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Web Service Standards Taxonomy

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Tutorial Proposal to the AMCIS 2010

Tutorial (half a day)

- Tutorial title, a 200-word abstract, and a brief outline

Title: Web Service Standards Taxonomy

Abstract: The objective of this tutorial is to survey major Web service standards (WSS) in order to develop a taxonomy that will assist adapting organization in identifying individual standards as well as the interrelationships among these standards, and the relevancy of these standards to a particular WS implementation. Since multiple standards exist, a generic taxonomy is constructed first that shows basic functions supported by different standards basically XML and J2EE-based standards. Standards are then mapped into these basic functions which cover single WS or composite WS. Furthermore, the tutorial delineates standards related to internet and intranet based applications, such as e-business, virtual organizations, supply chain, and enterprise computing. Related standards, such as grid and portal are also described. Finally, a WS maturity model is mapped into this taxonomy to assist adapting organizations in charting a direction towards proper progression for optimal and successful deployment of WS projects. This tutorial should assist organizations first to develop an overview of standards associated with WS before embarking on a major WS project.
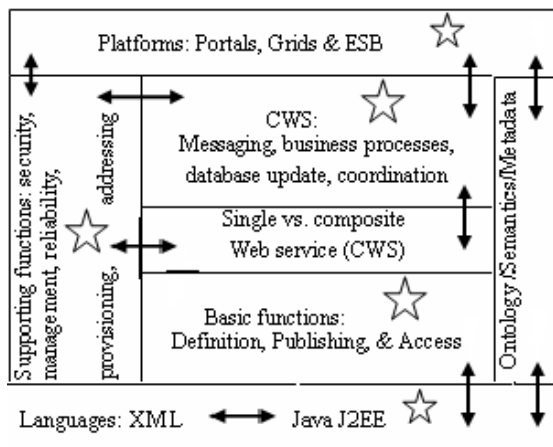
Outline

1. Introduction
WS definition
Individual and composite WS
Scenarios for WS implementations
Organization developing WS standards
Standard development life cycle

2. The WSS generic taxonomy (WSSGT)

Basic functions in the taxonomy:
- Language functionalities: XML and J2EE
- Core functionalities: defining, publishing, and accessing WS

- Single vs. composite WS functionality
- Supporting functions:
  - Security, management, reliability, and addressing
  - Ontology/semantics/metadata functionalities
- Platform functionalities: portals, grid computing, and Enterprise Service Bus (ESB)
- Interrelationships among standards (shown by arrows in the figure above)

3. Web service standards related to the taxonomy

3.1 Foundation standards supporting language functionalities and the link between the two major standards.

3.2 Core standards supporting core functionalities

The core standards are related to the three basic functions of defining, publishing, and accessing WS.
- Accessing: SOAP (Simple Object Access Protocol):
- Registering: UDDI (Universal Description, Discovery and Integration) OASIS latest release 3.0.
- Describing: WSDL (Web Services Description Language)

3.3 Extended standards supporting composite WS
- Messaging
- Business processes and workflow
- Database update of transactions

3.4 Supporting standards for supporting functionalities
- Security
- Management
- Reliability
- Addressing
- Ontology, Semantics, and Metadata

3.5 Companion standards to support platform functionalities
- Portal
- Grid computing
- ESB

4. Application-based taxonomy

Standards related to WS applications in E-business, supply chain, virtual enterprises, and enterprise computing:

5. Mapping the taxonomy to a WS maturity Model

- Information on the speaker: name, affiliation, address (postal address, telephone, fax and e-mail), and qualifications for conducting the proposed tutorial

Leader qualifications: Dr. …has over 30 years of experience (including 20 in the US) in teaching, training, research, and consulting in the area of integrated technologies, such as

management support system development (Systems Analysis, databases, expert systems, and DSS), web services, enterprise service bus, portal, and ERP. He is the founder and Co-Editor-in-Chief of the *International Journal of Information Technology and Web Engineering* published by IDEA, Hershey, PA USA.

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- ## Special requirements such as Internet access: Internet access is required.

- ## Target audience and an estimate of the number of tutorial participants

Intended audience:
Academics, students, and professionals (technical and non-technical) of all levels who want an exposure to WS standards, or are currently considering the incorporation of WS in courses and programs, and/or the implementation of a WS project. Estimated attendants: 40.

A sample of his related research is listed below:

Zakaria Maamar, Quan Z. Sheng, Boualem Benatallah, and. "A Three-Level Specification Approach for an Environment of Software Agents and Web Services". Electronic Commerce Research and Applications Journal, Elsevier Science Publisher, 2004'

"Transaction Management in Distributed Databases: The Case of Oracle Two-Phase Commit" with Ronny Labban, Journal of Information Systems Education, Summer 2002.

"The Maintenance Problem of Application Software: An Empirical Analysis." published in the Journal of Software Maintenance, 1992.

"Software Metrics for Measuring System Complexity at Front-End Phase," published in Interface Journal, 1992.

and Z. Maamar "Integrating Enterprise Portals and Web Services: Challenges and Opportunities." Proceedings of the 2nd IEEE GCC Conference, Bahrain, November, 2004.

"Integrating Web Services and Grid Computing: The Enterprise Business Models" Proceedings of the 3rd Workshop on E-Business WEB 2004, Washington, DC December 2004.

Z. Maamar, and, "Integration of Web Services for Establishing Virtual Enterprises: An Agent-Based Perspective" Proceedings of the International Conference of Information and Computer Sciences, November, 2004. King Fahd University of Petroleum and Minerals, Saudi Arabia.

Zakaria Maamar, , Soraya Kouadri Mostefaoui, Mohammed B. Lahkim, Wathiq Mansoor, "Context-based Personalization of Web Services Composition and Provisioning," 30th EUROMICRO Conference, Rennes, France, August/September, 2004.

Zakaria Maamar, Khaled Ben-Younes, , "Scenarios of Supporting Mobile Users in Wireless Networks." Wireless Information Systems 2003: 12-20. In Qusay H. Mahmoud (Ed.): Wireless Information Systems, Proceedings of the 2nd International Workshop on Wireless

Information Systems, WIS 2003. In conjunction with ICEIS 2003, Angers, France, April 2003. ICEIS Press 2003.

and Z. Maamar. "Mobile Agent-Based Integrated Workflow Management Framework for E-Commerce," An invited abstract presentation to the first EURO/INFORMS joint conference in Turkey, July 2003.

"Web Services Tutorial," presented during the 2nd CSIT Conference, Applied Science University, Amman, Jordan, 2006.