



ROMULUS

Building Java Web Applications in a more productive, reliable and secure way



Romulus is an industrial Open Source Project which will significantly improve the productivity, security and reliability of Java Web Development. The Romulus approach is based on a metaframework integrated with enterprise systems and IDEs.

At a Glance

Project:

Domain Driven Design and Mashup Oriented Development based on Open Source Java Metaframework for Pragmatic, Reliable and Secure Web Development.

Project coordinator:

Informática Gesfor (Spain).

Partners from:

Asset Data (Italy), Liferay GmbH (Germany), Universidad Politécnica de Madrid (Spain), Imola Informatica (Italy), National University of Ireland – DERI (Ireland) and Antional Institute for Research and Development in Informatics – ICI (Romania).

Duration:

01/01/08 - 31/12/09

Total cost: 2.192 M€

Programme:

FP7-ICT-2007-1 - Objective 1.2

Further information:

<http://www.ict-romulus.org>



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Why Romulus?

Web Software Development is one of the most active areas in software development in Europe, and Java Enterprise Edition is the preferred option for one million Europeans, with more than 38.6% of European developers according to Evans Data. Web development is still not a mature area, and the need to master many new frameworks and technologies seriously affects engineers' productivity.

The appearance of new approaches to web application development such as Ruby on Rails and mashup techniques has led to improvements in productivity and reliability. The wide adoption of Java in European companies means a Java based approach to web application development is needed.

The ROMULUS project will promote a **new open paradigm for development of web systems using Java technology**. The project will research domain driven design for Web Application Development with Java and will provide an open source **Java metaframework** for developing web applications.

Romulus impact in Europe

The impact of Romulus on European software and services development will be high. Java is the most popular software language in Europe and Java Enterprise Edition skills are the most in demand. Europe has 1 million Java developers out of 4.5 million in the world.

ROMULUS will improve productivity in Java Web Development.

Because of the economic impact of software, reducing the cost of software development and improving software quality are important economic objectives in Europe. In addition, Romulus will be delivered as an Open Source project, which promotes cost reduction and improvement of innovation.

Romulus consortium

ROMULUS brings together complementary expertise from industry and academia. GESFOR will contribute with its expertise in security contributing to OWASP (Open Web Application Security Project and web development). ASSETDATA will bring its expertise in agile development and Java standardisation. LIFERAY will bring its product expertise in portal technology with their leading Liferay Portal product. IMOLA will contribute with its expertise in integration of enterprise systems and its standardisation in the Java community. DERI will provide expertise in semantic web technologies applied to software engineering. UPM and ICI will contribute with their expertise in researching on emerging software development methods.

Scientific and Technical Goals

ROMULUS proposes to advance Java Web Development with the four scientific goals shown in Figure 1.

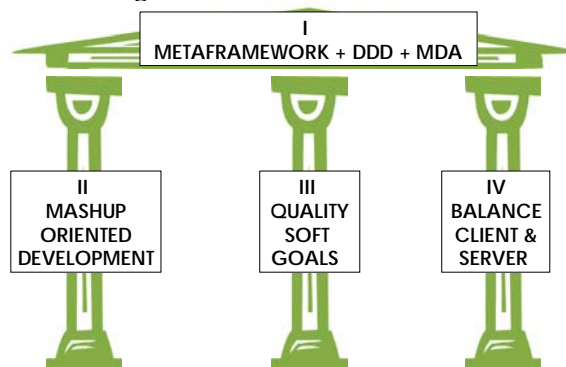


Figure 1. Romulus Scientific and Technical Goals

Metaframework and Domain Driven Design

While developers often focus on the details of the technologies they use, Romulus proposes to focus on domain engineering, delegating to a metaframework and make usage of code generation techniques for generating most of the web application from this domain model.

Many robust frameworks are available for Java, providing packaged functionality, such as persistence, security, web flow or authentication, but mastering all these frameworks requires too many specialised staff. Romulus proposes the

usage of a metaframework, extending Asset's Roma Metaframework. A web metaframework is an abstract layer that collects the main aspects of current web frameworks and defines generic interfaces for these functionalities.. The main benefits of a metaframework are that users access the metaframework, and their applications can select the targeted framework, adapting the web application to their needs.

Mashup oriented development

ROMULUS will research how web application development can be speeded up thanks to the reuse of existing services and components, as well as defined methodologies.

The project will research several types of mashups: mashup web services, data level mashups, enterprise mashups and portal mashups, in order to integrate external services, enterprise systems, data sources or portal components.

Soft Goals for higher quality

Soft goals such as security or scalability are not usually taken into account from the very beginning in the development process. Soft goals are usually related to quality (non-functional) requirements and do not have clear-cut criteria for their achievement, and can't be allocated to a small subset of elements in the architecture. Romulus will research security, traceability, reliability and performance soft goals, and their integration in the development process, based on the identification of soft goals-aspects and the usage of annotations against these aspects in the metaframework. Romulus will follow an Attribute Oriented Programming (A@P) strategy for declaring soft goals.

Balance between client and server

Nowadays we are moving from a server-side centric technology to client-side centric technologies, and research is needed on the right balance between client and server technologies depending on the requirements. In addition, web2.0 is promoting an active role of end-users that should be included when designing configurable applications. Romulus will research in this direction in order to meet different kinds of interface requirements.

For further information:

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