Keynote Talk

Performance Analysis of Domain Specific Visual Models

Antonio Vallecillo
Universidad de Málaga, Spain
av@lcc.uma.es

Abstract

Domain specific visual languages (DSVLs) play a key role in Model-Driven Engineering. They allow domain experts to develop and to manipulate models of their systems using intuitive and graphical notations, much closer to their domain languages and at the right level of abstraction.

DSVLs are normally equipped with supporting toolkits including editors, checkers and code generation facilities. Many DSVLs also allow the specification of the behavioral dynamics of systems, beyond their basic structure. However, there is still the need to model, simulate and analyze other critical aspects of systems, such as their non-functional properties. In particular QoS usage and management constraints (performance, reliability, etc.) are essential characteristics of any non-trivial system that cannot be neglected. Current proposals for the specification of such kind of properties tend to remain at a lower abstraction level than needed for most end-user domain-specific models, and normally require skilled knowledge of specialized languages and notations (such as MARTE). These problems clash with the intuitive nature of end-user DSVLs and hinder its smooth combination with them.

In this talk we present an approach to specify QoS properties in DSVLs, and show how it enables different kinds of analysis of the performance and reliability of the systems being specified. We also discuss the strategic role that model transformations play in this context, the opportunities they provide, and their current challenges for bridging the different semantic and technological domains involved in the specification and analysis of systems.

Categories & Subject Descriptors: I.6 [Computing Methodologies]: Simulation and Modeling; C.4 [Computer Systems Organization] Performance of systems.

General Terms: Design, Languages, Measurement, Performance.

Keywords: Model-driven engineering, domain-specific modeling, non-functional properties.

Bio

Antonio Vallecillo is Professor of Computer Science at the University of Málaga. His research interests include model-based software engineering, open distributed processing and software quality. Between 1986 and 1995 he was with the computer industry, working for Fujitsu and ICL, in Spain and in UK. In 1996 he joined the University of Málaga, where he currently conducts research on software modeling and analysis. He is also involved in several standardization activities within AENOR, ISO, ITU-T and the OMG. Further information about his research activities, projects and publications can be found at http://www.lcc.uma.es/~av.