A Registry and Repository System Supporting Cloud Application Platform Governance

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Abstract. The CAST project is putting forward a novel ecosystem-oriented model for developing and deploying enterprise applications on future cloud application platforms. One of the most fundamental challenges that this model is raising concerns how to support platform governance. In this demonstration, we present the registry and repository solution that was created to address the platform's requirements with respect to centrally-exercised management and quality assurance.

Keywords: Cloud Application Platform, Platform as a Service, PaaS, Governance, Registry and Repository System.

1   Introduction

The cloud computing paradigm is presenting new challenges and opportunities for the world of enterprise computing. Cloud application platforms, in the form of various types of commercial Platform as a Service (PaaS) offerings, are expected to transform the way enterprise software will be developed and provisioned in the years to come.

The CAST project[1] is a collaborative EU-funded research effort which is set to investigate the challenges associated with engineering such software platforms. The aim of the project is to develop a cloud application platform that not only supports the development and deployment of on-demand (SaaS) enterprise software applications, but does so in a way that facilitates the creation of a value network and ecosystem around the platform. Instrumental in achieving such an effect is to employ a development and deployment model that promotes collaboration and reuse of resources. In the CAST platform, in addition to the option of coding a solution from the ground up, developers are given the option to create their solutions by reusing, adapting and combining third-party apps that are already deployed to the platform, as well as integrating their apps with externally deployed systems via Web services [1].

Developing the platform infrastructure to support such an ecosystem-oriented development and deployment model entails several challenges. Taking into consideration the increasing numbers of diverse and interdependent solutions,

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[1] http://www.cast-project.eu

appsand external services that will accumulate on the platform as time advances, governance becomes one of the most fundamental requirements to be addressed.

In the CAST project, this requirement was addressed by transferring some best practices and approaches from the field of SOA governance, i.e. by realising centrally-exercised management and quality assurance through a registry and repository system.

2   System Overview

The registry & repository system of the CAST platform serves as a central location in which entities and artefacts that are necessary to the operation of the platform are stored, organised, and managed throughout their lifecycle. It provides a space and a set of functions for enabling governance of entities and artefacts from creation to retirement. Governance is supported through tools which assist the users of the system (i.e. platform administrators and solution developers) in performing manual quality assurance tasks, but also, through tools that automate a wide range of quality controls, applying conformance checks and validations with regard to platform governance rules. The registry & repository system was developed upon the open source WSO2 Governance Registry project.

3   Functions/Features to be Demonstrated

The main functions of the registry & repository system that will be demonstrated are:

- − Cataloguing and storage: Platform solutions, apps, and services are catalogued and their associated artefacts stored in a central location
- − Policy conformance checking: Managed entities and their artefacts are checked for conformance to a range of platform policies
- − Lifecycle management: The evolution of managed entities follows an explicitly defined lifecycle model, where transitions to states are guarded by preconditions
- − Dependency tracking and impact analysis: Dependencies among solutions, apps, and services are tracked to allow for impact analysis
- − External service monitoring: External services on which apps are depending are monitored to ensure appropriate levels of availability and responsiveness

Reference

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