Model Driven Evolution of Network-Centric Applications: Perspectives, Challenges, and Issues

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Keynote Abstract

Model-driven techniques have been proposed and promoted by the Software Engineering community over the past few years as a mechanism for streamlining the design, implementation and evolution of large software applications. The basic idea behind model-driven techniques is that, design artifacts of large software applications can be represented as a collection of models which can be consequently transformed and evolved to generate specific design artifacts and even source code that complies with specific programmatic paradigms and patterns.

Even though model-driven frameworks have caught the attention of the software engineering community as a way to increase programmers’ productivity and overall system robustness through the disciplined manipulation and transformation of models and ultimately code generation, they have remained so far only in the form of “guidelines” or “standard practices”. In this respect, important questions regarding to what types of models are required for system representation, how transformations are encoded and enacted, how model constraints are denoted and validated, and how source code is generated, is left to software vendors, software architects and software developers to further design and implement.

In this keynote presentation we will focus on the challenges, issues, emerging research topics and practical examples pertaining to the use of model-driven techniques for the design, analysis and evolution of network-centric, web-based applications. Some of these challenges in such systems include the use of multi-language paradigms, the problem of maintaining consistency between various models during system evolution, dealing with underlying technology changes, and facilitating end-product customizability.