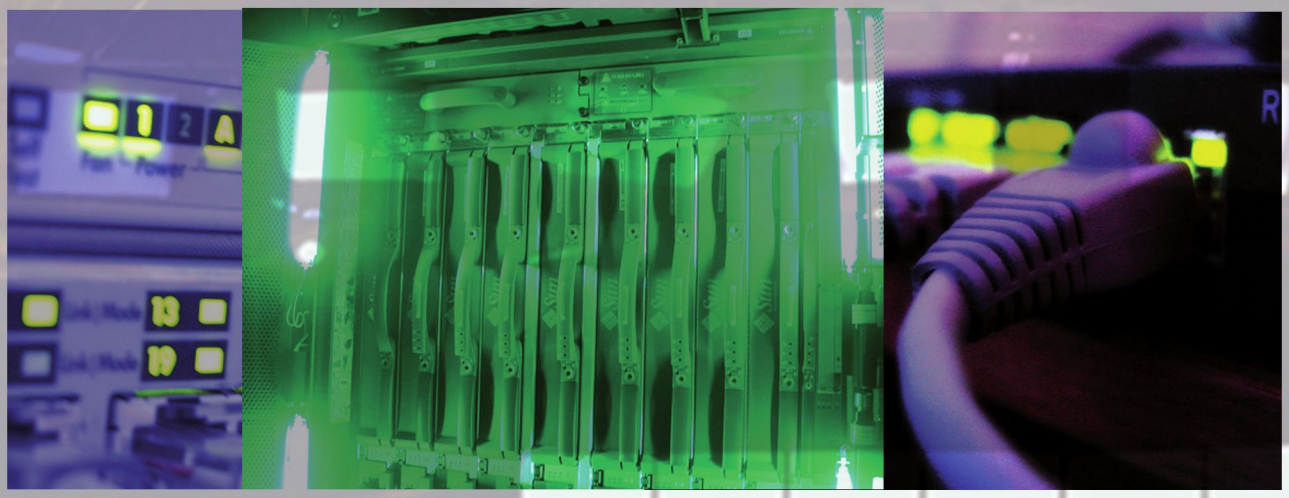
IMMERSIATV

THE MULTI-DIRECTIONAL, MULTI-DEVICE BROADCASTING EXPERIENCE



PROJECT WORKFLOW

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

Key innovative features in ImmersiaTV - Distribution component:

- Adaptive streaming based on the DASH standard
- Multi-platform content synchronization at the frame level based on emerging broadcast standards (DVB-CSS)
- Innovative metadata format that allows defining interactive content

The ImmersiaTV distribution module is in charge of delivering the content to the different devices, and to do so synchronously between them, in such a way that the end user can switch freely among displays and still follow the storyline. It also delivers the metadata required for the end-user to be able to interact with certain aspects of the experience delivered like transitions between scenes, location and interaction with portals or mask effects.

