Ensuring Faultless Communication Behaviour in an E-Commerce Cloud Application

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Abstract

An increasing scope and complexity of Web services raises a new challenge of controlling their interaction. The goal of this work is to ensure that processes in a production Cloud are correctly interacting according to a specification of their communication behaviour. To accomplish this goal, we employ session types to analyse the global and local communication patterns. Session types represents "formal blueprints" of how communicating participants should behave and offers a concise view of the message flows.

This work confirms the feasibility of application of session types on "non-linear" business protocols used by an e-commerce Cloud provider and developed in Session-Java, an extension of Java implementing Session-Based programming. Furthermore, we highlight the importance of this approach for services replicated across multiple Cloud providers each of which must correctly cooperate.