

The main goal of this thesis is to create a monitoring platform and library that can be used to monitor distributed Java-based applications. This work is inspired by Google Dapper and shares a concept called "Span" with the aforementioned project. Spans represent a small specific part of the computation and are used to capture state among multiple communicating nodes. In order to be able to collect spans without recompiling the original application's code, instrumentation techniques are highly used in the thesis. The monitoring tool, which is called Distrace, consists of two parts: the native agent and the instrumentation server. Users of the Distrace tool are supposed to extend the instrumentation server and specify the points in their application's code where new spans should be created and closed. In order to achieve high performance and affect the running application at least as possible, the instrumentation server is used for instrumenting the code. The Distrace tool is aimed to have a small foot-print on the monitored applications, should be easy to deploy and is transparent to target applications from the point of view of the final user.