Interactive Rich Media Services for IPTV and the Mobile Web

FOKUS at Mobile World Congress 2009 Barcelona, February 16–19, 2009, Hall 1–0 Booth G49

FOKUS presents Rich Interactive Media – a new kind of media services for telecommunications, recommendation, advertising, interactive content, communities, Web2.0, home media and the Mobile Web. Rich Interactive Media offers a new user experience fostered by the perfect combination of TV and mobile devices.

Rich Interactive Media embraces a harmonized content-application-mix, deploying the TV set for interactive content, using the leverage of mobile devices for personalized and individual content, and reflecting the affiliation of IPTV and the Mobile Web on the technology and content level.

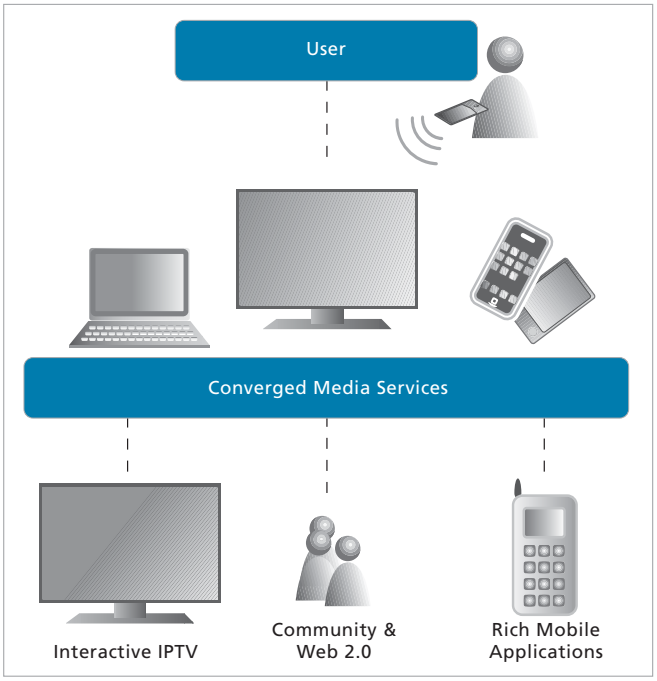
An Ecosystem for Converged & Interactive IPTV

In line with the vision of a converged TV experience that brings together services from the broadcasting and telecommunications domain, FOKUS has driven the notion of a seamless service platform even further forward. The unique infrastructure of the FOKUS labs offers a prototype of an ETSI TISPAN R2 compliant IPTV ecosystem while also providing a green field for new services such as Social & Community TV. By joining the Open IPTV Forum in January 2009 FOKUS also embraced consumer electronics needs and will now act as an intermediator between telcos, CEs, and broadcasters.

Given that interactive services play a key role in enhancing plain streaming services such as live TV and Video on Demand, FOKUS has started extensive research in this area. The FOKUS research team has already shown that basic interactive services like user voting, user polls, targeted adverts, and easy gaming scenarios can be realized using flat signaling approaches and STB-specific application logic. Here only the signaling paths need to be standardized. LCD TV and STB manufacturers are encouraged to realize visualization and control of these services through their own choice of technology without any need to rely on specific operating systems or runtime environments.

Even so, our research in value-added application platforms has shown that there are viable ways and means of porting Web runtime environments to non-computer domains. The next step in terms of enhancing the unique FOKUS ecosystem and driving standardization forward will embrace upcoming web technologies and mechanisms that merit standardization in the IPTV domain such as W3C Widgets, HTML5, and CE-HTML. These technologies provide flexible and dynamic models for the deployment of applications with consumer electronics and mobile devices. They also pave the way towards a unique way of experiencing Web applications that leverages the TV's role as a community terminal and the mobile phone's role as a personalized terminal.

Share our visions by joining us as a partner, client or contributor!



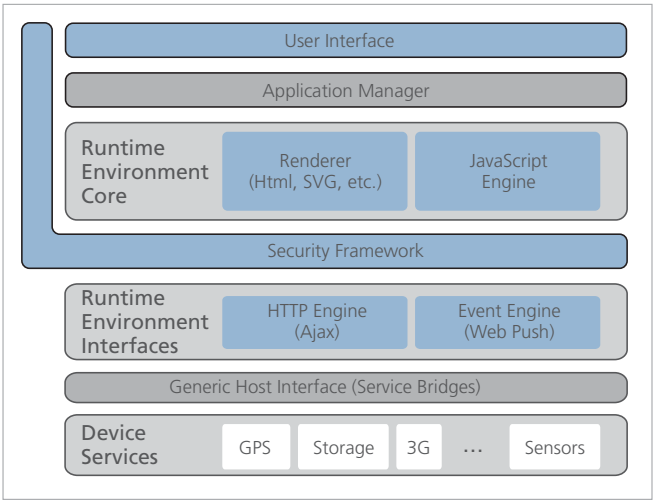
The FOKUS Widget Platform

FOKUS conducts cutting-edge research in the area of application platforms based on Web technologies enabling innovative Web applications to be spanned over three different types of devices: the desktop computer, the mobile phone and the TV set. The Widget Platform FOKUS has developed supports compact, self-contained Web applications, better known as Widgets.

