DVB-I: opportunities and challenges

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DVB-I Opportunities and Challenges

- What is DVB-I?
- What can it do and how can it be used?
- Thoughts on:
  - Opportunities offered by DVB-I
  - Challenges to be met

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**, and also supports **IP-specific use cases**
  - Linear TV, free and pay services, HbbTV apps, accessibility, integrated service list and content guide, ...
  - 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

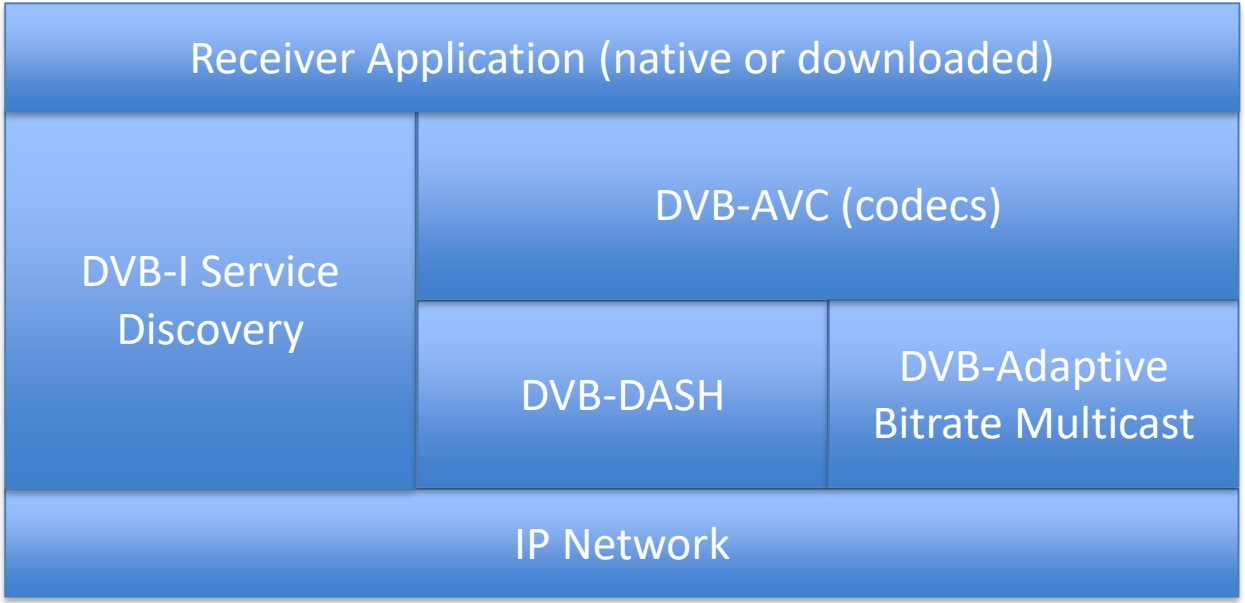
DVB-I is not only an alternative to DVB-T/S/C

- 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:
  - Some services are delivered via broadcast and others via IP
  - Users receive each service via whatever route is available
- For users, it **doesn't matter** whether a service reaches them via broadcast or IP

