

## COMPLIANT THREAD SCHEDULING

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### POSTER ABSTRACT

Compliance provides a new methodology in constructing software architectures, which accommodate, and are therefore compliant to, particular application needs. The fundamental concept behind compliance is that by enabling higher layers in the software architecture to make policy decisions, the application support system is able to evolve with application needs. It has been conjectured that the benefits of the compliant software architecture will include ease of system evolution, a reduction in complexity, gains in flexibility and increased application performance. The compliant software architecture has been examined in several investigations, all of which have been done in the first instantiation of the compliant software architecture, the ProcessBase system. These investigations successfully demonstrate the evolutionary potential of the compliant software architecture, through the accommodation of application needs. However, the purported increase in application performance, together with a detailed examination of the adequacy of the compliant software architecture in supporting the needs of a real application have yet to be established. Hence, the primary objective of this study is the provision of a quantitative and qualitative analysis, which determines the efficiency and flexibility that the compliant software architecture provides to applications. To facilitate this analysis, a secondary objective of this study is the development of compliant thread scheduling functionality within the existing ProcessBase system. This project provides the first detailed analysis of compliance applied to a real and existing application. This analysis shows that the compliant software architecture imposes no performance overheads when specifying the default policies defined within the system. Further, by providing application-specific scheduling policies, applications are able to significantly improve their performance. These results combined with the detailed qualitative analysis of compliance, substantiate the postulated benefits of performance and flexibility that the compliant software architecture can bring to applications.