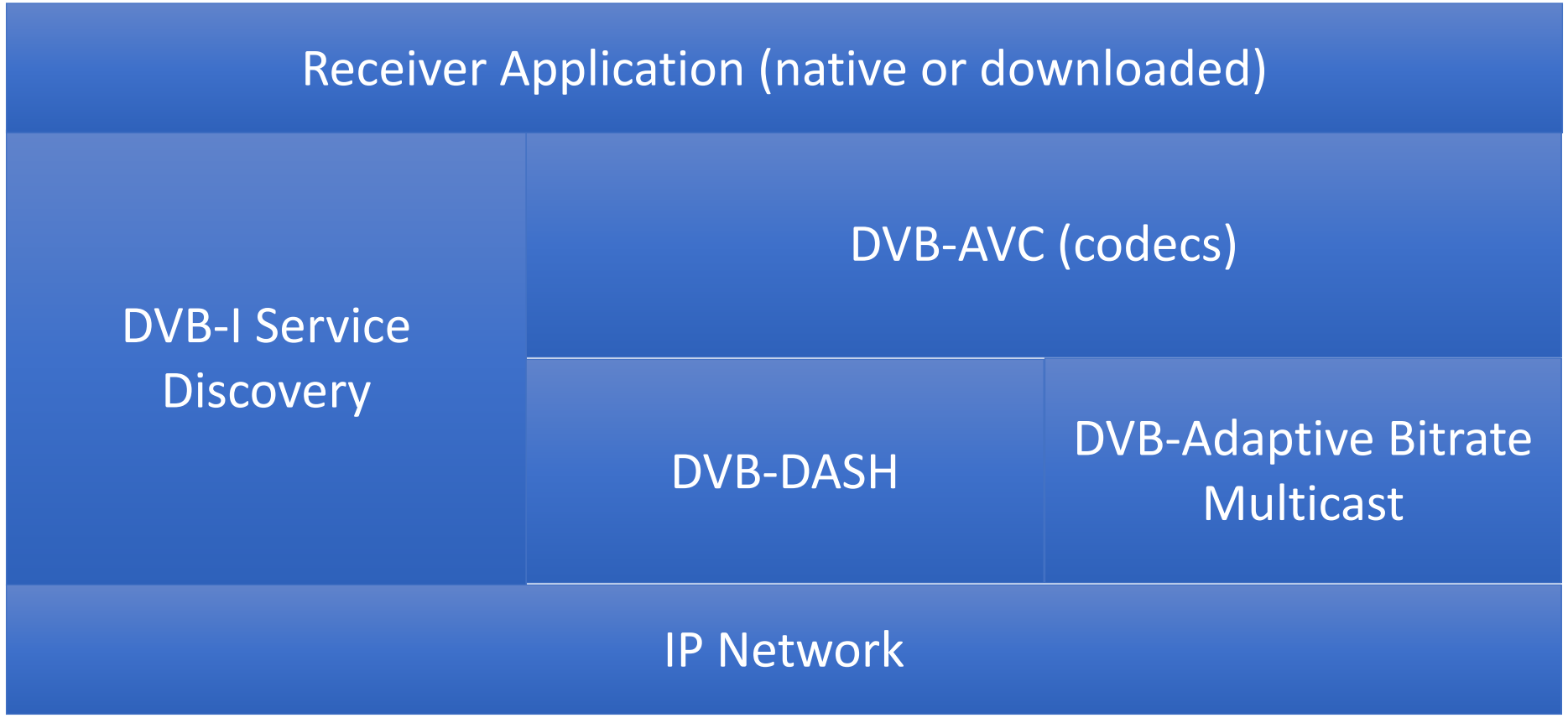
- So **DVB-I** can offer the **same user experience** as DVB-T/S/C
- **DVB-I** can be used **stand alone**...
- And **DVB-I** can be used **with DVB-T/S/C** to create a **hybrid platform** where:
  - Services can be delivered via broadcast, IP or both
  - Users receive each service via whatever route is available or optimal
- For users, it **doesn't matter** whether a service reaches them via broadcast or IP
- Broadcasters can:
  - Offer **additional services via IP**, **integrated** with the rest of their offering
  - Offer services at **higher quality levels** (e.g. SD -> HD)
  - Offer additional **accessibility features** over IP (e.g. signing)
  - Reach users **who don't have broadcast** access
  - ...