The two key advanced features of the FOKUS Widget Platform are

- Harmonization of tried-and-tested Web concepts and technologies with the characteristic features and capabilities of the specific host device. The proven Web concepts are the hypertext protocol stack, the means of application provision, and life-cycle management. The characteristic services of the host device include GPS positioning and call control for the mobile phone, and channel switching and program guides for the TV set. This approach facilitates the engineering of innovative applications by using popular Web technologies, for example, the fast realization of a location-based "tourist guide" widget.

- The way the platform allows for the conceptual spanning of applications over different platforms: Thus the TV set can be used as a shared-experience user terminal, while mobile devices constitute personal terminals showing personalized content. One instance of this approach is the realization of a card game where the players "hold" their cards on their mobile phones and "place" them on the shared TV screen.



An integral part of the FOKUS Widget Platform is the FOKUS Mobile Widget Runtime. The Runtime is a small, but powerful user agent which renders, executes and manages mobile widgets. The Runtime supports mobile Web solutions in a wide variety of ways. It can equally be used as a stand-alone platform or can be embedded into existing applications. The Runtime is one prime example of FOKUS' expertise in the field of mobility. As is the significant contribution FOKUS is making to the OMPT BONDI initiative which addresses the problem of fragmentation in mobile platforms.

The FOKUS Media Client – Potentials of 2nd Generation IPTV-Services

The number of IPTV deployments worldwide and their commercial success is still far behind early expectations. In the absence of innovative value-added services, current IPTV deployments struggling with lack of customers. The reasons for the depressed evolvement are versatile and vary from country-specific media landscapes to missing standards, services and added value for the customers. The Competence Center Future Applications and Media (FAME) addresses this field of research and works on converged, personalized and interactive services with focus on standardization, service platforms and user premises. One of the supporting pillars is the development of client solutions to exploit the vision and opportunities of converged rich media applications – the FOKUS Media Client.

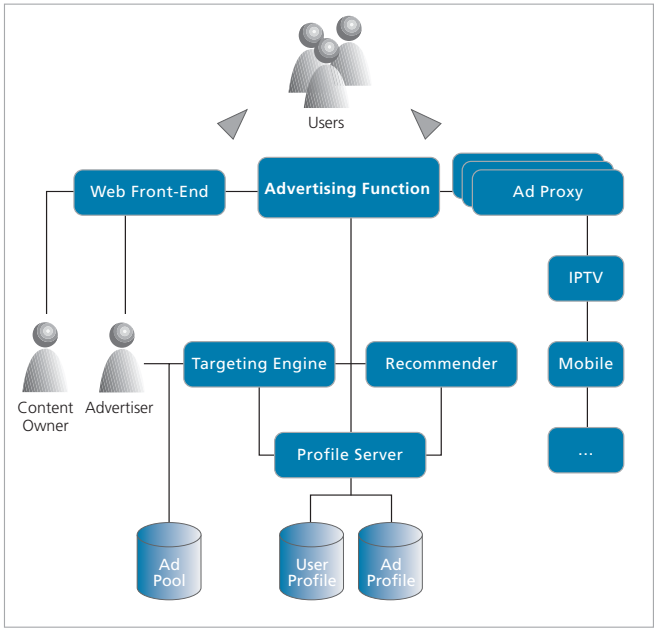
Designed for a maximum of multiple service interaction, the FOKUS Media Client is realized as an extensible and modular composition of loosely coupled application and service blocks. Each service module fulfils a specific functionality as NGN based Service Signaling, Communication, Media Handling, TV-Services, Interactivity, Advertisement and many more. Open Service Interfaces to Application Servers and Web-Services provide an easy and fast way for the development of new services as the recent integration of an interactive Quiz-Show Application and Multi-Device Scenarios showcases. As a TISPAN R2 compliant User Agent (UA), the FOKUS Media Client is predestinated for interoperability tests and ready for the 2nd generation of IPTV solutions available as PC Client, Windows XP Embedded, Linux, Media Center, and RIA application.

Monetizing Media – The FOKUS targeted Advertizing Solution for IPTV

In line with current research activities on Rich Interactive Media Services, Fraunhofer FOKUS has enriched its IPTV ecosystem with components for targeted and interactive Advertisement and IPTV eCommerce. Realized as an Application Server with open communication interfaces to advertisers, content owners and service providers, FOKUS' Ad-Solution for managed IPTV environments lead to a bunch of advanced refinancing and advertising formats, bringing targeted Ads on (IP) TV Screens.

The management of the advertizer's workflow and its customers in terms of uploading, classification, linking, and the creation of targeted Ad-pools for dedicated user groups can be done in a convenient manner using the Ad-Servers, AJAX-based Web-Interface. This allows advertizers and content owners to comfortably fit their content into the IPTV system without consideration of complicated and expensive insertion processes.

