

Task Services: Client-side Web Services Using Generic Service Representatives

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Abstract—Different types of web services are required to model actual services in the business domain. In this paper, we propose an extension to the SOA infrastructure model by adding a new component (*Service Representative*) to introduce a new type of service (*Task Service*). While a traditional web service (*Data Service*) processes the client data completely at the server side, a task service is a web service with the capability of processing the clients data and resources partially or completely at the client site using the service representative. Therefore, the client does not need to reveal its resources and hence its privacy and security are maintained. Moreover, large volume client data is processed locally, causing less network traffic. The service representative, which simulates an enterprise agent operating at the client side, is modeled by a generic software agent and stays at the client site to be employed by different service providers. The proposed task services are implemented using message exchange technology as well as a protocol stack similar to that used in traditional data services. Consequently, task services are compatible with data services and can be composed with each other through a BPEL process. Moreover, the service representative is enhanced to act as a service orchestrator to address the client-side composition of web services. We have developed a prototype system for the proposed extended SOA model which supports these two types of web services. Finally, we compare the proposed client-side task services with the traditional server-side data services as well as other client-side processing technologies (scripting and Rich Internet Application) through a case study.

Index Terms—Intelligent Web Services, Intelligent Agents, Client-side Processing, Service Representatives, Extended SOA

