Model checking business processes

Ioannis G. Baltopoulos
ioannis.baltopoulos@cl.cam.ac.uk

Abstract

In this talk we present ongoing work in the area of model checking of business processes expressed in the $\pi$-calculus. The Business Process Execution Language (BPEL) is an OASIS standard aimed at providing a language for modelling the behaviour of executable business processes and business protocols (abstract processes) collectively known as Business Processes.

Using as a starting point previous work on the semantics of the BPEL language done in Petri-Nets we initially present a $\pi$-calculus semantics for the language, by means of a set of transformation rules from XML descriptions to $\pi$-calculus ones. The application of the semantics to business processes results in formal process descriptions that lend themselves to property checking through the modal $\mu$-calculus.

Future extensions of this work will involve capturing temporal information in the process descriptions that would enable the calculation of performance metrics and the verification of temporal properties.

Keywords

BPEL, business processes, $\pi$-calculus, model checking.