

Internet Protocol TV

Broadcast to Broadband - Open Standards for IPTV



What is DVB-IPTV?

DVB-IPTV is the collective name for a set of open, interoperable technical specifications, developed by the DVB Project, that facilitate the delivery of digital TV using Internet Protocol over bi-directional fixed broadband networks. The work is taking place in two tracks, where Track 1 covers delivery over managed networks and Track 2 covers Internet delivery. Key specifications already published include:

- TS 102 034 : Transport of MPEG-2 TS-Based DVB Services over IP Based Networks
- TS 102 539 : Carriage of Broadband Content Guide (BCG) Information over Internet Protocol
- TS 102 824 : Remote Management and Firmware Update System for DVB IP Services

DVB's interactive middleware specifications, DVB-MHP and GEM, also include IPTV profiles. (see separate Fact Sheets)

Background

Traditionally DVB services have been delivered over broadcast networks, i.e. a one-to-many uni-directional architecture. The advent of high-speed bi-directional consumer broadband networks means that there is increasing demand to offer DVB services over an IP network. The delivery of TV using bi-directional IP over a broadband network presents a particular set of challenges, especially when integrated with a range of other IP services.

DVB's task, in response to calls from the industry, is to help define and develop appropriate standards for the delivery of DVB services over such networks, and to provide a means of integrating these with other broadband services, whilst maintaining maximum interoperability with existing DVB broadcast standards. In view of the complex nature of IPTV, and the varied facets of such services, there are numerous DVB groups dealing with IPTV. DVB's unique approach is based on consensus approval between its diverse members based on commonly-agreed Commercial Requirements.

How does it work?

Figure 1 shows a very basic IPTV architecture. The initial phase of DVB's work concentrates on the interface between the IPTV set-top-box (STB) and the IP-based home network. DVB's work in IPTV can be divided into three broad areas:

(i) STBs and PVRs on IP networks: the definition of appropriate standards to facilitate the automated connection and configuration of a STB connected to an IP network. This extends to how MPEG Transport Stream based services are encapsulated onto an IP network, and covers Service Discovery & Selection (SD&S), Broadband Content Guide (BCG), remote management, firmware update, etc.

(ii) Home Networking: the definition of an appropriate sub-set of existing standards for a DVB home network (based on IP). DVB's Home Network specification will be based on the DLNA/UPnP guidelines where possible.

(iii) Additions to the DVB-MHP middleware specifications, to allow interactive TV applications running on MHP to use the resources available in a DVB-IPTV environment.

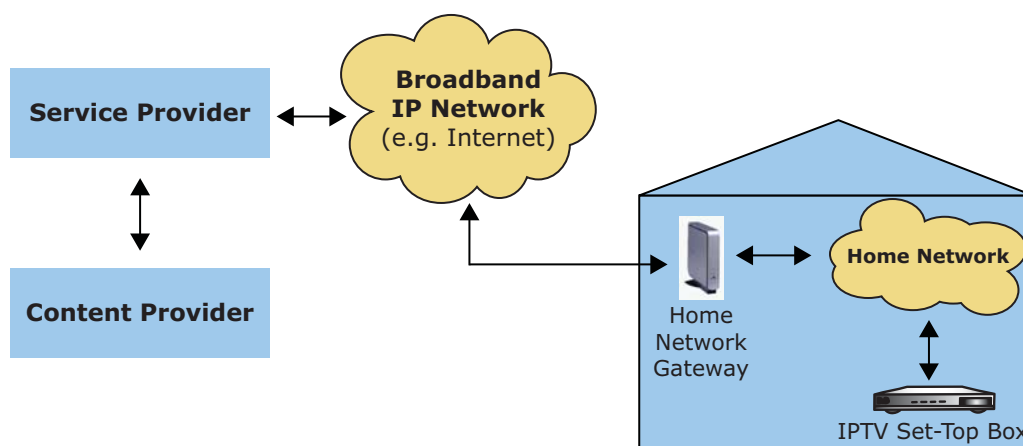


Figure 1: Basic IPTV Architecture

Market Deployment

Commercial IPTV networks have been rolled out to a greater or lesser degree in a number of countries. Many of these are using non-standardised proprietary technologies to deliver a range of services including television, interactive services, video-on-demand, etc... IPTV is expected to become an ever more popular means of delivering such services to the home, particularly when offered in conjunction with other forms of broadcast network, such as terrestrial or satellite.