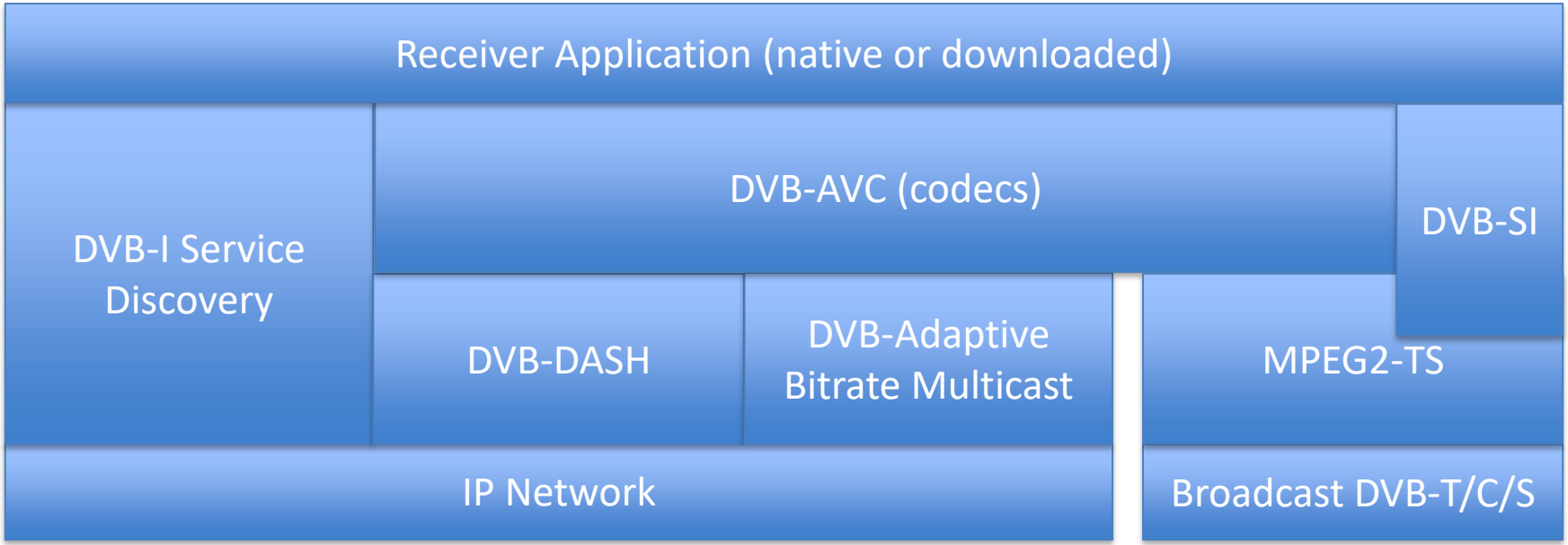
DVB-I Specifications

- **DVB-I** covers **Service Discovery and Programme Metadata** (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, ...

DVB-I Layers – Pure IP Deployment



DVB-I Layers – Hybrid Case



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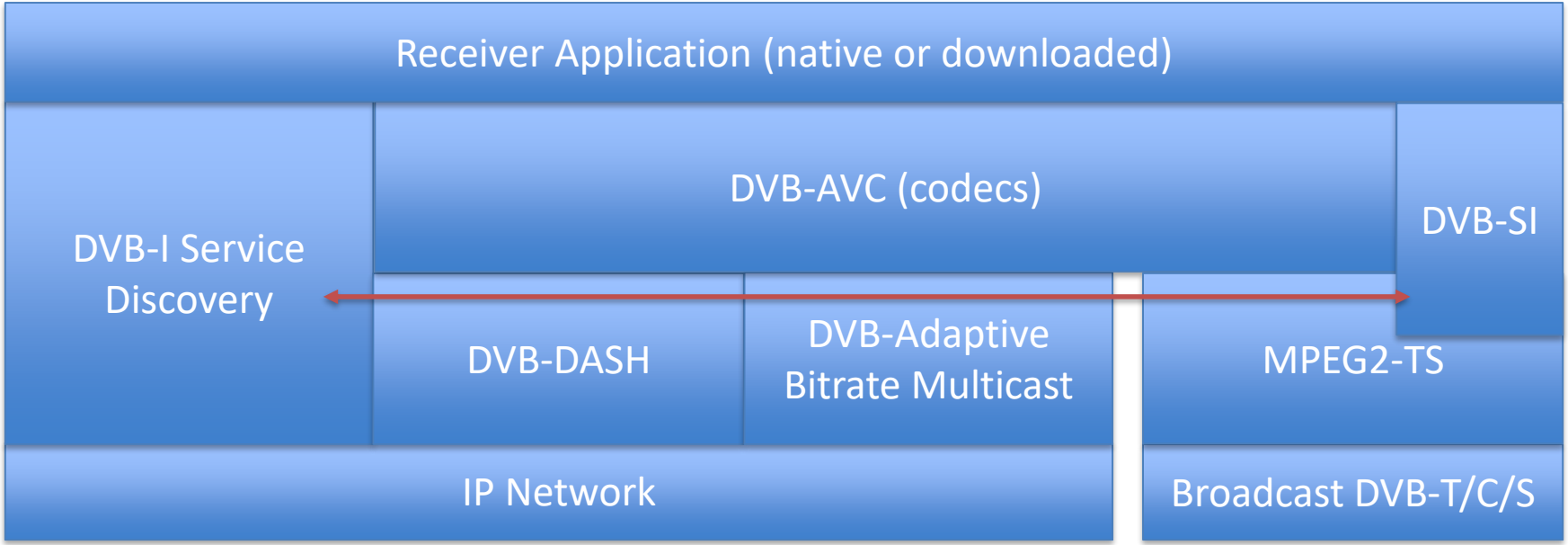

