



PROJECT RESULTS

Connecting the world with middleware

Building network infrastructures with collaborative software development

The growing complexity of efficient connections within constellations of computing devices, networks and users presents new challenges to service providers and software developers alike. In this context, the role of software has increased in importance and more research on embedded software and open source development is required. With Europe's highly fragmented market, effective collaboration is critical to the success of efforts to transform this challenge into an excellent opportunity and to secure a sizeable market share. The OSMOSE project has contributed to achieving these goals by developing and enhancing a comprehensive set of adaptable, open-source middleware components and middleware platforms.

increasing acceptance of Open Source as an industrial option, together with an everyday wider use of J2EE and OSGi platforms in multiple fields, has significantly reinforced the relevance of OSMOSE and its match with market needs. This need is also confirmed through an increasing number of downloads of the developed platforms. The market potential for such a code base is huge, since it can serve as an infrastructure for multiple applications.

Project Results

The OSMOSE project delivered a hierarchical and modular software component model, with architectural frameworks and patterns for the construction of open, distributed, component-based middleware. These have provided foundation technologies for a set of integrated middleware platforms that conform



Market Relevance

Distributed middleware is a central and critical element in modern distributed system design. Distributed systems, such as this, will underpin future internet-based applications, as witnessed by such de facto standards as OMG CORBA, Sun Java (including RMI, EJB, Jini, Jiro, etc.), and Microsoft .Net. An

to the following standards: J2EE, OMG CCM, and OSGi. These results are available publicly on the ObjectWeb website. Proof-of-concept demonstrators and tools have been developed using the developed middleware technology to demonstrate the applicability of the components in advanced software tools and in different domains.

OSMOSE (ITEA 02003)

Partners

- Bantry Technologies
- Bull
- Charles University
- EPFL
- France Télécom
- INRIA
- Institut National des Telecommunications (INT)
- LIFL
- Logiciels, Systèmes et Réseaux Lynx
- Philips
- Telefónica I+D
- Telvent
- Thales Avionics
- Thales Communications
- Universidad Politécnica de Madrid
- Whitestein

Countries involved

- Belgium
- Czech Republic
- France
- Ireland
- The Netherlands
- Spain
- Switzerland

Start of the project

January 2003

End of the project

June 2005



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Main applications

The OSMOSE project is relevant to the many industrial domains and particularly to the three application domains that have been investigated in the demonstrators through use of dedicated test beds.



Telecom services: Middleware is at the heart of telecom services and network platforms. Mastering this middleware is crucial for telecom operators who need to control, maintain and manage the network infrastructure efficiently,

build innovative network services, and make network services co-operate. Open Source middleware can be customized and adapted to potential specific requirements with software provider independence.

Home Gateway: Different devices are competing to become the interface between the internet, digital broadcasting services and residential space in a so-called 'Home Gateway'. As a way of reaching the customer this device has a strategic importance in the value chain that is pushing proprietary solutions to take a leading position. Open Source can provide an opportunity to collaborate on building an Open Services market.

Avionics: The complexity of avionics systems is increasing rapidly, partly because of the increase in traffic and also because of the need of better safety. Complex interactions are required between the embedded components. The aim of this test-bed is to investigate the suitability of the developed middleware for avionics systems.

Major project outcomes

Dissemination

- 236 Communications and papers
approx 30.000 downloads of J2EE, CCM, OSGi platform during the last five months (not including mirror sites)
- 82 Involvements in Seminars / Courses / Workshops
- One book being edited compiling deployment results
- 72 Other types of dissemination

Exploitation

- 10 releases J2EE platform
- Five releases CCM platform
- Eight releases OSGi platform
- Demonstrations in Telecom Services, Home Gateway and Avionics domains
- Two products for this year (2005) from the consortium
- Relevant exploitation outside the consortium (estimated from download figures)

Standardisation

Close involvement in the following standardisation bodies:

- Java Community Process JCP
- Open Services Gateway Initiative (OSGi)
- Object Management Group (OMG)
- J2EE Platform Certification

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ITEA - Information Technology for European Advancement - is an eight-year strategic pan-European programme for pre-competitive research and development in embedded and distributed software. Our work has major impact on government, academia and business.

ITEA was established in 1999 as a EUREKA strategic cluster programme. We support coordinated national funding submissions, providing the link between those who provide finance, technology and software engineering. We issue annual Calls for Projects, evaluate projects, and help bring research partners together. We are a prominent player in European software development with some 9,000 person-years of R&D invested in the programme so far.

ITEA-labelled projects build crucial middleware and prepare standards, laying the foundations for the next generation of products, systems, appliances and services. Our projects are industry-driven initiatives, involving complementary R&D from at least two companies in two countries. Our programme is open to partners from large industrial companies, small and medium-sized enterprises (SMEs) as well as public research institutes and universities.



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