1st Workshop on Software Services: Frameworks and Platforms
Timisoara, September 23-25, 2010

ALIVE: A MODEL-DRIVEN FRAMEWORK TO DEVELOP DYNAMIC, FLEXIBLE, DISTRIBUTED SERVICE-ORIENTED SYSTEMS

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Abstract. Service-oriented systems are fast becoming complex nodes in a vast digital, dynamic ecosystem; these systems of systems require the identification and establishment of flexible and spontaneous/opportunistic collaborative activities among various parties. Such sophisticated systems need new engineering approaches able to integrate new functionalities and behaviours into running systems composed by active, distributed, and interdependent processes. We present the approach developed within the FP7 ALIVE project, in which explicit models of coordination and organisation (and associated mechanisms) are combined to deliver a flexible, high-level means to describe the structure of interactions between services in the environment. We propose to build on the current trends in service-oriented engineering by defining three levels: (i) an organisational level models the organisational structure of executing and interlinked services and the context around them; (ii) a coordination level provides flexible ways to model interaction between the services; (iii) these two levels connect with existing Web services, endowed with semantic descriptions to make components aware of their social context and of the rules of engagement with other services. As results the project provides an architecture, a methodology and an integrated suite of tools for the implementation, deployment and management of dynamic, flexible and robust service-oriented business applications.