Opportunities

- For broadcasters, platform operators and CE manufacturers, DVB-I offers many opportunities
- A standardised way of signalling and delivering services via IP:
  - Removes the need to provide dedicated apps for each service on each smart TV platform
  - Provides the same integrated experience that users are familiar with from broadcast

Opportunities – Hybrid Platforms

- **DVB-I** can be **integrated with DVB-T/S/C** to create a **hybrid platform** that could, for example:
  - Offer additional services via DVB-I
  - Offer higher quality version of services, e.g. UHD
  - Offer alternative versions of services, e.g. with accessibility features or additional regional content
  - Reach users without access to DVB-T/S/C reception while offering the same user experience
  - Reach devices that don't have broadcast reception: smart phones, tablets, TVs in bedrooms, ...
- And all of this can be offered in unified TV UIs in a way that users are familiar with
- Users don't have to know or care whether a service reaches them via broadcast or IP
- There are many exciting possibilities to enrich and extend existing platforms

Opportunities – full OTT platform

- DVB-I makes it possible to create a standards based OTT TV platform equivalent to DVB-T/S/C for the first time
  - All DVB features supported – linear TV, subtitles and accessibility, HbbTV applications, free and pay, ...
  - IP specific features – VoD, personalised channel, …
- No need to provide and maintain a dedicated app for each smart TV platform

Opportunities – CE Manufacturer

- For CE manufacturers, presenting DVB-I services in our standard broadcast UI means we can offer much more value than for app based services
  - Full and integrated programme guide
  - Simple navigation that users are familiar with
  - Ability to innovate in how we present services (e.g. voice search, recommendations, etc)
- We do not have to certify an app with every provider
  - This is increasingly difficult and expensive
- Users are not limited by non-availability of apps on their device

Challenges

- As with any new technology, there are some challenges to overcome in using DVB-I
  - Organisational
  - Technical
  - Regulatory

Challenges – Organisational

- **Who provides Service Lists?**
- Two clear possibilities:
  - **Individual broadcasters** (and TV integrates lists for presentation to the user)
  - **Co-ordinated list** across all services on a platform
- **DVB-I** supports both, but it clearly makes sense to have an integrated, co-ordinated list across all services on a platform
- It is important to **clarify expectations** so that device implementors know what to do
- In some countries, there is an existing organisation that could provide such a list (e.g. AgCOM in Italy, Freeview in the UK)
- In other countries it is less clear, and a new arrangement may be needed

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Challenges – Organisational

- Also important is how the receiver finds Service Lists
  - DVB is creating a skeleton Central Service List Registry (CSR) for this purpose
  - Countries can also run their own CSR
  - Devices could also be provisioned with known URLs for Service Lists

Challenges - Technical

- Standalone DVB-I deployments are relatively simple
- Hybrid deployments involve integration with existing broadcast systems and are more complex and more diverse
  - Ensure devices get the correct Service List for the transmitters they can see
  - Ensuring consistent device behaviour
  - How to use sophisticated functionality such as priorities for broadcast and IP versions of services
- The specifications fulfil all identified requirements so far, but as stakeholders look to use DVB-I new requirements may be identified
  - DVB-CM-I and TM-I remain open for inputs
  - Input from those deploying DVB-I is especially important

Challenges – Regulatory

- Regulating internet services is more challenging than for broadcast
- DVB-I provides the possibility for lists of regulated services to be signalled
- Users can be sure that the services in the list are legal and meet standards for taste and decency, etc

- The challenge may be how to be deploy this in the real world

Conclusions

- **DVB-I** is now **published** and **ready for use**
- **Platform operators**, **broadcasters** and **manufacturers** in Europe and beyond are making plans to use **DVB-I**
- **DVB** is now in the phase of **optimising** and **filling gaps** in the specifications to make sure they **fulfil all requirements for deployments**
- **Future work** will likely include some **new features**, but also **guidelines on how DVB-I can optimally deployed**
- **Your input is very important!**