

FOKUS Open IPTV Ecosystem

Solutions for
Standardized IPTV

At a Glance

The Fraunhofer FOKUS Open IPTV Ecosystem provides solutions for open standard and end-to-end IPTV for managed and unmanaged networks. This includes specifications from Open IPTV Forum (OIPF), ETSI TISPAN, HbbTV and OMTP. Developed in-line and somewhat ahead of standardizations, the Fraunhofer FOKUS Open IPTV Ecosystem is the first product on the R&D market to offer practical end-to-end implementations. All components are adapted specifically to the customer's needs as consumer electronics, telecommunications and broadcasting.



Fraunhofer FOKUS IPTV Media Client Suite

The Fraunhofer FOKUS IPTV Media Client Suite is a customizable, multi-platform client solution which conforms to IPTV, Web and NGN standards. It is designed to create complex native or browser-based IPTV and Rich Media applications. It is geared towards Telcos, Consumer Electronics and ISPs looking for standard compliant solutions as defined in OIPF, ETSI TISPAN and HbbTV standards. The presentation layer actually supports browser oriented approaches as HTML5, CE-HTML, JavaFX or native solutions using Java and .NET technology. Use-cases for Hybrid TV, Over-The-Top (OTT), Video on Demand (VoD), communications, Electronic Content Guides, personalization, communities, interactivity, and targeted advertisement are supported.

IPTV Service Control

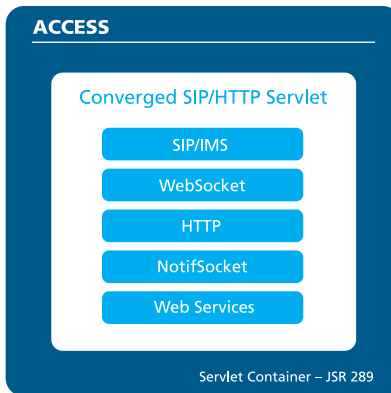
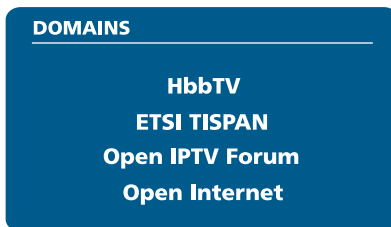
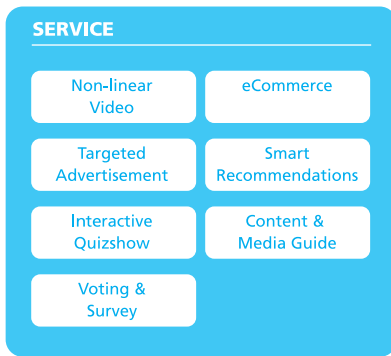
The FOKUS IPTV Service Control (IPTV SC) is responsible for service accessibility and is managing incoming user requests for Linear TV and Video on Demand. The system provides services for authorization during IPTV session initiation, session modification and for forwarding requests to the hosting Content Delivery Network (CDN) infrastructure. IPTV session information is used for targeted advertisement, charging and billing, user tracking or interactive services.

In addition, the application is responsible for

- User Tracking & Monitoring
 - aggregating (i.e. collecting and storing) requested IPTV service
 - state information
- Managing Credit limit and credit control
- Providing a 3rd party access API for
 - targeted ad subsystem
 - voting & polls
 - content recommendation



The IPTV Service Control implements Open IPTV Forum's R1 specifications for IPTV Control (OIPF Functional Architecture V1.2) and ETSI TISPAN IPTV Service Control Function (ETSI TS 182 027). The IPTV SC is implemented as a converged SIP/HTTP Servlet as specified in JSR289 and can be deployed on any solution in compliance with this specification.



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FAME
 Future Applications
 and Media

Home Gateway

The Fraunhofer FOKUS Home Gateway implements core functionalities of a WAN, NGN and application gateway. It bridges protocols and services between the user's home network and the operator's access networks. This includes the termination of the operator's signaling (i.e. NGN/IMS) and the provisioning of DLNA functionalities for attached devices.

IPTV Content & Media Guide

The IPTV Content & Media Guide provides functionality for IPTV Content Management & Metadata Management. It allows to generate metadata for IPTV frontends such as STBs and TVs. The component supports a variety of output formats such as the DVB's Broadband Content Guide (BCG) or OMA's Electronic Service Guide (ESG).

IPTV Media & Content Delivery

FOKUS IPTV Media & Content Delivery (MCD) implements core functionality of a distributed Content & Media Delivery Network (CDN). The entity provides functionalities of a distributed SIP media server to be used in managed NGN-based IPTV environments. Functionalities include dynamic media distribution, stream adaptation as transration and transcoding, ad insertion, user-generated content and mosaic. Additionally a DVB-C/S/T to IP turnaround is included.

Interactive Applications: Targeted Advertisement, Voting & E-Commerce

IPTV Interactive Applications provide server side logic, signaling and a browser-based maintenance interface for interactive IPTV services. Services can be provided either in managed or unmanaged environments by offering multi-protocol implementations using e.g. Webservices or SIP. Implementations embrace and enhance draft specifications from ETSI TISPAN, OIPF, OMA (Mobile Advertisement) and SCTE (SCTE 130). The IPTV Interactive Applications (IPTV IAPP) solution provides functionalities for targeted and interactive advertisement and IPTV e-Commerce. Equipped with open communication interfaces to advertisers, content owners and service providers, IPTV IAPP enables advanced refinancing and advertising formats that deliver targeted ads, non-linear and clickable content as well as interactive objects on TV screens.

IPTV SMART Recommendations

The IPTV SMART Recommendation engine (IPTV SR) provides content recommendations based on user ratings or implicit feedback collected by the FOKUS IPTV Service Control. The IPTV SR acts as a SIP or HTTP application server. Available services are Video on Demand recommendations and personalized TV channels which take into account user profile and ratings. The IPTV SR can also be used in combination with the Interactive Applications as the Targeted Advertisement Engine.

Proof of concept

Beside nine other member companies from the Open IPTV Forum (OIPF), Fraunhofer FOKUS took part in the so called NIMS IPTV Proof-of-Concept project in Singapore from April to July 2010. The OIPF's activity was managed by Fraunhofer FOKUS, coordinating all involved implementation and integration activities.

Objective of this initiative hosted by the InfoComm Development Authority of Singapore (IDA), was to select an appropriate IPTV Standard for adoption in Singapore, to be provided over the Next Generation Nationwide Broadband Network (NGNBN) representing a governmental funded fiber-to-the-home network. Fraunhofer FOKUS contributed to the project with its Open IPTV Ecosystem, representing a reference implementation of the Open IPTV Forum's Release 1 specifications and beyond.

