

Live streaming enjoyment for multi-screen applications

September 4 2013



With the FAMIUM development platform, live streamed videos can be played synchronously on several devices. Credit: Fraunhofer FOKUS

Researchers have developed the FAMIUM development platform and are using it to create new application scenarios for adaptive video streaming in web browsers. One highlight is that content can be split

between several devices and played in sync.

Whether you missed a TV show or a concert live recording of your favorite band: the Internet is a treasure trove of videos and all kinds of other [multimedia content](#). Usually this content is streamed – that is, not saved on the computer, rather played directly over the browser in real time. But this method has a major drawback: if the available bit rate deteriorates, transmission quality suffers and the resulting video juddering and interruptions test the user's patience. It can only be avoided if you match the [video quality](#) to the bit rate currently available. Although this means that individual sequences are of poorer quality, it guarantees a fluid stream of images. However, the data must be in a certain format for such adaptive streaming: namely, the ISO "MPEG DASH" (Dynamic Adaptive Streaming over HTTP) standard, which has been available since 2012.

Researchers at the Fraunhofer Institute for Open Communication Systems FOKUS in Berlin are building on this technology to create completely new applications for adaptive streaming. Their [FAMIUM development platform](#) will make it possible to play live streamed videos synchronously on several devices. "On the one hand, FAMIUM is a player that can play MPEG DASH videos in a browser. Until now, it has only worked in Google Chrome and Internet Explorer 11 on Windows 8.1, but in the longer term other browsers should also support the player," explains Stefan Kaiser, a scientist at FOKUS. "The second major feature of FAMIUM is the additional functionalities such as our multi-screen framework." The researchers were able to base their work in part on existing technologies. For instance, FAMIUM is based on an open source player from the DASH Industry Forum, although the project team optimized it a bit here and there. The multi-screen framework, on the other hand, was developed from scratch at FOKUS.

Playing videos synchronously on your TV, tablet

computer, and cellphone

A great variety of applications can be realized with the platform. For example, it is possible to connect a cellphone to a television: once this is done, the cellphone automatically detects a television in the room and [media content](#) can be split between the two devices. So while you play a video on the TV, for instance, additional information appears on your cellphone display. "To give an example, we developed a scenario that allows you to follow a Formula 1 race on two screens. While the normal race coverage is shown on the television, a second screen – on a [tablet computer](#), say – shows the view from inside the cockpit," says Kaiser. FAMIUM ensures that the content plays simultaneously and that user commands are implemented on both devices. If the user stops the video on the tablet computer, for example, then the images on the television stop, too.

Providers and marketers of media content can flexibly manage their advertising using FAMIUM. Both dynamic placement – the advertisement is spontaneously displayed while the content is playing – and static placement are possible. Specific times can be defined at which advertisements should be displayed. A digital rights management (DRM) system can be integrated in order to encrypt content and make it available only to a certain target group, such as for fee-based services.

When the researchers in Berlin started on the project roughly a year ago, they had hardly any suitable media content available to them. "We were left with no alternative other than to generate the content ourselves. So we developed a DASH transcoder, which transcodes media into the MPEG DASH format," recalls Kaiser. Now the transcoder is used, for example, to enable the current TV program to be played live over the browser.

At this year's IFA (Hall 11.1, Booth 21) and IBC (Hall 8, Booth B80) in

September, visitors can learn all about the extensive range of possibilities offered by FAMIUM. And Kaiser is not just targeting the entertainment sector either: "The platform is also capable of providing valuable services in the business sector, such as in the area of collaborative work in teams."

Provided by Fraunhofer-Gesellschaft

Citation: Live streaming enjoyment for multi-screen applications (2013, September 4) retrieved 12 May 2024 from <https://phys.org/news/2013-09-streaming-enjoyment-multi-screen-applications.html>

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