Semantic Web Services: Progress in 2004 and trends for 2005

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Progress in 2004

In 2004, the Semantic Web Services Initiative (SWSI), an initiative of academic and industrial researchers – from Europe, Asia and the United States – has been composed to create infrastructure that combines Semantic Web and Web services to enable the automation in all aspects of Web services. In addition to providing further evolution of OWL-S, SWSI will also be a forum for working towards convergence of OWL-S with the products of the SWWS/WSMO/WSML/WSMX research effort, which supplies Web service providers with a core set of constructs for describing the properties of their Web services in computer-interpretable form.

Ongoing projects, such as OWL-S, LSDIS METEOR-S, and DERI SWWS studied important aspects related to the lifecycle of semantic web processes. Industrial researchers have also been deeply involved in the definition of standards assuring the real world implementation and use of Semantics, Web services, and Web processes. Ongoing work on standards included the Business Process Execution Language for Web Services (BPEL4WS, or simply BPEL) (from Microsoft, IBM, BEA), WSCL (from HP), BPML (from Microsoft), WSCI (from SUN, BEA, Yahoo, and other), XLANG (from Microsoft), and WSFL (from IBM).

Trends for 2005

According to analysts, the Semantic Web, which will understand human language, will replace the current Web by 2005. The progresses made are slow but steady. Therefore, we believed that this milestone will be more likely pushed to 2010.

Important aspects of research that need to be further explored include functional and behavioral descriptions of Web services and Web processes.

Nowadays, there are few commercial products available that have successfully implemented a semantic layer alongside robust a Web services infrastructure, this despite significant industrial support which exists for standards such as WSDL, BPEL, and UDDI. Many vendors seem to be taking a “wait-and-see” approach while the emerging standards converge.

In 2005, the hesitation shared by most commercial vendors will not be shared by many industrial research groups – IBM, HP, France Telecom, and Fujitsu have will further apply semantics to Web services for innovative, discovery-driven use cases. Leadership from DERI and the W3C have each expressed a strong interest in converging the best of each specification – vendors will no doubt wait for this alignment, which could occur in 2005, prior to implementing either on their own.