

# MODULES FOR AN INTEGRATED SYSTEM APPROACH FOR ADVANCED PROCESSING OF AV-OBJECTS IN DIGITAL TV WORKFLOW

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## ABSTRACT

The scope of this paper is to describe the integrated system approach for advanced processing of AV-Objects. This system approach is oriented on the design of a software framework consisting of several modules and services, whereas the service designing and composing process is oriented on the WSMO specification. The proposed integrated system approach consists mainly of a threefold approach: meta-search, recognition and classification of objects, application of watermarking methods and the integration of interoperability features of semantic web services. The integrated modules concerning the retrieval, the watermarking, the semantic annotation and the workflow aspects are overviewed.

## INTRODUCTION

The digitalization of almost all ambient information has resulted in developing of new infrastructures for better integration of different resources. The digitalization in TV provides several advantages – among others it allows user to chose *what* to watch, *how* to watch and interact with it, and *when* to watch it. Furthermore, video services can be bundled in new ways and there are potentials for customized pricing (Henten and Tadayoni, 2005). It allows for an extended interactivity in the sense that different aspects can be explored.

The right business models for exploiting the potentials of digital TV are still under development, but a necessity for designing frameworks of software and technological tools for delivering services and contents to customers in new ways has been come into being. Such kind of frameworks has to be based on the enhanced searching, retrieval and processing of audio-visual objects (AV-objects).

In the following a system integration approach is described, which combines technologies and methods from

mainly three different areas. Accordingly in the following sections an overview about the activities in the European community and a state of the art in the areas of networked audiovisual systems is given.

The TIRAMISU - (The Innovative Rights and Access Management Inter-platform Solution) project addresses the problem of creation, delivery and consumption of audio-visual media across a wide range of hybrid networks and platforms, where security issues and access rights are of major concern.

AGAVE aims at solving the problem of end-to-end service provisioning over IP networks by studying, developing, and validating a new inter-domain architecture based on Network Planes that will allow multiple partners to provide parallel internets tailored to service requirements. Uni-Verse – The goal of this project is to create an open source Internet platform for multi-user, interactive, distributed, high-quality 3D graphics and audio for home, public and personal use. ASTRALS is a project focused on personalised, scalable A/V encoding, transcoding / transrating, storage and distribution in existing households via streaming-optimised wireless links. ASTRALS motivation is to implement scalable solutions, for new products and services including personalised, network-aware video adaptation and distribution in multiple heterogeneous terminals (from low-cost PDAs to high-end home cinemas).

VISNET is a European Network of Excellence with the objectives: to integrate world-leading institutions to create a world force, to make significant contributions to the sustainable advance of research in this field, to implement an efficient dissemination plan aiming at improving knowledge economy and enhancing the socio-economic life standards of EU citizens. Home networking is the collection of elements that process, manage, transport, and store information, enabling the connection and integration within a broadband wide area network of multiple computing, control, monitoring, and communication devices in the home (a.o. mobile phones and PDAs).