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5G XCAST

LARGE SCALE MEDIA DELIVERY IN 5G

Powered by MooD and free-to-air distribution of enhanced media services to TVs and smartphones

A DEMONSTRATOR OF THE 5G-XCAST PROJECT

By EXPWAY in collaboration with IRT and EBU

5G PPP European Commission

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"Shaping 5G for large scale media delivery: Using mobile technology for distributing audiovisual media according to user's and operator's requirements"

OBJECTIVE

The primary objective is to demonstrate the scalability of the 5G system providing sustained quality of experience for increasing demands of high-quality content and the seamless switching between broadcast and unicast delivery modes powered by MooD (MBMS operation on Demand). 5G technology is also able to deliver traditional always-on linear TV with added-value content on-demand. As a summary, the demonstration will highlight the following aspects:

- fixed/mobile convergence
- combined use of unicast and broadcast capabilities and a seamless switching between them (MooD)
- delivery of free-to-air linear TV over broadcast with add-on content over unicast
- use of standardized 3GPP interfaces to deliver MPEG Transport Stream (for TV delivery with additional HbbTV service information) and MPEG-DASH (for adaptive streaming)
- reception on both mobile/portable user devices and stationary TV-sets

CONCEPT

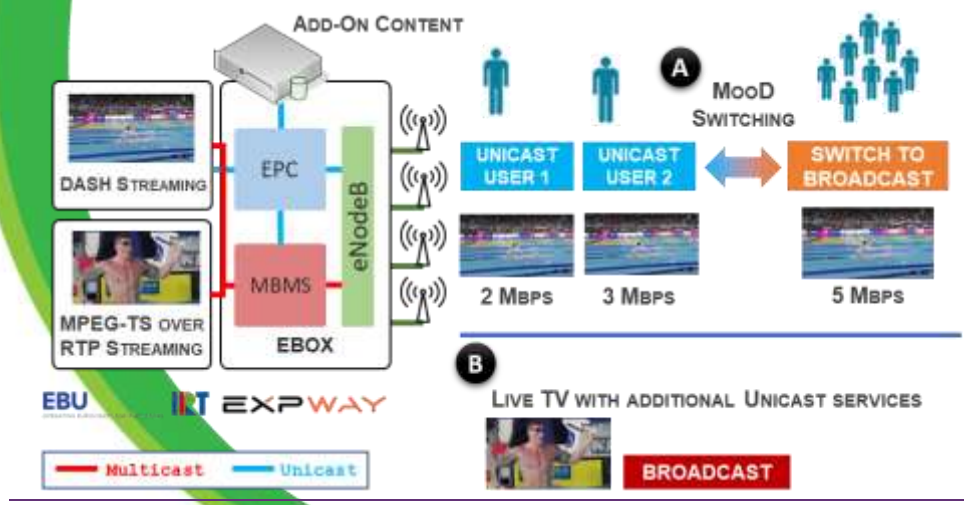
5G technology can support the delivery of live TV programmes to user devices with:

- A) An adaptive unicast/broadcast switching mode where live TV, encoded with multiple DASH profiles, can adapt to user demand and reception conditions.
- B) A broadcast mode where the live TV programme is delivered according to QoS and coverage requirements defined by the service provider.

Adaptive unicast/broadcast switching based on user demand (known as MooD)

A live stream is originally delivered over unicast to a few smartphones. The content then becomes popular, the MooD feature is activated and the network automatically switches to broadcast mode to optimise the overall system resource usage and to guarantee the quality of user experience (QoE). The smartphones with eMBMS middleware installed automatically switch to broadcast if they are in the coverage area of that signal. The switching is transparent to the users who do not experience any interruption while watching the content.

When the content becomes less popular, the network automatically switches back to unicast while ensuring the smooth playback experienced by the end users.



Live TV Broadcast with Additional On-demand Services over Unicast

Live TV content is transmitted over the LTE eMBMS broadcast system with a pre-defined format and quality. The broadcast signal is received by smartphones. Additionally, they can also display on-demand content via an HTML-based application for mobile phones when the unicast connection is available. This is the look and feel of state-of-the-art HbbTV applications for TVs.

ECOSYSTEM

The original content is provided by the EBU from the European Championships 2018 encapsulated in a MPEG Transport Stream.

IRT provide the smartphone app with Expway's middleware installed to allow users to watch live TV programmes with additional content provided when a unicast connection is available

Expway provide an all-in-one system called eBox enabling broadcast capabilities powered by the Expway's BM-SC/BPM in the core network and the Expway's middleware on the smartphones.