Contract-Based Transaction Management in Cross-Organizational Workflow Management

Paul Grefen

University of Twente

grefen@cs.utwente.nl

Abstract

Cross-organizational workflow management is an essential ingredient for process integration in virtual enterprises. To obtain cross-organizational workflow processes with robust semantics, these processes should be supported by high-level cross-organizational transaction management. In this context, transaction management should support both intra- and inter-organizational transaction semantics. An important aspect of the latter is support for rollback over organization boundaries.

In static virtual enterprises, complete transaction structures can be statically defined in cross-organizational workflow processes. In dynamic virtual enterprises, though, transaction structures must be constructed on-the-fly, based on process control requirements of the partners that decide to form the virtual enterprise.

This presentation shows how the problem of cross-organizational transaction management is approached in the CrossFlow project, in which virtual enterprises are dynamically formed on the basis of contracts. These contracts specify the workflow processes on an abstract level, including their process control and transactional aspects. The transaction model used is an extension of the saga-based model developed in the WIDE project. The transactional constructs in the contract are interpreted by a two-layer transaction management subsystem distributed over the partners in the virtual enterprise. A prototype of this subsystem will be part of the CrossFlow demonstrator system.