DVB-I Specifications

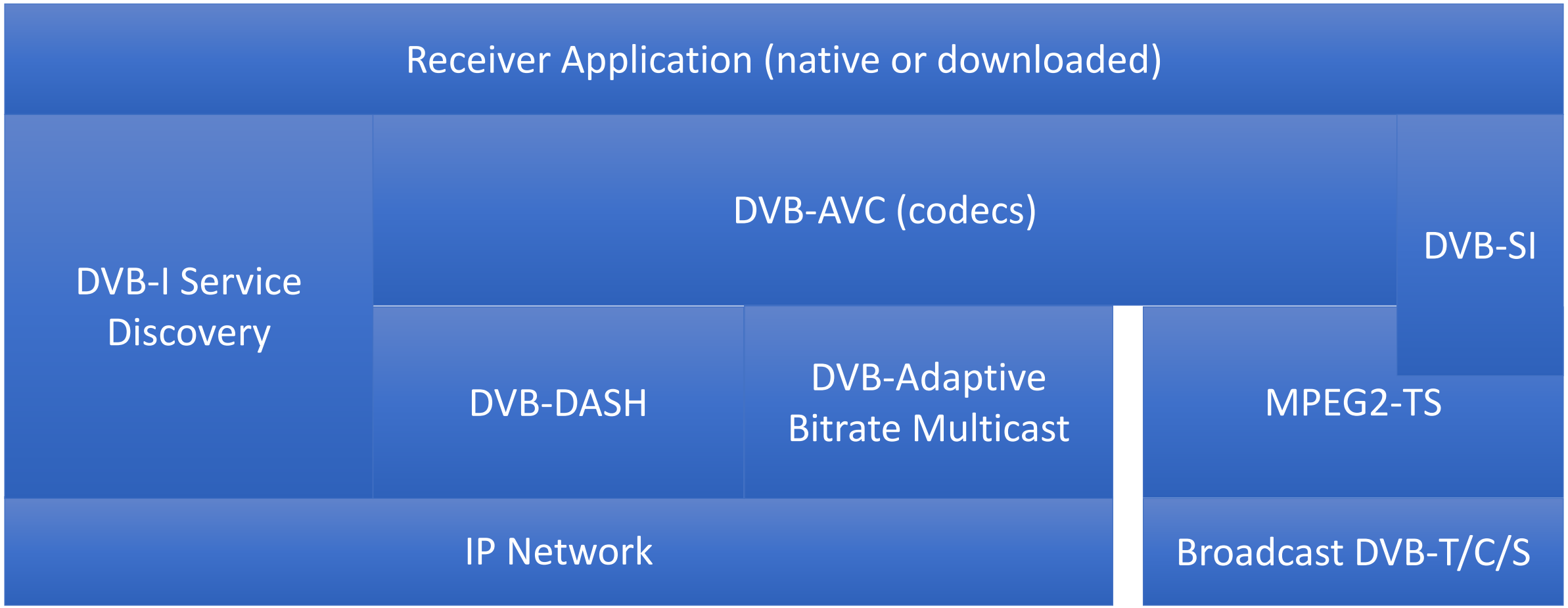


- **DVB-I** covers **Service Discovery and Programme Metadata** (DVB BlueBook A177r3 and ETSI TS 103 770), and **builds on**:
- **DVB-DASH** for content delivery (ETSI TS 103 285)
- Optionally, **DVB-ABR Multicast** for transparent multicast delivery in operator networks (ETSI TS 103 769)
- Other DVB specifications, e.g. **DVB Video and Audio Coding Formats** (ETSI TS 101 154) – supporting up to SD, HD, UHD, SDR, HDR, multichannel audio, NGA, subtitles, ...

