



DVB-I ; (Live) / Linear TV via Broadband and Broadcast

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TV on the Internet

- The Internet has transformed how we access TV...



Video on
web sites



BBC iPlayer

Catch-up TV



NETFLIX

Global VoD services
as major original
content producers



sky go NOW TV

Super-simple OTT PayTV

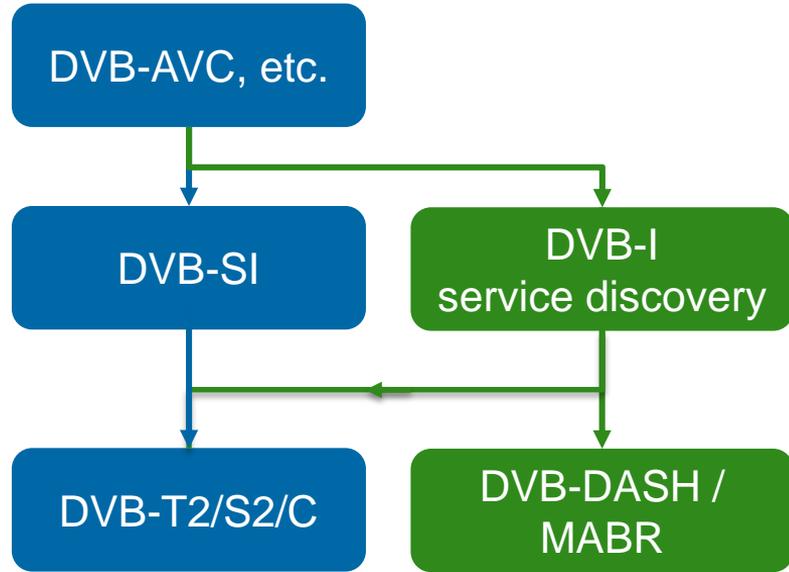


UGC, channels, “stars”

Sky, Sky Go and Now TV are trademarks
owned by the Sky group of companies.



What is DVB-I?



Key elements of traditional broadcast are

- audio & video codecs,
- service information and
- content delivery via cable, satellite & terrestrial

Key elements of DVB-I are

- audio and video codecs
- a new broadband-delivered service information layer
- content delivery via broadband (DASH) as well as C/S/T

The DVB-I Vision

- Services are signalled and distributed in a **standardised** manner, so a **specific app is not required**
- Supports both **broadband** and **broadcast** delivered services
- A receiver can present an **integrated list of services and content**, including broadband and broadcast services
- **Users** don't have to know or care whether a service arrives via broadcast or broadband
 - Can even change over time
- Enable immigrants, expats, (etc) to get linear TV from their original country / culture
 - Also compatible with DRM (etc) for enforcing geo-blocking when needed
- **Broadcasters** can deploy a service once to a wide range of devices
 - Broadband-only devices like phones, tablets, PCs, consoles and
 - **hybrid** devices with both broadcast and broadband like TVs and STBs
- Hybrid device **Manufacturers** can make a single consistent user experience for broadcast and broadband services

Main Technical Elements of DVB-I

- Service discovery: finding lists of services **DONE**
- Service list: signalling a list of services **DONE**
 - Including hybrid lists of DVB-I and DVB-T/C/S services **DONE**
- Content guide: programme guide data **DONE**
- Content delivery:
 - Internet OTT: Low Latency DASH, DVB-DASH **DONE**
 - Managed networks: Multicast ABR **IN PROGRESS**
- Content formats:
 - DVB codec spec: up to state of the art UHD/HDR/HFR, NGA formats **DONE**



Digital Video Broadcasting (DVB);
Service Discovery and Programme
Metadata for DVB-I Services

DVB Document A177

November 2019



A Few Highlights

- Set priority between broadcast and broadband instances of the same service / programme
 - Broadcasters can supply a UHD version via broadband when there's no broadcast spectrum available for UHD/HD simulcast
 - Users with a broadband data cap may prefer the broadcast version
- Services can have HbbTV apps linked to them
 - “red button“ autostart apps to add value to the linear TV channel
 - An app that takes over video & audio presentation
 - Enabling things not part of a standard DVB-I client

What Comes Next

- Specifications
 - Minimum requirements on content providers and clients
 - Something around how DVB-I service lists can be discovered
 - Fixing bugs in the spec
 - Start to consider new requirements some time in 2020
- New DVB focus on delivering more than just ‘paper’ specs
 - Low latency DASH
 - DVB and DASH-IF sponsoring extensions to well known open source media tool ‘ffmpeg’ to add support for LL-DASH
 - Open source DVB-I ‘reference’ app
 - HTML and JavaScript running as an HbbTV OpApp and on Android
 - Example services, service lists and content guide data to test the app

Demonstration Outside

- Android TV app that
 - Reads in a DVB-I service list
 - Adds these to the TV service list using Android “TV Input Framework”
- Single hybrid favourite list
 - P+/P- seamlessly switch between OTT and classic DVB services
- OTT services delivered using DVB-DASH
 - Same DASH player as used by HbbTV on that TV

Conclusions



DVB-I enables the delivery of (live) linear TV services over the Internet

Services:

- will reach more users...
- on more devices...
- and users without access to traditional broadcast reception

Users:

- will be able to access more services
- won't need to know or care whether a service reaches them via broadcast or broadband

DVB:

- will support its members with new deployment options
- brings opportunities to support new parts of the industry
- extends DVB's relevance outside the traditional broadcast domain

HbbTV:

- HbbTV and DVB-I are complementary & fit well together

