



FAMIUM MULTISCREEN

Contact

Louay Bassbouss
Competence Center FAME
Phone +49 30 3463-7275
louay.bassbouss@fokus.fraunhofer.de

Fraunhofer FOKUS
Kaiserin-Augusta-Allee 31
10589 Berlin
Germany

www.fokus.fraunhofer.de/go/famium

What is FAMIUM?

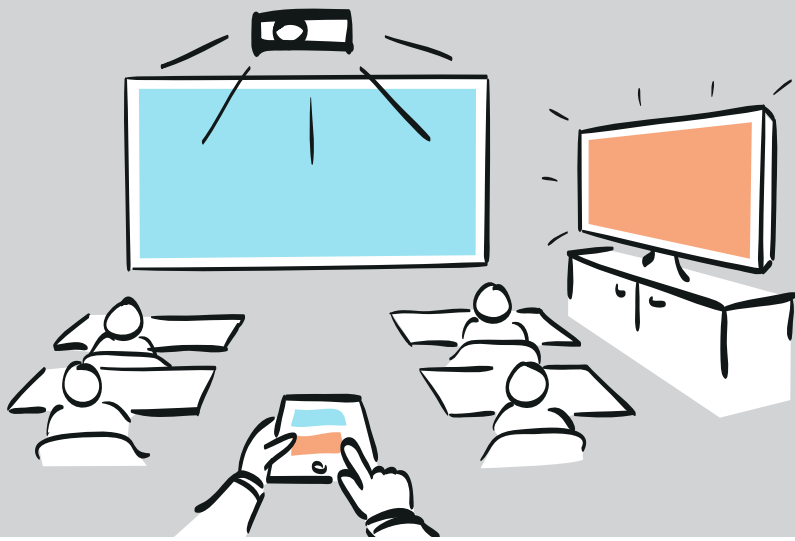
FAMIUM is an end-to-end prototype implementation for early technology evaluation and interoperability testing developed by Fraunhofer FOKUS' Competence Center Future Applications and Media (FAME). FAMIUM facilitates multiscreen content presentation and synchronization, adaptive media streaming and content protection.

FAMIUM includes a Chromium build with extended features of upcoming Web and streaming standards to allow early prototyping, experimentation and testing. These for example include W3C Presentation API, DIAL, Network service discovery, UPnP / DLNA, W3C TunerControl API, W3C Media Source Extensions (MSE) and Encrypted Media Extensions (EME). Furthermore, FAMIUM supports Dynamic Adaptive Streaming over HTTP (DASH) and Digital Rights Management (DRM).

FAMIUM Multiscreen

TV sets and companion devices (e.g., smartphones, tablets, etc.) have outgrown their original purpose and are now playing together an important role in multiscreen context. Also TVs and companion devices are used quite often at the same time, especially in home environments while already multi screen applications are entering the market. The main drivers of this trend are connected TV sets.

You would like to show your application even bigger on other screens? For example show photos to your friends on the TV rather than just on a smartphone? Or extend your application to show more content on different screens? FAMIUM Multiscreen provides technologies to connect multiple screens together so that applications can make use of and interact directly with all accessible screens. As a result, application developers are able to provide a better user experience and create a richer content presentation to the user.



Media interaction in a world of connected devices: Connect multiple screens together so that applications can interact with all accessible screens.

Multiscreen applications require to think about aspects that do not necessarily have to be addressed when building single-screen applications. This, for example, includes discovery, synchronization, adaptation and distribution of content, security and alignment of user preferences all across different operating systems. FAMIUM Multiscreen addresses all these topics and provides a comprehensive solution for multiscreen application development and deployment.

Features and assets

- Discovery of remote displays using SSDP, mDNS (Multicast DNS) or a device registry
- Launch of applications on remote displays or devices using DIAL (Discovery And Launch)
- Mirror applications to other screens so that multiple screens showing the same content using Miracast and Airplay
- Extend applications to other screens so that multiple screens may show different content using the W3C Second Screen Presentation API or HbbTV 2.0 Companion Screen API
- Supporting physical displays like TVs or HDMI plugin devices (e.g. Chromecast, Miracast, Dongles, AppleTV, Android Sticks, etc.) or virtual displays (applications acting as displays)
- Content and Media Synchronization across devices
- Object synchronization to keep the state of a multiscreen application running on different devices in sync
- Enable applications running on different devices to communicate with each other's either directly (peer-to-peer) using WebRTC or indirectly (over a messaging server) using WebSockets

Our solutions – what we offer

FAMIUM has already published a selection of its service discovery components as open source. "peer-ssdp" and "peer-upnp" provide a JavaScript Node.js implementation for the Simple Service Discovery Protocol SSDP and the Universal Plug and Play Protocol uPnP. The source code with sample applications are available on GitHub. It is planned to offer even more FAMIUM components in near future. We also offer different implementations of the Presentation API introduced by the W3C Second Screen Presentation Community Group. These implementations are part of FAMIUM and can be explored on our website.

Key Technologies & Standards

- W3C Second Screen Presentation API
- HbbTV 2.0 CS
- Miracast, WiDi, Airplay
- DIAL (Discovery and Launch)
- UPnP / SSDP and Bonjour
- WebRTC, WebSockets, WebMessaging

Benefits

- Show your application on other screens. For example show photos to your friends on the TV rather than just on a smartphone.
- Extend your application to show more content on different screens. For example having a remote control for a video on one screen and show the video on another screen. Or playing a movie on the big screen and have additional synchronized content on another screen.
- Freely arrange your application so that it shows only those parts of the application that you are interested in on the screens you want to use.