Further characteristics include commercial break triggering on specific media content via NGN signaling. Personalization is realized by incorporating the IPTV user profile based and recommendation driven association of Ad-Clips



Media Delivery in managed IPTV Environments – Open Source Media Function

The Competence Center FAME at Fraunhofer FOKUS has developed a media server component designed to serve as an IPTV Media Function in the context of NGN and IMS-based IPTV. In line with the technical specifications of ETSI TS 182 027, the media function integrates two layers: a Media Control Function (MDF) covering the SIP-based signaling part in charge of controlling and managing multimedia sessions, and a Media Delivery Layer for handling media processing and distribution. Thus the Media Function is fully controlled by its SIP interface, enabling seamless integration in NGN and IMS environments and ensuring session-control-based IPTV service delivery.

In addition to supported services as defined in the TISPAN specification including Broadcast (BC), Video on Demand (VoD) and their related protocols IGMP, RTSP and RTP, the Media Function has been enriched with additional functionalities allowing smooth and easy integration of User Generated Content (UGC) and mobile devices in the IPTV content distribution system. It provides the capabilities for "on-demand media adaptation" to accommodate media streams with changing network characteristics or end devices.

The FOKUS FAME solution is based on an open SIP stack for signaling and an open source streaming engine for media delivery purposes. FOKUS has merged and further developed these two functions in one single system that enables SIP-based communication for media streaming in Next Generation Media environments. The Media Function is now available as an open source.

Individualized IPTV – Harmonic and FOKUS partner for new IPTV Solutions

Harmonic Inc. and Fraunhofer FOKUS are collaborating to develop personalized solutions for IPTV. Harmonic, a leading provider of professional video processing and delivery technologies, is to integrate its latest IP-based TV-headend and advertising insertion technologies in the FOKUS Media Interoperability Lab. Using the extensive IPTV and rich media infrastructure of the laboratory, Fraunhofer and Harmonic will develop new solutions for individualized TV services. Joint development will concentrate on the simultaneous delivery of personalized media and targeted adverts including delivery to mobile sets where TV programs are adjusted to suit the end device.

Pushing Standardization – FOKUS joins the Open IPTV Forum

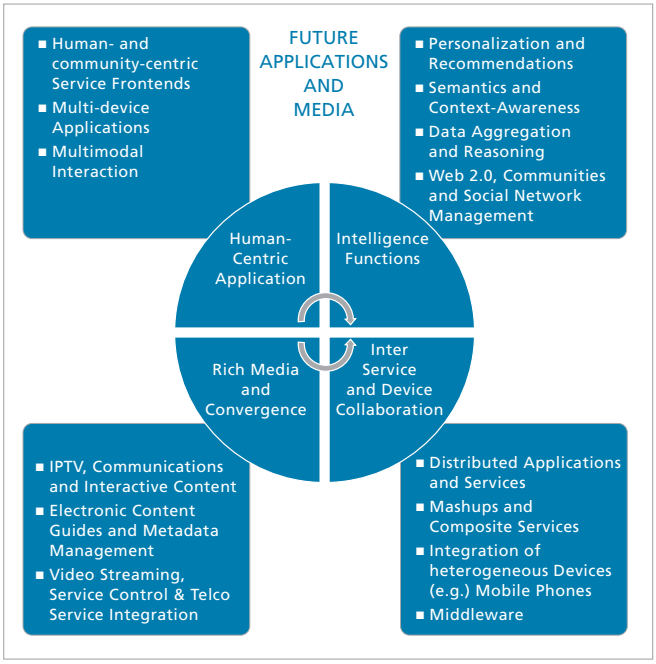
As announced at its 9th general meeting held in Marseilles in December '08, the Fraunhofer Institute FOKUS has now become a member of the international pan-industry Open IPTV Forum (OIPF). In cooperation with other partners of the Forum FOKUS will bring in its full expertise in converged and personalized IPTV, and also act as a bridge, linking up members from the consumer electronics branch with broadcasters and telecommunications professionals.

Future Applications and Media

Dedicated to the vision of "Intelligent Services and Applications – any time – any place – any form", the Competence Center Future Applications and Media (FAME) consolidates and synergizes FOKUS' expertise in a wide range of key technologies such as IPTV and Rich Media Clients, Mobile Widget Runtime Environments, Universal Services Terminal Middleware, IPTV and Rich Media Entertainment Platforms, WebTelco Interworking, Real-Time Web Proxies, Service Mashups, and Recommendation Frameworks, making it well prepared to meet upcoming challenges in the rapidly changing media and telco landscape.

With 20 researchers and more then 30 students, FAME is structured in four main research areas: Human-Centric Applications, Rich Media and Convergence, Intelligent Functions and Inter Service and Device Collaboration.

With its technology-focused, enterprise-oriented test and development environment, FOKUS FAME offers customers from science and industry an unparalleled infrastructure of networks, platforms, application software, and testing environments while also providing the benefit of its extensive technology expertise. FOKUS Test Lab services cover the testing of manufacturer-own products and applications for functionality in a range of wired and wireless networks, and for interoperability and conformity with other products, as well as demo development and proof-of-concept implementations.



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