ABSTRACT

The ongoing media digitalization is creating opportunities to bring new interactivity to the traditional TV concepts. The XML-based TV-Anytime standard for TV content description is tightly coupled to the MPEG-7 ontology. We translated the TV-Anytime ontology to OWL by making use of an existing OWL version of MPEG-7. We defined mappings to existing ontologies for time, geography and linguistic concepts. The demonstration of the iFanzy personalized electronic program guide shows our ontology-based approach to personalized access to TV content considering the user context and providing semantically-meaningful recommendations to viewers. The approach involves proper modeling of the domain and of the additional knowledge that is included in the system, as well as data transformations that match the ontological knowledge.

Categories and Subject Descriptors
H.4 [Information Systems Applications]: Miscellaneous

General Terms
Interactive TV

Keywords
Semantic annotation, multimedia, electronic program guides, personalization

1. INTRODUCTION

While the Web steadily but continuously keeps its advance towards a full-blown user-adaptive content collection, other similar content providers like television broadcasters are lagging behind. Various studies show the need for personalization in dealing with the massive TV content [6]. Content providers search for ways to put all their content at a digital visitor’s disposal. However, this creates new demands regarding personalization [2], handling diversity of users and/or groups of users, interaction and content explosion issues [1] on an even more diverse scale. The process of integrating content collections from different heterogeneous sources and presenting them to the users in a personalized and context-aware manner demands a good understanding of both the content we are dealing with and the users using it [3]. In this paper we concentrate on the use of ontology-based knowledge in enriching the personalized interaction with content collections. We introduce the iFanzy personalized electronic programming guide for ambient home environment. It is a collection of filters for retrieving and presenting incoming TV content according to user preferences, characteristics and contexts for TV viewing. It is designed and implemented in compliance with the TV-Anytime-OWL based architecture of the Blu-ray Interactive System. The demonstrator presented in this paper is a collaboration between Eindhoven University of Technology, Stoneroos Interactive Television and Philips NL in the context of ITEA funded Passepartout project.
the ontological knowledge, in terms of background, context and user knowledge, and constructs a corresponding refined query to the content repository. Thus, it adapts the result to the needs of the user or group of users and ranks them according to their relevance. For example, the user can ask for all the content available in a particular time frame, specific location or on a preferred topic. After filtering the relevant content it is presented to the user in a packaged form, including not only the TV programs, but also related content from the Web, such as soundtracks, posters, pictures, etc.

3. IFANZY PROGRAM GUIDE

The iFanzy electronic program guide 2 uses the Blu-IS semantic-based information management for the realization of TV content filters considering the user and user’s context.

It allows XML-based content to be mapped to the TV-Anytime metadata schema and further organized in TV-Anytime content packages. iFanzy is developed as a Java application currently using real BBC program stream provided by the BBC web site. It consists of a set of filters, which can be extended depending on the demand for filtering criteria. Currently, we have developed the following filters 3:

- Channel level filter: The user can add/delete a channel to the preferred set of channels. Channels not contained in the set of preferred channels are not shown in the iFanzy.
- Stereotype filter: Every user is matched to a set of stereotype users. Every stereotype group of users has their own preferences and viewing behavior.
- Collaborative filter: Based on the viewing history of the user, the user is matched to a set of other users with the same interests and preferences.

4. CONCLUSIONS

The goal of the iFanzy demonstrator is to how semantic annotation of TV content and modeling of domain, user and context can provide an efficient alternative to the existing theme channels - dynamic composition of TV content packages based on data semantics and user profile and context.

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7. REFERENCES


