# Information about and History of HbbTV 2.0 Specification

The HbbTV 2.0 specification is the result of more than 2 years work in HbbTV as well as partner organisations including DVB and the Open IPTV Forum. The specification is a major update to the previous HbbTV specification which:

- Adds new features to make existing services more attractive to the end-user or the service provider
- Enables new services such as push VoD
- Updates technologies from earlier specifications
- Improves inter-operability between services and terminals

The figure below shows the intended context for HbbTV 2.0, a Hybrid Terminal (TV or STB) connected to a broadcast (satellite in this example), the Internet and a Companion Screen Device (mobile phone or tablet).
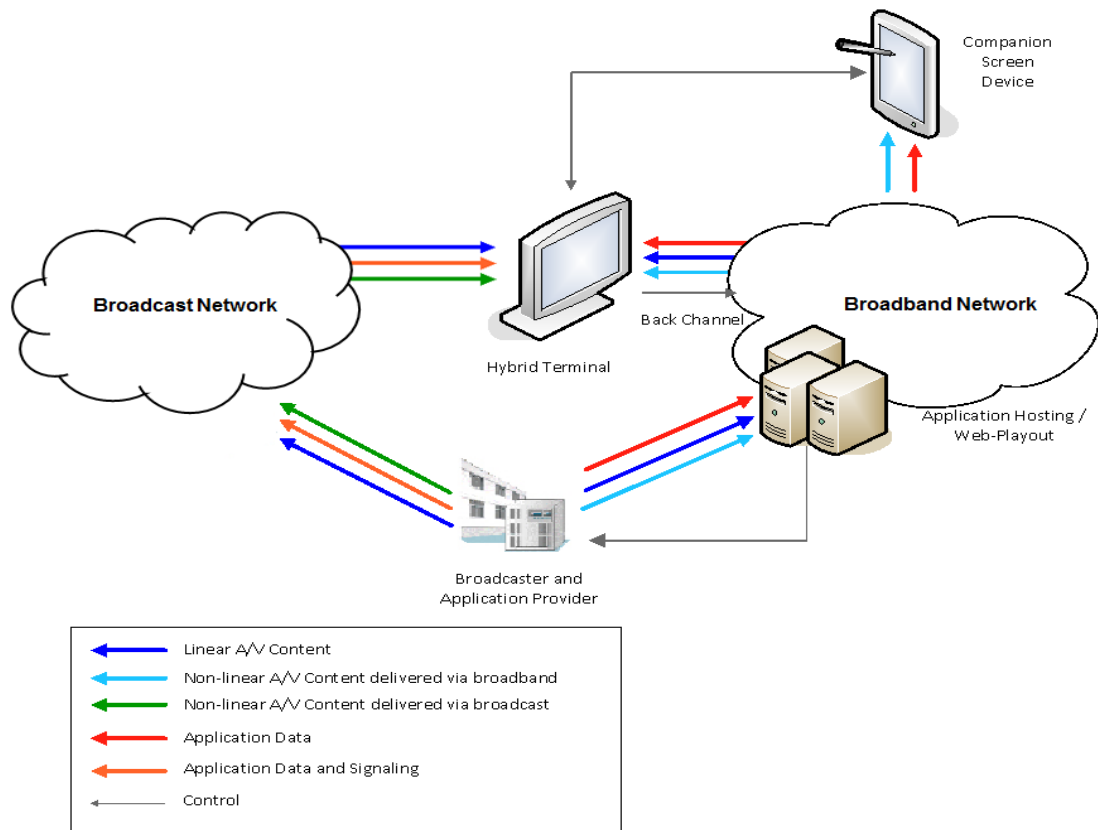
Two major themes of the specification are the addition of support for companion screens (tablets or phones) and synchronisation to broadcast delivered content.

- An HbbTV application can ask for an app to be launched on a tablet or phone.
- An app on a tablet or phone can ask for an HbbTV app to be launched on a TV or STB using DIAL, the same mechanism used by Netfilx and Chromecast
- Apps running on a tablet or phone can exchange messages with an HbbTV app running on a TV or STB using the W3C/IETF websocket mechanism
- An app on a tablet or phone can synchronise to broadcast delivered content on the TV using the DVB companion screen specification.
- An HbbTV application can synchronise broadcast delivered video and broadband delivered audio / subtitles in the TV set or STB.

As well as these two major themes, other significant additions concern privacy, broadband subtitles, DVB CI Plus 1.4 and push VoD.

- Privacy has become a major concern for SmartTV in recent years. The W3C "Do Not Track" specification is added which enables consumers who do not wish to be tracked to clearly express this.
- Subtitles for broadband delivered content have been added based on work done in the EBU around the W3C TTML specification.
- In TVs supporting both HbbTV 2 and DVB CI Plus 1.4, integration between the two has been added to enable a CI Plus CAM to descramble protected broadband-delivered AV content initiated by an HbbTV app and to provide data to HbbTV.
- Support for delivering files containing AV content to a hard disc in a STB (or a flash card in a TV) for later consumption has been added. This could be relevant for content that needs more and reliable bandwidth than is available in a particular market.