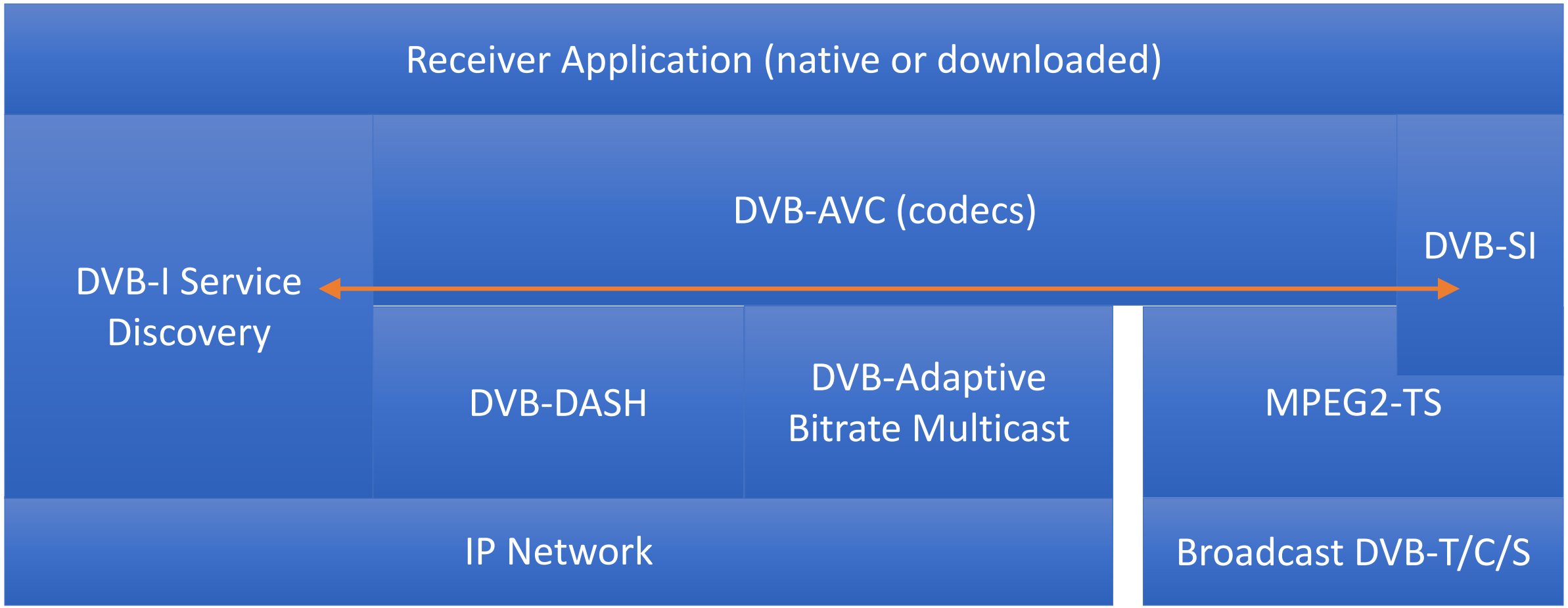
DVB-I Layers – Pure IP Deployment



DVB-I Layers – Hybrid Case

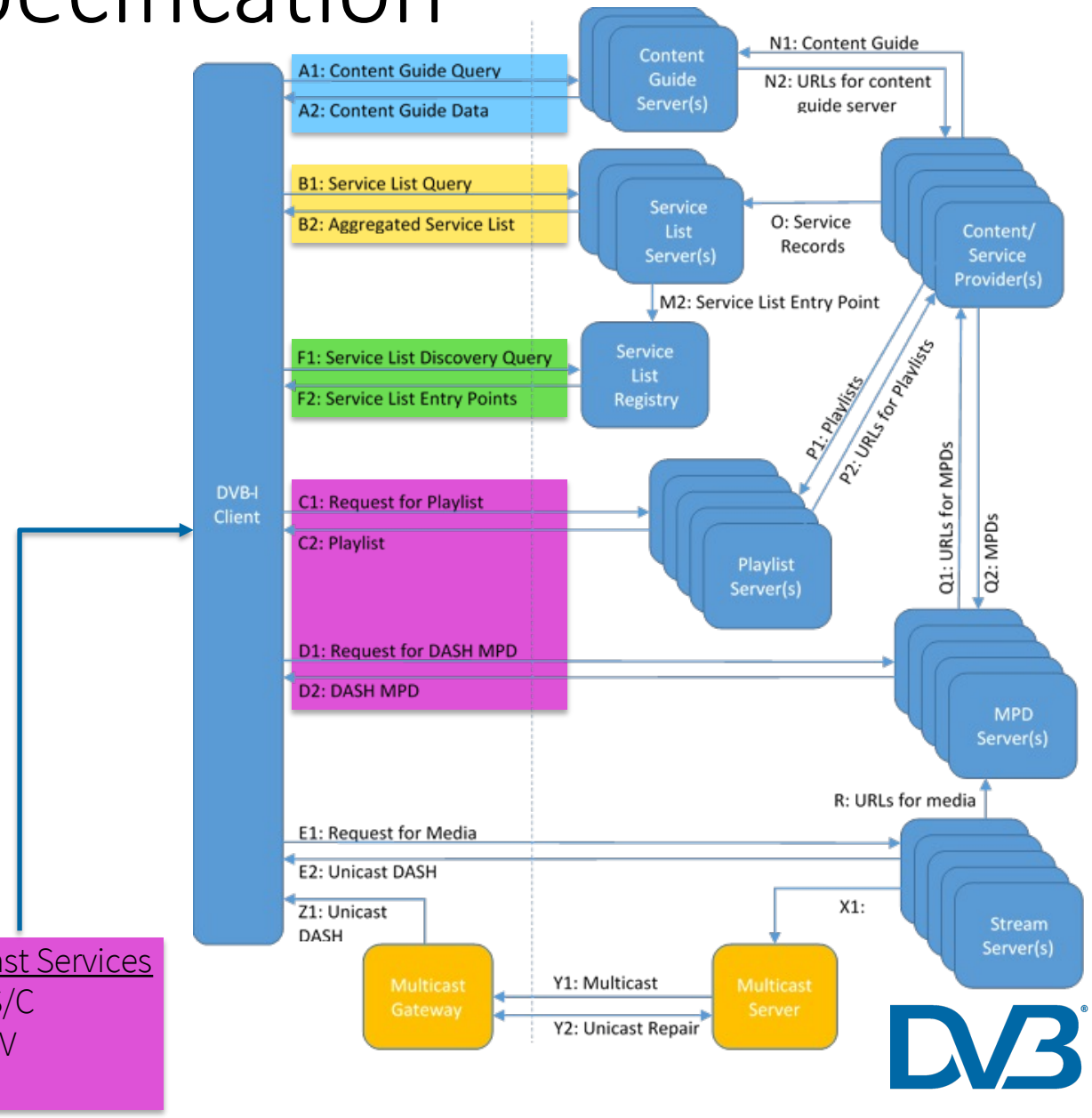


DVB-I Layers – Hybrid Case



DVB-I - Aspects of the Specification

- Service List Discovery
- Service Lists
- Content Metadata
- Media Representations



For reference: DVB-I Specification

- Latest versions:
  - DVB BlueBook A177r3
    - Latest version with new features and bug fixes
    - https://dvb.org/wp-content/uploads/2021/06/A177r3_Service-Discovery-and-Programme-Metadata-for-DVB-I_January-2022.pdf
  - ETSI TS 103 770 v1.1.1
    - Published ETSI standard
    - Plan to update to next BlueBook version later in the year
    - https://www.etsi.org/deliver/etsi_ts/103700_103799/103770/01.01.01_60/ts_103770v010101p.pdf
- See also the DVB-I micro site: https://dvb-i.tv/
- ...and the DVB-I reference application

DVB-I Reference Application

New features: DVB-I for 5G

- Extend DVB-I to support signalling of services delivered via 5G
- Will enable use of DVB-I in 5G networks for service discovery and metadata delivery
- Important point of co-operation and commonality between “broadcast” and “mobile” industries
- Status:
  - Commercial requirements agreed last year in DVB
  - Technical work underway in joint working group with 5G-MAG

New features: Targeted Advertising

- DVB is extending its targeted advertising specification ETSI TS 103 752 to support DVB-I and DVB-DASH services
- First specification updates will be published in Q3
- Will enable both server side and client side ad insertion
- Forms the basis of HbbTV Targeted Advertising solution

Conclusions

- **DVB-I** is now **published** and **ready for use**
- **Platform operators**, **broadcasters** and **manufacturers** in Europe and beyond are deploying or making plans to use **DVB-I**
- **DVB** is adding support for **new use cases**, and **optimising** and **filling gaps** in the specifications to make sure they **fulfil all requirements for deployments**
- **DVB-I is coming!**
- **Your involvement is very important!**