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# Frontiers of High Performance Computing and Networking – ISPA 2006 Workshops

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# Context-Broker Service Architecture for Aml Systems Through Mobile-Agents and Ontologies as Middleware

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**Abstract.** Semantic web is mainly addressed to distributed web systems development. The semantic web organizes the information in a way that it is possible to find it even the amount of data is enormous. The semantic web provides a way to transform the information into knowledge by storing the data in concepts related by their meaning. This work-in-progress paper is going to show that this technology eases the construction of autonomous systems through agents. Particularly, we have developed an agent-oriented context-broker architecture that implements a smart conference room. The main contribution of the paper is the emulation of an ambient intelligent system, where mobile agents are working with well-defined ontology knowledge. Ontologies represent the main layer in the semantic web architecture. Thus, we use the ontology engineering features to represent a middleware infrastructure.

## 1 Introduction

Nowadays, World Wide Web (WWW) contains a lot of information but in many cases it is either redundant or simply not correct [1]. Searching for a specific content over the WWW through a syntactic search engine may result on an enormous amount of data, but very little useful information. Obviously, this unfortunate situation is caused by the search engine and the knowledge-representation, which is based on word matching and not on word *meaning* [2]. For example, if we look for a paper about García Márquez, we may find dozens (even hundreds) of articles written by García Márquez but we will surely have to look up in the list which exactly are about him. The semantic web tries to fix this kind of problems by means of semantic concepts management. The semantic web organizes the information in a way that it is possible to find it even the amount of data is enormous. The semantic web provides a way to transform the information into knowledge by storing the data in concepts related by their meaning. The semantic web development is based on several technologies, e.g. the Resource Description Framework (RDF) and the Ontology Web Language (OWL).

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