

# REMICS Project: Reuse and Migration of Legacy Applications to Interoperable Cloud Services

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**Abstract**—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 migration process consists of understanding the legacy system in terms of its architecture and functions, designing a new SOA application that provides the same or better functionality, and verifying and implementing the new application in the cloud. The demonstrations will show the support for two tasks in this migration: recovery process with the BLU AGE tool and the use of SoaML and forward engineering with Modelio tool.

## I. REMICS APPROACH AND DEMONSTRATIONS

The REMICS<sup>1</sup> project will provide tools for model-driven migration of legacy systems to loosely coupled systems following a bottom up approach; from recovery of legacy system architecture (using OMG's ADM-Architecture Driven Modernization) to deployment in a cloud infrastructure which allows further evolution of the system in a forward engineering process. The migration process consists of understanding the legacy system in terms of its architecture, business processes and functions, designing a new Service-Oriented Architecture (SOA) application, and verifying and implementing the new application in the cloud. These methods will be complimented with generic "Design by Service Composition" methods providing developers with tools simplifying development by reusing the services and components available in the cloud.

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 the REMICS will extend the KDM metamodel. On Platform Independent Model (PIM) level, the components and services are defined using SoaML (SOA Modeling Language<sup>2</sup>) which is developed in the SHAPE project<sup>3</sup>. 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 PIM4Cloud Computing, model-driven Service Interoperability and Models@Runtime extensions are intended to support the

REMICS methodology for service cloud architecture modeling.

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 project will focus on open source metamodels and models with an emphasis on Open Models for standards and will be actively involved in the standardization process of the related standards for cloud computing, business models, SOA, service interoperability, knowledge discovery, validation and managing services.

REMICS targets the following main impact objectives:

- REMICS will 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.
- REMICS research will provide innovations in advanced model driven methodologies, methods and tools in Software as a Service engineering.
- REMICS will provide standards-based foundation service engineering and will provide a suite of open ready-to-use metamodels that lowers barriers for service providers.

REMICS started in September 2010 and will run for three years while it builds on the results of several ongoing or finished EU projects such as SHAPE and MODELPLEX<sup>4</sup> (both finished recently) with focus on model-driven development of applications, MOMOCS with focus on model-driven modernization, and SOA4ALL and RESERVOIR with focus on service-oriented development. The relevant results of previous projects will therefore be discussed and extensions planned in REMICS will be presented. The presentation will also discuss collaboration areas which should be of interest to other projects and conference participants.

The demonstrations will show the support for two tasks in this migration: recovery process using BLU AGE<sup>5</sup> tool and the use of SoaML and forward engineering with Modelio<sup>6</sup> tool. Both tool providers are participating in the REMICS project.

<sup>1</sup><http://remics.eu/>; funded by the European Commission (contract number 257793) within the 7th Framework Program

<sup>2</sup><http://www.omg.org/spec/SoaML/>

<sup>3</sup><http://www.shape-project.eu/>

<sup>4</sup><https://www.modelplex-ist.org/>

<sup>5</sup><http://www.bluage.com/>; a solution for both reverse and forward engineering fully based on MDA and ADM principles

<sup>6</sup><http://www.modeliosoft.com/>