



Prof. Dr. Frank Leymann  
Dieter H. Roller  
Institut für Architektur von Anwendungssystemen  
Universität Stuttgart



## **Diplomarbeit**

### **“Transaction Flow Generator for SWoM”**

Web Services based on the service-oriented architecture framework serve as the foundation for modern distributed, heterogeneous applications. They are perfectly suited as the function layer of the two-level programming model that is characteristic for workflow-based applications.

Workflow-based applications are composed of two distinct pieces: a process model that describes the sequence in which the different activities making up the process model are being carried (programming in the large) and the individual components that implement the various activities (programming in the small). In the Web services environment, process models are described using the Web Services Business Process Execution Language (WS-BPEL).

The purpose of a workflow management system (WFMS) implementing the WS-BPEL specification is to manage the life cycle of business processes, to navigate through the associated process models, and to invoke the appropriate Web services. The Stuttgarter Workflowmaschine (SWoM) partially implements the appropriate WS-BPEL standard. It is implemented on top of IBM WebSphere® and IBM DB2®.

The performance of workflow-based application depends to a great extent on the performance of the workflow engine. The performance of a workflow engine can be significantly improved through appropriate optimization techniques. One approach is to determine the transaction flow that is executed by the navigator, which is then used to carry the different optimization tasks.

The purpose of this Diplomarbeit is to implement the transaction flow generator that generates transaction flows from the WS-BPEL process model and stores the transaction flow as an XML file in the flow execution plan.

It is expected that the student is fluent in Java programming and has a good understanding of workflow technology (in particular the graph aspects of WS-BPEL).

#### **Contact:**

Dieter H. Roller  
room: 1.365  
fon: 0711/7816-464  
mail: Dieter.H.Roller@iaas.uni-stuttgart.