The most significant technologies that have been updated are HTML, video codecs and MPEG DASH.
- HTML and the technologies around it are updated to HTML5 and matching versions.
- The video codecs are extended to support HEVC as well as MPEG-2 and AVC. HEVC is supported for both UHD and HD. There is significant interest in HEVC for HD to enable current services to be offered at lower bitrates than today.
- MPEG DASH has been updated to refer to the profile of DASH defined by DVB. This includes a number of new features which will make deployment of DASH services easier.

The HbbTV 2.0 specification builds as far as practical on the work of others, including DVB. The figure below illustrates this showing in particular how it builds on the work done in DVB and in the Open IPTV Forum as well as the basic work done in ISO/IEC and the W3C.
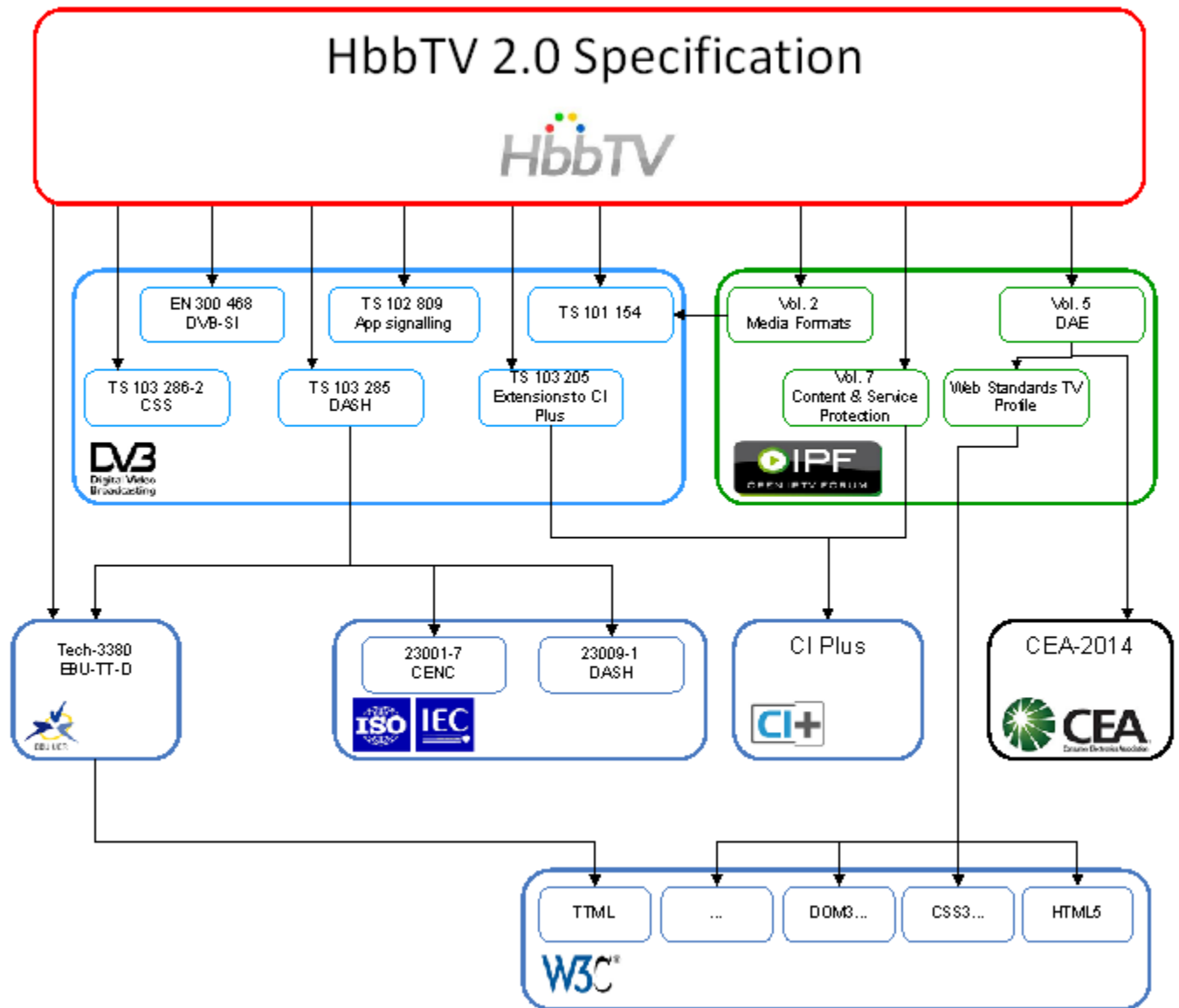
First HbbTV 2.0 receivers are expected to appear in the market in 2016. HbbTV will award a contract for a test suite for receivers in April / May 2015 with deliveries during the remainder of 2015. This should permit the release of a validated and approved test suite some time during 2016.