This paper presents how the performance modeling capabilities of the Palladio-Bench are integrated into the development process of new enterprise applications based on a service-oriented architecture (SOA). The Palladio-Bench is used to predict the performance of applications early in the software development process. To better integrate the Palladio-Bench into this process, an automated transformation of existing software models into Palladio Component Models (PCM) is implemented. These software models contain the business processes represented in the new applications and implementation details such as web services used within the processes. The performance of the modeled applications is mainly influenced by the response times of the web services. Therefore, the web service response time behavior is modeled using software performance curves, which are automatically generated using monitoring data collected during software tests or in the production environment. Several integration tools are developed.
to support this feedback loop between the different phases of a software life cycle. Besides these integration capabilities, the challenges of using PCM within this project are discussed and future enhancements for the Palladio-Bench itself are proposed.

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