With the publication of the first set of DVB standards for IPTV, services can be launched that benefit from the advantages that come with open standards. The industry has particularly welcomed the standardisation of the Broadband Content Guide, similar to the EPG used in “traditional” digital TV, and the Service Discovery and Selection mechanism. Thanks to standardised information, the SD&S mechanism allows a STB to efficiently recognise the multicast and unicast offerings of IPTV service operators on a broadband network. Many DVB member companies have participated in the working groups and are now integrating DVB-IPTV into their product lines.

DVB’s interactive middleware specifications, MHP and GEM, also include IPTV profiles. GEM-IPTV has been deployed in more than 900,000 set-top boxes in South Korea.

Next Steps for DVB-IPTV

Figure 2 shows a timeline for the DVB Project’s work in the area of IPTV. DVB-IPTV Track 1 dealt first with compressed video and audio and generic data in an MPEG-2 Transport Stream delivered over IP networks – both broadcast and on-demand services. This track also covers elements which facilitate the connection of an IPTV STB to an IP network. Track 1 allows for the implementation scenarios that are currently planned by many operators.

DVB is finalising the publication of DVB-IPTV 1.4, including support for Content Downloading and Retransmission as a means of recovering packet errors. The concept of “Profiling” has also been introduced to help operators and manufacturers implement DVB-IPTV compliant services.

However, the distribution of audiovisual content is evolving quickly and DVB needs to prepare the next steps. Track 1 will include technology for Fast Channel Change, a more flexible stream composition to enhance IPTV services, more straightforward interfaces to n-Play solutions (e.g. telecommunication, mobile, etc.), and also support for hybrid DVB broadcast and DVB-IPTV services. The recently started Track 2 will cover the distribution of commercial content over the Open Internet. Liaisons with other standards development organisations are central to DVB’s work. In the area of n-Play in particular, strong collaborations are needed.

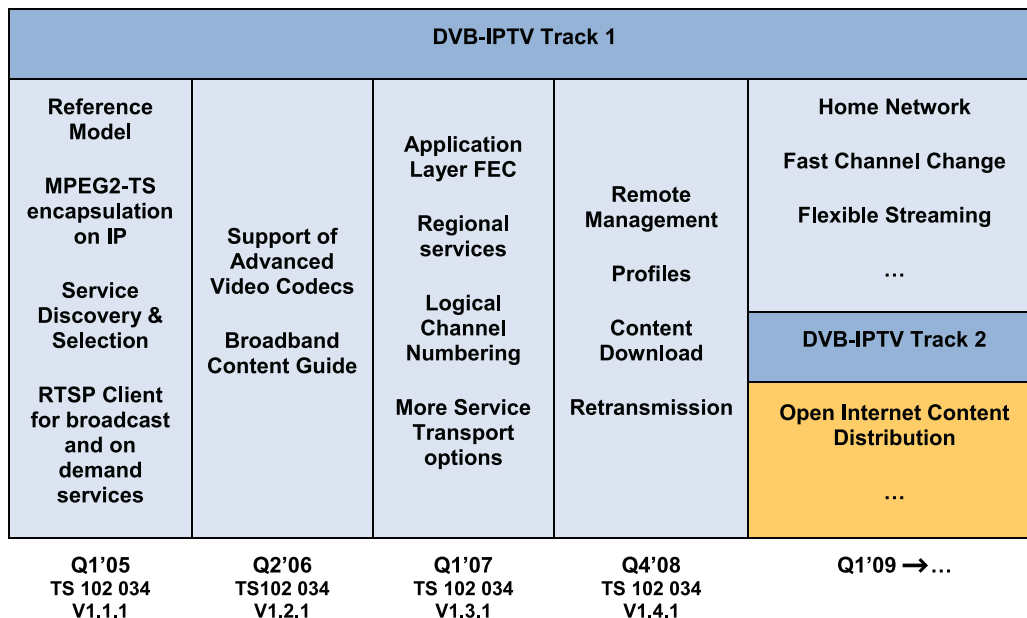


Figure 2: DVB-IPTV Timeline

Links

- www.dvb.org – the website of the DVB Project
- www.etsi.org – all DVB standards are available for download from the ETSI website
- Other groups with which DVB is working closely on IPTV standards include the Digital Living Network Alliance (www.dlna.org), ETSI TISPAN (www.etsi.org/tispan/), the Open IPTV Forum (www.openiptvforum.org) and ATIS IPTV Interoperability Forum (www.atis.org/iif)