

Abstract

In this research we assess the practical usefulness of scenario-based scheduling. This scheduling technique provides an alternative way of handling the scheduling of automatically generated programs from UML-RT models. The technique is relatively new and has not been used in practice yet. It performs well on small test models, however it is unknown whether it works for large projects. We address two issues in this research; can scenario-based scheduling handle large projects and if so, does it actually increase the performance of those projects?

At the start of the research, there was only an experimental implementation of scenario-based scheduling. This research starts with an analysis of that implementation. Since it appeared not to be suited for large projects, it had to be modified and upgraded. Lots of bugs needed to be removed and the functionality and flexibility had to be increased. Next, we have applied this new implementation of scenario-based scheduling to a large and complex project, Océ's VarioPrint 6250. A model was developed to analyze the impact of scenario-based scheduling on the real-time software development process and its resulting end product. According to this model, the application of scenario-based scheduling to the VarioPrint 6250 has been evaluated.

This research has shown that scenario-based scheduling can handle large and complex projects. For the test case with the VarioPrint 6250 it appeared that the scheduling technique was easier to apply than the conventional approach. Hence, it improves the development process. However, the product itself actually performed worse; response time increased and there was quite a lot of overhead. Overall, scenario-based scheduling was shown not to be useful for that project. We do expect better results for projects that have less computation power available. The results might also differ for projects with different kinds of scenarios. It is therefore recommended to further investigate the effects of scenario-based scheduling on different projects and scenarios.

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