The goal of REMICS is to develop advanced model driven methodology and tools for REuse and Migration of legacy applications to Interoperable Cloud Services. Service Cloud paradigm stands for combination of cloud computing and Service Oriented Architecture (SOA) for development of Software as a Service (SaaS) systems.

Main Objectives

The main objective of the REMICS project is to "specify, develop and evaluate a tool-supported model driven methodology for migrating legacy applications to interoperable Service Cloud platforms".

The Service Cloud paradigm stands for the combination of cloud computing and SOA for development of Software as a Service systems. The REMICS project will provide tools for model-driven migration and will be actively involved in the standardization process of the underlying standards PIM4Cloud, PIM4ServiceInteroperability and PIM4Models@Runtime that will extend OMG SoaML and business models extensions for Knowledge Discovery Metamodel (KDM).

Technical Approach

The baseline concept is the Architecture Driven Modernization (ADM) by OMG. In this concept the modernization starts with the extraction of the architecture of the legacy application. Having the architectural model helps to analyse the legacy system, identify the best ways for modernization and benefit from MDE technologies for generation of the new system. This information will be then translated into models covering different aspects of the architecture: Business Process, Business Rules, Components, Implementation, Test specifications.

At a glance

Project title: REuse and Migration of legacy applications to Interoperable Cloud Services (STREP)

Project coordinator: Dr. Arne-Jørgen Berre SINTEF (NO)

Partners: Sogeteam (FR), Netfective Technology (FR), Fraunhofer (DE), ESI (ES), DOME Consulting and Solutions (ES), DI Systemer (NO)

Duration: September 2010 – August 2013

Total cost: € 4.5 M

Website: http://www.remics.eu/
These models will be the starting point for the “Migrate” activity. During this activity, the new architecture of the migrated system will be built by applying specific SOA/Cloud Computing patterns. The migration process will be supported by two complementary activities: “Model Driven Interoperability” and “Validate, Control and Supervise”. The system rebuilt for a service cloud platform has to fully address the business goals, process and rules. The “Design by Service Composition” methods provide developers with tools simplifying development by reusing the services and components available in the cloud. Finally, the Model@Runtime technology will be applied for application management at runtime.

One of the most important innovations of REMICS is the definition of a methodology for recovering and migrating monolithic software systems to loosely coupled systems following a bottom up approach (ADM-Architecture Driven Modernization) and deployed in a cloud infrastructure. This approach allows the reuse of existing applications and the reuse of existing method components to be used later on. The REMICS project will also develop a new approach for model-based validation of recovered systems which have been migrated to interoperable cloud services.

The REMICS project will derive user requirements and validate results on two industrial user pilots. One pilot is within the ERP/Accounting/CRM domain (DI Systemer) and the second pilot is within the tourism sector (DOME). The REMICS project will encapsulate legacy software from their applications and platforms and expose them as services in the Cloud.

Key Issues

In order to instrument the migration process the REMICS project will integrate a large set of metamodels and will propose several dedicated extensions.

For the architecture recovery, REMICS will extend the KDM metamodel. On Platform Independent Model level, the components and services are defined using SoaML (SOA Modelling Language). The REMICS project will extend this language to address the specific architectural patterns and model driven methods for architecture migration, and to cover specificities of service clouds development paradigm. In particular, the PIM4 Cloud Computing, model driven Service Interoperability and Models@Runtime extensions are intended to support the REMICS methodology for service cloud architecture modelling.

Furthermore, REMICS will investigate existing test notations such as the UML2 test profile (UTP) for their application to the SOA and Cloud Computing domain and refine and extend them.

The REMICS project will focus on Open source Metamodels and Models with an emphasis on Open Models for standards based on Open Interfaces. We will typically provide EMF Eclipse based versions of the models representing the standards being worked on and provided in REMICS. This will allow for easy access to the standards and easy implementation of these by multiple vendors.

Expected Impact

REMICS targets the following main impact objectives:

- preserve and capitalize on the business value engraved in legacy systems to gain flexibility brought by Service Clouds, lower the cost of service provision and shorten the time-to-market.
- provide innovations in advanced model driven methodologies, methods and tools in Software as a Service engineering.
- provide standards-based foundation service engineering and provide a suite of open ready-to-use metamodels that lowers barriers for service providers.