Integration, Customization and Maintenance of Heterogeneous Software with MECASP

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Abstract

MECASP is a research prototype aiming at the integration, customization and maintenance of heterogeneous software (built with Java, relational DBMSs, tools for graphical interfaces, etc). It can further integrate and manage other types of applications like C++, VB, CORBA, EJB, .NET, etc. It enables the diffusion of the applications in ASP mode, but its use is not limited to the ASP market.

1. Description of MECASP

MECASP (Maintenance and improvement of component-based applications diffused in ASP mode) has resulted from an IST European project, completed in December 2003. It overcomes the limits of the existing tools for software integration and maintenance, e.g version managers like CVS. Three features differentiate it from these tools: (1) configuration and maintenance of heterogeneous software, based on its XML modeling, (2) (semi)automatic and semantic merge of the versions for heterogeneous non-text objects, relying on rule-based decisions to solve conflicts and inconsistencies, (3) installation of new versions of the software by installing the changes only.

Instead of merging the versions of the physical application (as the other tools perform), MECASP implements an algorithm for merging the XML models that define these versions. This algorithm relies on the XML customized definitions of the change actions, existing in each version of the application. These change actions can be: standard actions (like 'create', 'delete', 'update', 'move' objects or properties) or non-standard actions (like 'compile' or 'search and replace').

MECASP is portable (fully written in Java), with a client-server architecture, based on open source software: Apache server, MySQL, Castor, Slide, XML:DB API, Xalan, etc. The client interface is through a specific browser.

MECASP addresses software development companies, providing them with new facilities in order to increase productivity, reduce costs and improve distribution and installation of new software versions.

MECASP will be distributed in open source from "http://mecasp.free.fr" and the SourceForge site. The MECASP consortium looks for partnerships in order to transform MECASP into a commercial product.

2. MECASP demo

The demo is for a CRM application (SellWin), existing on the SourceForge site. It includes Java source code (NetBeans), database schema (MySQL) and graphical forms (Swing/ NetBeans). The starting point for the demonstration is an empty repository with the existing NetBeans meta-model. The basic steps for the demonstration are:

- **integration steps**: (1) conversion of the SellWin application files into XML documents and import of these documents into a new model, (2) import of the SellWin database structure into the model, (3) creation of the SellWin baseline model.
- **customization and maintenance steps**: (1) creation of two variants (parallel versions) for the Sellwin baseline model, (2) generation of the new physical resources for the two variants, (3) merge of the changes on the two variants, (4) generation of the physical merged variant of Sellwin.