ALIVE: A Model Driven approach to Coordination and Organisation for Dynamic Services Engineering

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Project Overview

As applications and systems become more complicated, larger and built upon many different heterogeneous technologies, new types of software applications have recently emerged based on the notion of software services. Services offer a promising solution for the integration among autonomous and heterogeneous software systems, extending the Web from a distributed source of information to a distributed source of interconnected services. These types of applications offer many new capabilities such as dynamic discovery, deployment, adjustment, substitution and composition within an enabling service-oriented environment.

However, new application types and technologies often require profound changes in the way in which software systems are designed, deployed and managed in order to support new functionalities and behaviours. There is also a need to develop more efficient software engineering methods for creating software in a more productive and effective way. Model Driven Engineering is an emerging method and technology for software development offering new approaches and possibilities to software design and implementation based on the maintenance of independent models and the automatic creation of artefacts from predefined transformations.

ALIVE is a research project aiming to develop new approaches to the engineering of service-oriented systems based on the adaptation of coordination and organisation mechanisms often seen in human and other societies to service-oriented architectures. More specifically, the ALIVE project combines cutting edge Coordination technology and Organisation theory mechanisms to provide flexible, high-level means to model the structure of inter-actions between services in the environment. Service engineering is complemented by a Model Driven approach that supports the (dynamic) capabilities of services with designs, tools and automated transformations and creates a framework for software and services engineering for “live” open systems of active services.
As a result the project will develop 1) an advanced framework for application development, deployment and management in service environments, 2) new engineering techniques and tools 3) a methodology for dynamic, "live" service design and maintenance, and 4) an alignment with other emerging architectures and toolkits. Finally, the results will be delivered in an open content and open source manner to support reuse and ongoing research in the domain.