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Issues in Large Scale Application Development with Model-based
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Abstract

Issues in Large Scale Application Development with Model-based Techniques

Model driven technologies for software development are being considered and used to address issues of size, complexity, adaptability, maintainability, distribution, and validation for large, enterprise-wide software systems. The Object Management Group has been promoting their Model Driven Architecture (MDA) standards, while various academic groups and commercial companies have concurrently been developing model driven techniques, versions of the executable Unified Modeling Language (xUML), and domain specific modeling languages. Over the past few years, large software projects have attempted to employ model based approaches. In this paper we assess the efficacy of MDA during the full development cycle, including: observations on the effectiveness of the model development tools; the practicality of using xUML in a large software development project in terms of managing model complexity, the expressive power of the associated 4th generation language, and the creation of links from xUML to a large conventional code base; and validation, verification, configuration management, runtime performance, and debugging issues that are unique to this approach. Based on our experience with current MDA tools, we conclude with a set of desirable properties for the next generation of tools, especially those needed to support large scale distributed development of network-centric applications.