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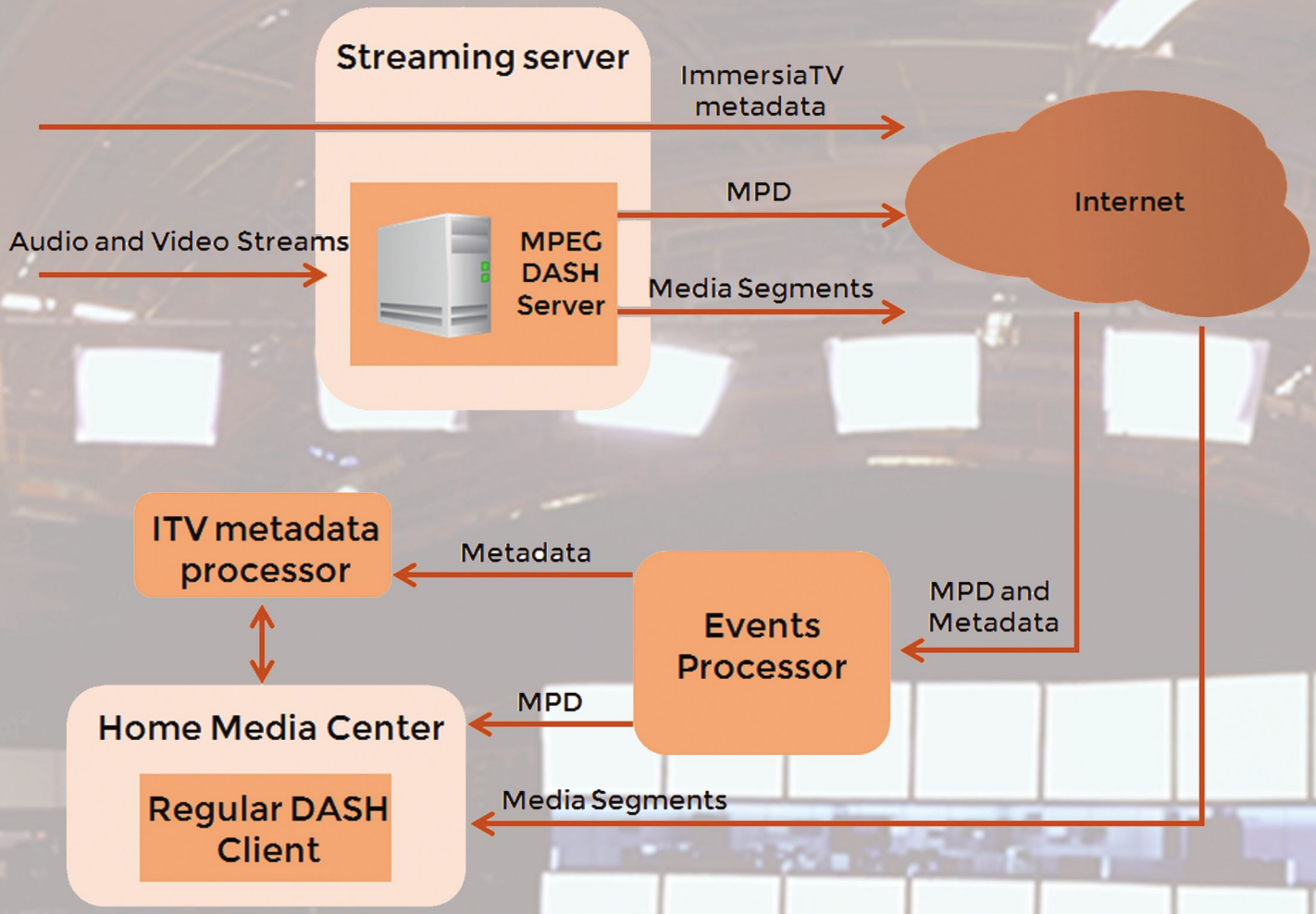
DISTRIBUTION DIAGRAM



INSIGHTS

This functional block handles communication between offline encoded content or live streams and the end-user's player. It encapsulates selected video streams into network protocols and provides synchronized video and auxiliary streams to the player. It consists of 2 components:

1) MPEG-DASH (mpd) and media segments. MPEG-DASH appears to be the only widespread solution that might get a wide adoption in the industry, as many of the main industrial actors already announced support to it (Microsoft, Adobe, Netflix, Google, etc.). There are three main reasons to choose MPEG-DASH as the standard to follow in the ImmersiaTV project:

- MPEG-DASH is getting adopted by the major players. This is a very important point in order to get ImmersiaTV close to the market. Ideally, the content providers using mature MPEG-DASH services would not need to drastically update their distribution scheme in order to provide immersive experiences.
- It is based on HTTP, which means it is easily supported by many CDN services that operate over the top and by any platform or infrastructure adapted for web content (i.e. mobile networks).
- It is an adaptive standard. This might be of special interest in ImmersiaTV as the project will handle different devices, screens and resolutions (up to 4K in 360° video).

2) Metadata

All the metadata in ImmersiaTV is sent in XML format and is used to define events within a Scene, which is the basic ImmersiaTV container. Metadata can be added, removed or updated at pre-established times. Interaction is also defined in the metadata, and therefore it can be changed in response to user actions.

A Scene contains a sequence of Shapes placed in 3D that renders media (video, audio, etc.). Each shape contains media files, an anchor to specify where they are inside the 3D scene, and callback specifications to define the interactive behavior.