

TUTORIAL PROPOSAL

The 21st Annual ACM Symposium on Applied Computing

TITLE: SEMANTIC WEB SERVICES

--- HALF DAY TUTORAL ---

By

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1 Title

SEMANTIC WEB SERVICES

2 Duration

Half day.

3 Brief summary of the topic

This tutorial presents what can be achieved by symbiotic synthesis of two of the currently most important research and technology application areas: Web Services and the Semantic Web. These were also two of the 'hottest' areas of discussion at WWW2005.

4 Outline

4.1 Semantic Web Process Lifecycle

Semantic Web services will allow the automatic discovery, the selection, composition, integration, orchestration, and execution of inter-organization business logic. Semantics plays an important role in all stages of Web process lifecycle.

4.2 Semantic Annotation of Web Services

Today, Web Service specifications are based on standards that only define syntactic characteristics. The interoperability problems that Web services face have led to research which has involved a steady progress from syntax, to representation and structure, and to semantics. One of the most recognized solutions to solve interoperability problems is to enhance Web Service semantically by annotating their descriptions.

4.3 Semantic Web Service Discovery

The search of Web Services to model e-commerce applications differs from the search of tasks to model traditional process. One important difference is the dynamic cross-enterprise environment in which processes operate, where no implicit assumptions about services are valid, and where explicit descriptions of service capabilities and requirements are an absolute requirement. Rich service annotation becomes the basis of service discovery and selection.

4.4 Semantic Process Composition and Orchestration

While Web Services may be utilized in an isolated form, it is normal to expect that Web Services will be integrated as a part of Web processes. Sophisticated methods are indispensable to support, facilitate, and assist the composition and orchestration of Web process involving Web Services.

4.5 Semantic Web process QoS

In processes, trading agreements between suppliers and customers include the specification of QoS items such as products or services to be delivered, deadlines, quality of products, and cost of service. The composition of Web Services, and therefore of Web processes, cannot be undertaken while ignoring the importance of quality of service measurements.

5 Specific goals and objectives

The attendees will recognize the synergies that can be created between Web Services and Semantic Web technologies, and understand the role of semantics in service oriented environments, through service annotation, discovery, composition, process execution/enactment, and quality of service of Semantic Web Processes.

6 Expected background of the audience

The intended audience of this tutorial is any person interested in service oriented architectures, Web Services and processes, semantics, and business processes. Exposure to Web Services is assumed. Knowledge of semantics is desirable, but not required.

7 Tutorial History

This tutorial is built on the following five successful tutorials:

- *Lifecycle of Semantic Web Processes*, Jorge Cardoso, et al., [CAiSE'05](#), Portugal.
- [Service Oriented Architectures and Semantic Web Processes](#), Jorge Cardoso, et al., WWW2004, USA.
- *Semantic Web Processes: Semantics Enabled Annotation, Discovery, Composition and Orchestration of Web Scale Processes*, Jorge Cardoso, et al., [WISE2003](#), Italy.
- [Semantic Web Processes](#), Jorge Cardoso, et al., [Net.Objects Days 2003](#), Germany.
- [Semantic Web Services and Processes: Semantic Composition and Quality of Service](#), Jorge Cardoso, et al., [DOA/ODBASE/CooPIS 2002](#). USA.

8 Biographical sketch of presenter

Jorge Cardoso joined the University of Madeira in March 2003. He previously gave lectures at University of Georgia (USA) and at the Instituto Politécnico de Leiria (Portugal). In 1999, he worked at the Boeing Company with Christoph Bussler. Dr. Cardoso was the co-organizer and co-chair of the First and Second International Workshop on Semantic and Dynamic Web Processes. He has published approximately 40 refereed papers and gave several tutorials at major conferences.