

**Martin et al. *Bringing Semantics to Web Services: The OWL-S Approach*. Semantic Web Services and Web Process Composition Workshop, 2004.**

The paper's authors are providing an initial roadmap towards the development of Semantic Web services, using OWL-S in conjunction with WSDL and related standards and also trying to motivate the benefits of providing richer semantics when specifying web services. The paper wants to build on the movement that is creating standards like WSDL in order for web services to be interoperable, by adding richer semantics to it which will allow for the automation of and more complex tools for the enactment, discovery, and composition of heterogeneous web services. The paper provides the example of Amazon.com as it describes how to use OWL-S in conjunction with WSDL and related standards in order to automate the three processes of web service interoperability just mentioned.

The ideas that the paper is proposing have not been done before. The methods to have web services interoperate with each other are new themselves, so the goal to automate these new processes was not done before. Current practice forces programmers to manually do the interoperations among web services themselves. For example, if Amazon.com wanted to draw on various web services of their own and other companies, programmers would have to create all of the interactions and manually ensure that all inputs, outputs, pre-conditions, and effects are satisfied. Or if an individual wanted to buy an airplane ticket and other amenities based on numerous constraints, it can be done, but only currently manually through the web, using ad hoc methods to tie different services together. This new approach uses OWL-S as a new layer on top of WSDL, in order to define a layer which computers will be able to interpret. If the computer is able to interpret the web services on its own using this OWL-S mapping, then it can successfully automate any process.

A system which did as this roadmap proposes would be very important to companies of all kinds that use web services, as it could dramatically increase efficiency in the organization. If it is successful, web presences would become automated and no longer need programmers to combine and instantiate the web services. Users would only need to specify constraints in order to use the system, with the automated processes doing the rest. A working system of such magnitude, although being worked on by others in chunks, would take a lot of resources and time yet to be standardized. OWL-S still needs some time and improvements to become expressive enough and a standard for all to use. If the system is realized, it would create a whole new generation for the Internet with new services now realizable. The risks are small, as success can already be achieved in many ways, with just processes and standards that need to be developed to solve issues such as integrating ontologies.