



DVB-I: evolving linear TV in an OTT world

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TP Vision / Chair of CM-I

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What is DVB-I?

- DVB already has **DVB-T** (terrestrial), **DVB-C** (cable) and **DVB-S** (satellite)
- **DVB-I** will be a new addition, where the I stands for **Internet**
- **DVB-I** will deliver services over the Internet to devices with broadband access
 - ...meaning “over the top”
 - ...but also over managed networks, with operator support
- The **user experience** of DVB-I can be similar to DVB-T, C and S
- All devices with Internet access are in scope, not just TVs and STBs

Why is DVB-I needed?

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

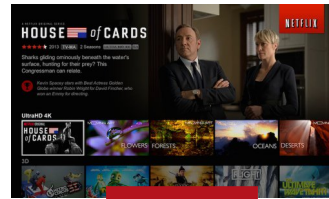


Video on
web sites



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.



Why is DVB-I needed?

- These services are deployed as **apps**
- Apps allowed **innovative services** to develop **outside the traditional processes** of the media industry, but...
- **Users:**
 - Content is segregated into independent apps
 - Not all apps are on all platforms
- **Broadcasters:**
 - Apps need to be provided and maintained for multiple platforms
 - How to get your app noticed?
- **Manufacturers:**
 - Many apps to support and certify
 - Hard to provide a consistent user experience
 - Multiple solutions to same problem

Why is DVB-I needed?

- **DVB-I** does for **IP services** what DVB-T/C/S do for broadcast
- Services are signalled and distributed in a **standardised** manner, so a **specific app is not required**
- A receiver can present an **integrated list of services and content**, including DVB-I and broadcast services
- **Users** don't have to know or care whether a service arrives via broadcast or IP
- **Broadcasters** can deploy a service once to a wide range of devices
- **Manufacturers** can make a single consistent user experience for DVB-I (and broadcast) services

Timeline and Status

- DVB-CM-I launched in late 2017
- DVB-I Commercial Requirements approved by SB in August 2018 and announced at IBC
- Technical work underway in DVB-TM-IPI
- DVB-I specification target Q3 2019

DVB-I Commercial Requirements



CM-10003

Commercial Requirements for DVB-I Services

DVB CM-I Group

Version: 0.0.31
Creation Date: 06.01.2018
Revision Date: 19.10.2018

Date	Version	Remarks
2018-01-09	0.0.0	Initial input for January 10 th face to face meeting
2018-01-10	0.0.1	Updates based on discussions in the 10 th January 1st
2018-02-22	0.0.2	Updates based on CM-I phone conference #5, 2018-01-22
2018-02-26	0.0.3	Updates based on CM-I phone conference #7, 2018-02-26
2018-03-21	0.0.4	Integrated CM-100217 as agreed
2018-03-28	0.0.5	Edits in March 26 th phone conference and actions afterwards
2018-04-05	0.0.6	Integrated Mobile Centric Use Case (CM-100225), updated Broadcaster Centric Use Case (CM-100177), requirements from IPTV Service Provider Use Case (CM-100301) and TV manufacturer use-case (CM-10039). (Description of IPTV Service Provider Use Case still TBD)
2018-06-03	0.0.7	Integrated CM-100249 as agreed in May 3 rd phone conference
2018-05-16	0.0.8	Integrated updates from Chris Poole (to 2.5, 2.4, 2.3), Thomas Stockhammer (2.6, 2.11), Paul Szucs+Davide Milanesio (2.8), Frank Herrmann (2.7, 2.1), Consolidated 2.3, 2.10 and 2.12 (action 15-6). Removed requirements from annex 4 which Chris, Thomas, Paul+Davide and Frank merged into the main body. Merged more requirements from annex 4 into the main body.
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2018-06-15	0.0.21	Integrated CM-100225 – mobile centric use-case – which had previously been omitted. General editorial clean-ups as agreed.

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Commercial Requirements contents:

- Background and Scope
- External Influences
- Relevant work inside and outside DVB
- Use cases
- Commercial Requirements



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2018-06-03	0.0.7	Integrated CM-10045 as agreed in May 3 rd phone conference
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Use cases, written from points of view of:

- Broadcaster
- TV / STB Manufacturer
- Existing OTT Service Provider
- Mobile Operator
- Network Operator

The commercial requirements were derived from these use cases



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2018-05-03	0.0.7	Integrated CM-1004r as agreed in May 3 rd phone conference
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Commercial Requirements – areas of applicability:

- Any device with an internet connection and a media player
- May or may not have a DVB tuner
- Will work over broadband, wifi, mobile networks, ...
- OTT or with network operator support
- Can be received with a standard receiver or a downloaded application



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Commercial Requirements – service types:

- **Broadcast-like:**
 - Linear TV
 - Free and pay TV
 - Parental control
 - A/V, subtitles, associated applications, ...
- **Specific to IP:**
 - Video on Demand
 - “Scheduled VoD”
 - Personalized services
- DVB-I platform can be stand alone or integrated with broadcast



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Commercial Requirements – user experience:

- Can be similar user experience to DVB-T/C/S
- Navigation possible with channel list and programme guide (which may include broadcast and IP services)
- Zapping times between linear channels similar to broadcast



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2018-06-03	0.0.7	Integrated CM-10049 as agreed in May 31 st phone conference
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Commercial Requirements – service discovery and trust:

- Critical issue – who provides the service list?
- Has commercial, legal and technical implications
- Many thousands of channels may be technically available to a users
- How to ensure only legal, trusted services are available?
- DVB-I specification will support a number of scenarios



Main Technical Elements of DVB-I

- **Service discovery:** finding lists of services **IN PROGRESS**
- **Service list:** signalling a list of services **IN PROGRESS**
 - Including hybrid lists of DVB-I and DVB-T/C/S services
- **Content guide:** programme guide data **IN PROGRESS**
- **Content delivery:**
 - Internet OTT: DVB-LL-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**

Testing, Validation and Verification

- DVB has decided to help the industry adopt its technology more easily
- DVB-I will be the first major specification to benefit
- Aims for DVB-I include:
 - Accelerating and assisting deployments
 - Help service providers create interoperable services
 - Help manufacturers create interoperable clients
 - Verify that specification is correct
 - Create framework for experimentation and further development

Future Activities

- **DVB broadcast standards** have evolved for over more than two decades
- **DVB-I will also not stand still** - maintenance and extension with new features will continue into future
- **DVB-I** may also be relevant beyond DVB's traditional membership
- For example: it will be possible to deploy **DVB-I over 5G networks**
- The future will be shaped by DVB's members!

Conclusions



DVB-I enables the delivery of DVB 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 DVB-T/C/S or DVB-I

DVB:

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

