EASAIER: Semantic Music Retrieval Portal

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Abstract. Semantic Web aims to lift current Web into semantic repositories where heterogeneous data can be queried and different services can be mashed up. Here we report some of on-going work with the EASAIER project to enable enhanced access to sound archives by integrating archives based on Music Onotlogy and provide different search results from different mashups.

Keywords: Semantic Web, music retrieval, ontology, data integration

1 Introduction

The vision of the Semantic Web is to lift current Web into semantic repositories where heterogeneous data can be queried and different services can be mashed up. The Web becomes a platform for integrating data and services. Ontology or agreed consensus is the key issue to achieve that. Especially in cultural heritage area, cross-media and cross-archival retrieval turn out to be the slogan in this area. The EASAIER project aims to enable enhanced access to sound archives by providing multiple methods of retrieval, integration with other media archives and content enrichment. Here we present some on-going work in this project. This paper is outlined as followings. Section 1 gives the general introduction. Section 2 shows the preliminary version of the EASAIER music portal. Section 3 concludes the paper and points out future work.

2 EASAIER Portal

Boca from IBM has been chosen as the semantic repository management tool in our portal [2]. Boca has two components: a SPARQL engine and a full-text search engine. In EASAIER portal, music archive data are integrated via Music Ontology[1]. Currently data from Musicbrainz (http://musicbrainz.org/) and HOTBED are integrated via Music Ontology and stored in Boca. HOTBED archive contains recordings of traditional Scottish music and is stored in a relational database. D2R

server mapping has been used to align the database schema to the ontology [3]. Once the mappings are defined, data in traditional database can be converted into RDF triples. In the future, more music archive data will be integrated into our Boca RDF stores according to Music Ontology.
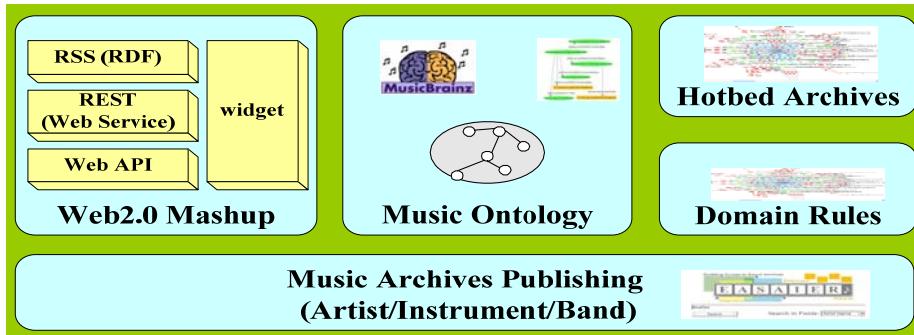
Fig. 1. Overview of EASAIER architecture

EASAIER portal has been enriched by external mashups. For instance, when the user searches one artist with artist name, she/he can get the integrated results from Musicbrainz and HOTBED, plus results from Google, YouTube, LyricWiki, Yahoo Image, Yahoo Music, Amazon and eBay (see Fig. 1).

3 Conclusion and Future Work

Here we present some on-going work done in EASAIER project which still has one and half a year to go. In the future, we will integrate more music archives from different data providers. We plan to extend the Music Ontology to include different media data (such as audio, video, text and image). We will enhance some search features by enabling searching of content based on audio features, musical features (low-level features (tempo, genre, chord)) and speech content.

References

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Demo of EASAIER Semantic Search

Live demo will be available at http://easaier.deri.at/demo/.

There are three scenarios:

Scenario 1: Artist Name Search

It aggregates music artist information from multiple data sources (MusicBrainz and HOTBED) according to Music Ontology and provides different search results from Web2.0 mashups (Youtube, LyricWiki, Google, Yahoo, Amazon, eBay). For example, you search artist Lou Reed, you get results as below.

Scenario 2: Instrument search

It can provide subsumption reasoning over HOTBED instrument schema based on Music Ontology. For example, when you search for persons who play an instrument, you will also get the persons who play the subclass of this instrument.

Scenario 3: Complex rule based reasoning search

It can infer new knowledge with defined rules in domain and answer the sophisticated query. For example, you can define the founder of the band as the band member who played in the first release of the band.