DVB-I

Quality, scalability and reliability for OTT delivery

What is DVB-I?

DVB is developing DVB-I to enable standalone TV services over the internet with the quality, scalability, reliability and user-friendliness that the industry expects from DVB services. A DVB-I service is defined as providing, as a minimum, a similar user experience to DVB terrestrial, cable, satellite and IPTV systems. The services will be discovered and consumed by devices with basic internet connectivity, principally a non-managed broadband connection and HTTP access.

DVB-I will provide options to exploit additional functionalities facilitated by the nature of bidirectional connectivity (e.g. audience measurement, quality tracking, etc.). The number of services that can be offered will increase significantly, enabling the provision of more content, including from independent content providers, as well as new content formats.

Background

The development of DVB-I accounts for the fact that, while linear TV services remain highly popular – and indeed on-demand content is often 'linearized' by a continuing feed of assets based on recommendations – internet connectivity continues to grow. DVB-I addresses the need for internet delivery to support the distribution of broadcast TV services at scale, fulfilling DVB's mission to specify the transition to seamless hybrid broadcast-broadband services.

DVB-I is intended to co-exist alongside DVB-C, DVB-S/S2/S2X and DVB-T/T2. Devices supporting both DVB-I and the physical layer standards previously mentioned will be able to present users with a merged channel offering. Broadcasters will be able to indicate when the DVB-I version of a service is likely to give the best user experience and when the DVB-C/S/S2/S2X/T/T2 version is likely to give the best experience.

Several elements of the ecosystem, applying to both managed and unmanaged networks, either already exist as DVB specifications or are at an advanced stage of development. DVB-DASH (first published in 2014) builds on the MPEG DASH specification for HTTP-based adaptive streaming; a Low Latency version of DVB-DASH, currently in development, will address the problem of the extensive delay experienced when viewing live content; and CRs have been defined for a specification enabling Adaptive Media Streaming over IP Multicast. The latter will address managed networks in the first edition, before considering possible extension to OTT internet delivery.

How does it work?

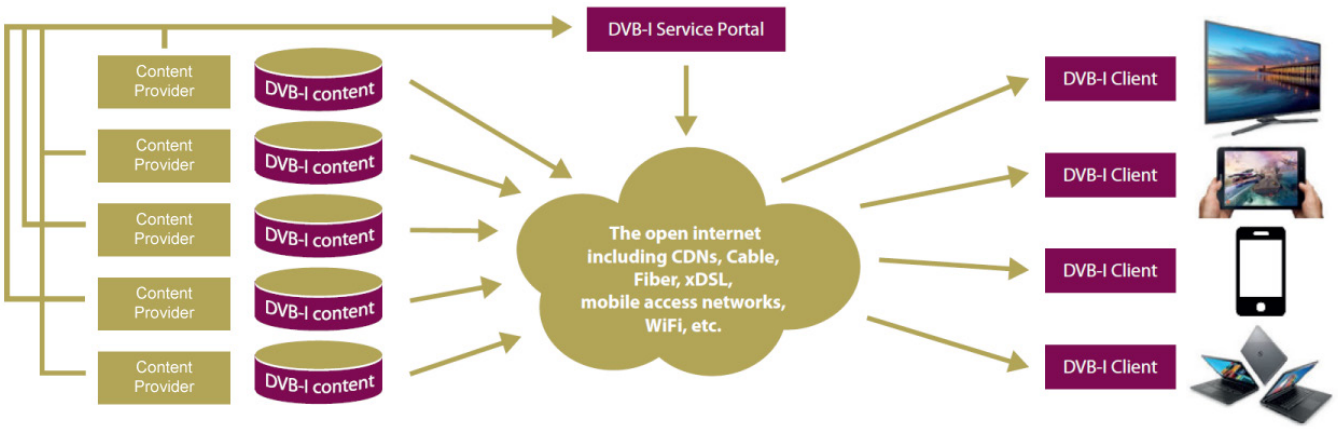

Figure 1. An early conceptual architecture for DVB-I services

As the CRs have only very recently been finalized, technical work on DVB-I is at an early stage. Elements under consideration include consistent service announcement and discovery, as well as the information that is carried with conventional TV services, such as service information, logical channel numbers, content protection and other rights management features.

How does it work? (continued)

The initial focus of new specification work is on service discovery and the necessary signalling.

Service information is expected to include features that are today part of DVB-SI as defined in EN 300 468, currently limited to broadcast distribution based on the MPEG-2 Transport Stream.

Some consideration is also given to the bootstrap mechanism, which is the starting point for locating DVB-I service offerings in different locations, territories and access networks, including cross-border service access. As one potential solution, the CRs include the possibility that a centralised registry and/or infrastructure would be set up (Figure 1). Of course, this is only one approach and a range of options will be supported.

Market Deployment

Technical specifications are expected in mid-2019. Use cases defined in the CRs cover five broad areas:

- Broadcaster-centric scenarios
- Manufacturers of TVs and set-top boxes
- Existing OTT streaming services
- Mobile-centric use cases
- Service providers and network operators

Next Steps

Specifications for Low Latency DASH and Adaptive Media Streaming over IP Multicast, key enablers for DVB-I, are on track to be approved for publication by the DVB Steering Board in February 2019. Technical work on the DVB-I specifications is just beginning and Members are encouraged to support this important activity.

Links

www.dvb.org/groups/CM-I	The sub-group that drew up the CRs for DVB-I
www.dvb.org/groups/TM-IPI	The sub-group where most of the technical work will be done