CASPLE: Computer-Assisted Software Process Line Engineering

Jocelyn Simmonds, Daniel Perovich et al.
GEMS Project, Computer Science Department, University of Chile

Abstract

Software process definition and improvement are frequent strategies in order to enhance software quality and boost development productivity. Software processes can be used to create project plans, guiding the development team in their work and to monitor project progress. There are a plethora of project management tools that support monitoring, and only a few tools for software process definition. However, these tools are not integrated, so project plans are created from scratch, which usually introduces errors and inconsistencies with respect to the underlying process. This is the case in several small software companies in Chile. We have also found that, when project planning and monitoring are carried out using different tools, there are also differences between the plan and the resulting execution trace. This hinders software process improvement initiatives, since it makes it harder to understand where the process fails.

In [1], we describe a process-based project management approach that reduces these inconsistencies and we introduce CASPLE, a tool that supports it. This tool manages Software Process Line (SPrL) modeling and evolution as well as project planning and monitoring, implementing the megamodeling approach that we proposed in [2]. At the core of CASPLE is a model repository, storing models of the software artifacts created by existing development tools: models of processes, plans and process execution traces. Injectors and extractors are used to synchronize the model repository with the information in the development tools, allowing developers to continue using tools that they are already familiar with. Additional transformations are used to validate the models in the repository and compute project metrics. The CASPLE front-end is a web application that allows users to browse the model repository, synchronize with connected development tools, and visualize project metrics in a centralized dashboard.

CASPLE is available at `http://casple.dcc.uchile.cl`.

Keywords: Software Process Lines, Model management, Management using models, Extracting models from software artifacts

References

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