

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 the Internet Protocol over bi-directional fixed broadband networks. 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
- TS 102 905 : Technical Specification for DVB Services in the Home Network Phase 1
- TS 102 542 : Guidelines for the implementation of DVB-IPTV Phase 1 specifications

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.

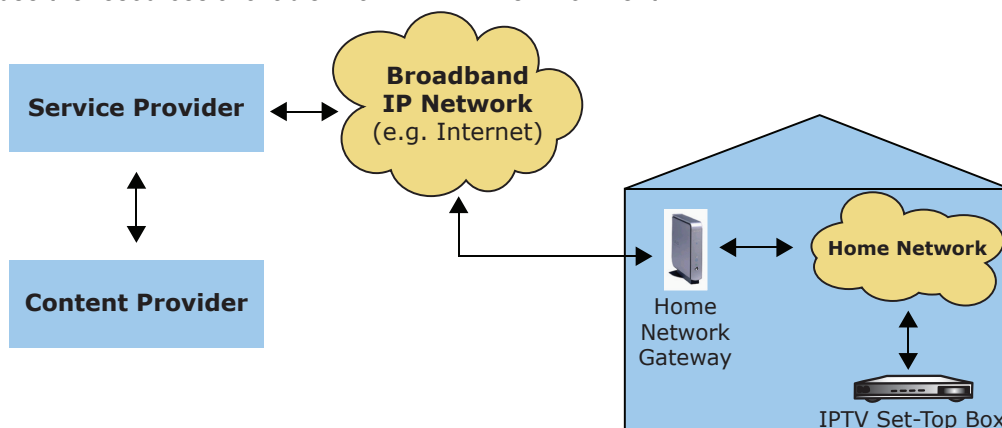


Figure 1: Basic IPTV Architecture

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-standardized 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 standardization of the Broadband Content Guide, similar to the EPG used in “traditional” digital TV, and the Service Discovery and Selection mechanism. Thanks to standardized information, the SD&S mechanism allows a STB to efficiently recognize 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 2.2 million set-top boxes in South Korea.

Next Steps for DVB-IPTV

Figure 2 shows a timeline for DVB’s work in the area of IPTV. DVB-IPTV first dealt with compressed video and audio and generic data in an MPEG-2 Transport Stream delivered over IP networks, both broadcast and on-demand services. Today, it also covers elements that facilitate the connection of an IPTV STB to an IP network and support for Content Download 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. Recently, DVB has finalized DVB-IPTV 1.5, including support for System Renewability Messages, Fast Channel Change, 3DTV and Hybrid Broadcast Broadband services.

However, the distribution of audiovisual content is evolving quickly and DVB needs to prepare the next steps. Technical work is ongoing on Dynamic Stream Management (method for supporting more than one HNEP in the home) and on IPv6 support. Commercial requirements for Identity & Personalization and operator centric hybrid IPTV / Internet-TV are ready to be translated in technical specifications.

| DVB-IPTV | | | | | |
|--|----------------------------------|--------------------------------|-------------------------------|-------------------------------|---------------------------|
| Reference Model | | Application Layer FEC | | System Renewability Messages | |
| MPEG2-TS encapsulation on IP | Support of advanced video codecs | Regional Services | Content Download | Fast Channel Change | Dynamic Stream Management |
| Service Discovery & Selection | Broadband Content Guide | Logical Channel Numbering | Retransmission | 3DTV | IPv6 |
| RTSP Client for broadcast and on demand services | | More Service Transport Options | | Hybrid Broadcast Broadband | |
| Q1'05 TS 102 034 V1.1.1 | Q2'06 TS 102 034 V1.2.1 | Q1'07 TS 102 034 V1.3.1 | Q4'08 TS 102 034 V1.4.1 | Q2'12 TS 102 034 V1.5.1 | Q3'12... |

Links

- DVB’s main website

www.dvb.org

Other groups with which DVB is working closely on IPTV standards include:

- Digital Living Network Alliance

www.dlna.org

- Open IPTV Forum

www.openiptvforum.org

- ATIS IPTV Interoperability Forum

www.atis.org/iif