A Framework for Automatic Performance Monitoring, Analysis and Optimisation of Component Based Software Systems

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Abstract

A framework for automating the runtime performance management of component-based software systems is presented. The framework leverages static performance information obtained at component development time, if available, and executes performance monitoring, analysis and optimisation operations during runtime. The dynamic performance optimisation process is based on the automatic selection and activation of one of multiple functionally-equivalent implementation variants, available at runtime, each one optimised for a different running context. The framework consists of three main modules: monitoring & diagnosis, evaluation & decision and component activation. Current implementation work targets Enterprise JavaBeans systems.