IMMERSIATV

THE MULTI-DIRECTIONAL, MULTI-DEVICE BROADCASTING EXPERIENCE

PROJECT WORKFLOW

CAPTURE → PRODUCTION → ENCODING → DISTRIBUTION → **DISPLAY**

Key innovative features in ImmersiaTV - Display component:

- Multi-platform solution based on advanced Unity3D engine
- Content synchronization at the frame level based on emerging broadcast standards (DVB-CSS)
- Interactive playback with QoE feedback and codec quality adaptation

The display component is responsible for integrating the video, audio and data streams in a coherent omnidirectional scene adapted to immersive displays and second screens. It supports interaction, parsing the user input (head movements, tablet moved around, finger gestures) and adapting the environment appropriately to the reactions expected. It also allows to synchronize end-user devices and second screens, using a multimedia server to orchestrate the different video streams.

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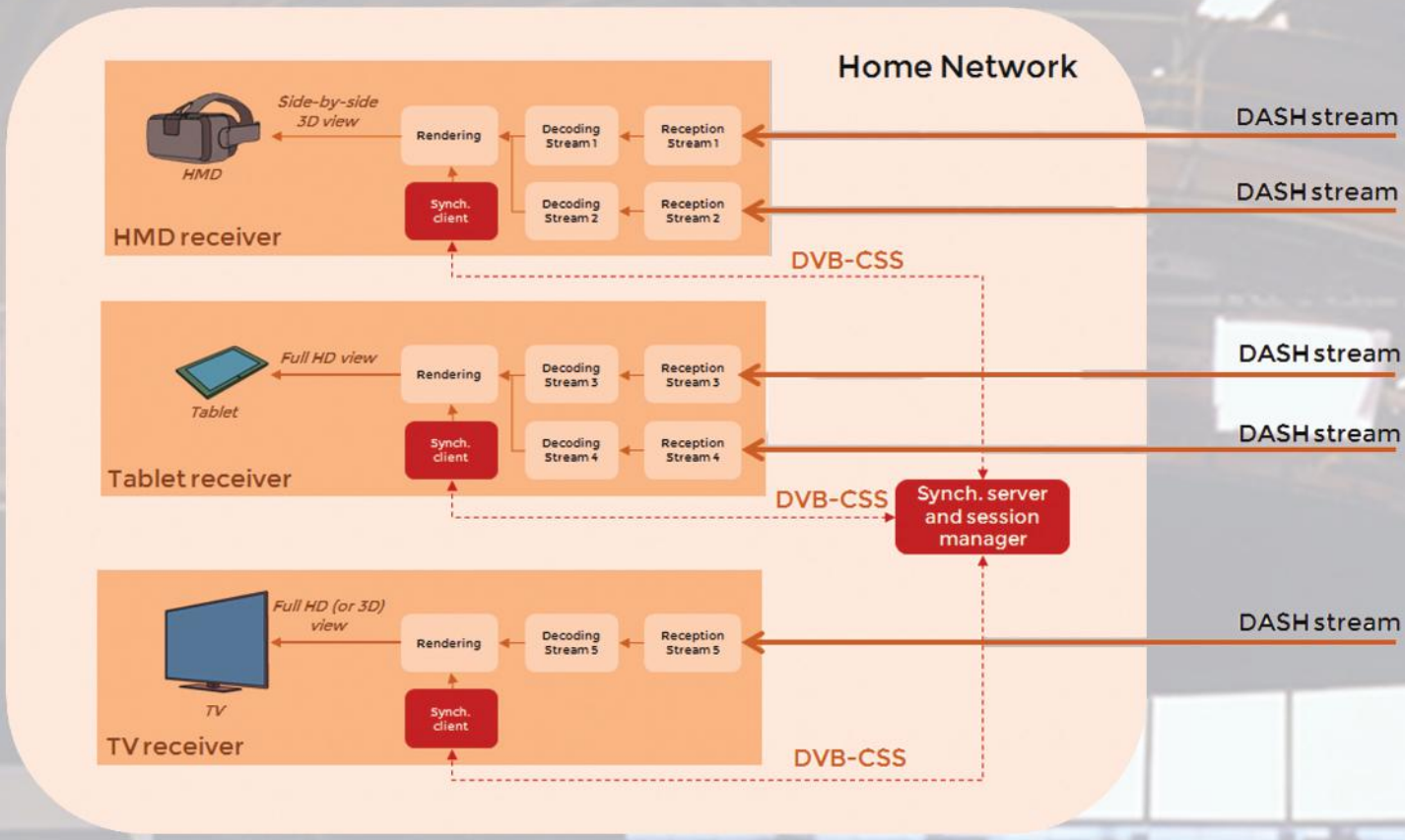
DISPLAY DIAGRAM



INSIGHTS

The display component is a multi-platform software solution that is able to:

- synchronize and integrate different video and audio streams in a consistent experience,
- handle the interaction specific to each device (head movements for the HMD, device movements and finger gestures for the tablet, etc.),
- synchronize content at the frame level with other displays in the local network.

The architecture of the display component contains two kinds of connected devices: receiver devices (TV Set, HMD, Tablet) and a session management device.
The receiver device runs the ImmersiaTV interaction and display software (in short, the ImmersiaTV player). This software is a multi-platform player targeting the general consumer. It is based on the Unity3D engine, allowing deployment on a wide variety of end-user devices and adapting the aexperience to the particular characteristics of each device. The processing of the media streams is performed using the GStreamer open-source framework. It receives and decodes different audio and video streams and delivers resulting frames to Unity3D for rendering. The ImmersiaTV player is designed to be compatible with emerging broadcast synchronisation standards (like HbbTV 2013), and work on the main platforms available to deliver the ImmersiaTV experience.

The session management device is connected to the same local network as the players and coordinates the distributed playback experience. Its main task is to make sure that all players synchronize to the same clock and get appropriate content. In the initial stage it is an application independent from other players, running on a separate machine. The goal, however, is to integrate it with the player application, so any player can act as session manager, removing the need for an additional device on the network.