MULTISCREEN APPLICATION FRAMEWORK – MAF

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**What is MAF?**

The Multiscreen Application Framework (MAF) is a proof-of-concept implementation of upcoming standards and technologies related to key multiscreen features such as Messaging, Discovery, Application Launch, Content Presentation, Signaling, Synchronization, Push and Pairing of devices. MAF makes the development of multiscreen applications across different domains like Mobile, Smart TV, Smart Watches and In-Vehicle Infotainment faster and easier. The core of the framework is based on web technologies and enables access to underlying components using standard interfaces like W3C Presentation API and HbbTV 2.0 Companion Screen API. Each MAF component provides implementations for state of the art protocols and technologies like SSDP, mDNS, Physical Web, Airplay, Miracast, DIAL and UPnP and offers Software libraries and tools that can be easily integrated in applications on different platforms like Android, iOS, Cordova, LG WebOS TV, Samsung Gear, Android Wear and Node.js. Some MAF components provides also backend services that are accessible via REST interfaces and WebSockets.

Our solution supports displaying web content like HTML pages and videos on different types of presentation devices like HbbTV 2.0 Terminals, Chromecast and Apple TV and allows to control the playback using Smart Watches without the need to develop different applications for each of the addressed platforms. Furthermore, our solution supports the dynamic insertion of video advertisements according to the VAST standard with second screen support across a multitude of devices and platforms via DVB, HbbTV, and MPEG-DASH.
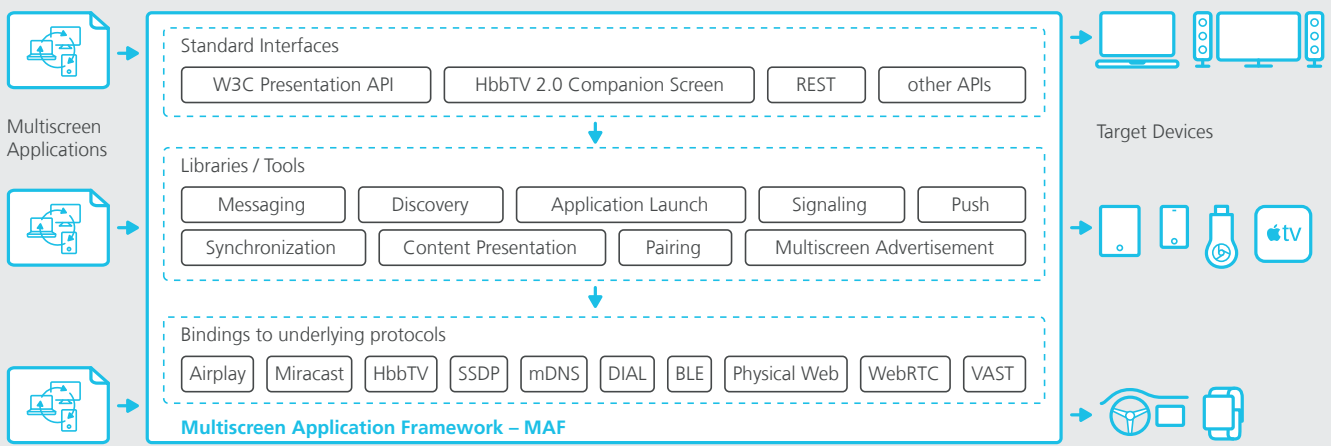
Benefits

– Display content (HTML, Audio, Video, Images) on devices from different manufacturers and using different technologies
– Cross platform support: Android, iOS, Cordova, Node.js, Web (pure JavaScript), and HbbTV
– Provides implementations to address devices in different domains like Smart Watches and In-Vehicle Infotainment
– Access via standardized interfaces like W3C Presentation API, HbbTV 2.0 CS, and REST
– Loosely coupled components that can be easily integrated in existing applications
– Early adoption of new technologies by providing early proof-of-concept implementations for upcoming standards
– Integration of all MAF components in FAMIUM Browser allows to easily develop and test multiscreen web applications

Features

– Messaging: allows applications running on different devices to communicate with each other using different protocols
– Discovery: allows applications to discover devices, services and other applications in local or across different networks
– Application Launch: allows launching applications on discovered devices
– Content Presentation: allows displaying different content types like HTML pages, video, audio or images on discovered devices
– Signaling: allows to exchange signaling information between devices e.g. to establish WebRTC peer-2-peer communication channels
– Synchronization: Sync application state and playback of multiple media streams across devices
– Push: allows to wake-up applications and execute specific tasks
– Pairing: allows to pair devices using different mechanisms like QR Codes, PIN Codes and Audio Codes
– Multiscreen Advertisement: allows to schedule and insert advertisements into live and on-demand media content on multiple screens by supporting the VAST standard for video Ads and different formats like "Splitscreen" or "Overlay" for Display Ads

At a glance

Our environment consists of connected devices like Smartphones, Tablets, Smart TVs, Smart Watches and In-Vehicle Infotainment with varying characteristics, interaction capabilities and technologies. Developing applications for this heterogeneous landscape of devices and platforms is extremely time and resource expensive. The Multiscreen Application Framework (MAF) makes the development of applications across multiple screens and domains faster and easier by providing a set of loosely coupled libraries, tools and services for different platforms and protocols.

Key Technologies and Standards
– W3C Presentation API
– HbbTV, DVB, MPEG-DASH
– Miracast, Airplay
– mDNS, SSDP
– UPnP, DIAL
– BLE, Physical Web
– W3C Push API
– WebRTC, WebSockets
– VAST