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Diploma Thesis

Web Services for Human Interaction

Beginning: Immediate

Background

The use of conventional workflow environments and service compositions is suitable for automating business processes. However, it is not yet completely applicable for integration with human users. In particular, the variety of different ways of communication for involvement of human users requires thorough investigation.

Tasks

There are multiple ways how human users communicate electronically, for example via E-Mail, Skype or ICQ messages, SMS, or via a website form (e.g., using JSP) [1]. To provide integration for these ways of communication with a workflow, several technical challenges have to be addressed. In particular, available technology feasible for reuse in service-oriented environments needs to be identified and Web Services implementing such communication channels need to be developed. Further, adaptations and extensions necessary for embedding these services in workflows need to be performed. Through the provisioning of these communication channels via Web Services, flexible interaction and integration between human users and workflows shall be enabled. A prototype BPEL workflow running on the SimTech scientific workflow environment has to be developed and integrated with the developed Web Services as proof of concept [3][3].

Requirements

This thesis builds on the lectures on Workflow Management, Web-based Application Integration and Services and Service Compositions. The thesis requires skills in programming with Java and Web services (Java, WSDL, XML, SOAP, Eclipse). The thesis can be written in English or German.

Literature

[1] David Schumm, Dimka Karastoyanova: Human Users in Simulation Workflows – Integrate, Register & Communicate. Poster, SimTech Seminar, November 2011.

[2] Organization for the Advancement of Structured Information Standards (OASIS): Business Process Execution Language 2.0 (BPEL), 2007.

[3] Mirko Sonntag, Dimka Karastoyanova: Next Generation Interactive Scientific Experimenting Based On The Workflow Technology. In: Proceedings of the 21st IASTED International Conference on Modelling and Simulation (MS 2010), 2010.

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