

## **Real-Time Linux Analysis Using Low-Impact Tracer**

This paper explores the use of execution tracing of the Linux kernel with Lttng to uncover additional debugging information. They start off by defining the difference between real-time and non-real-time analysis, as well as the advantages of using execution tracing. Next, they describe some related work in the field of tracing analysis. After that, they describe the model they will be using for their analysis, defining the five thread states they will group threads into and identifying two kernel tracepoints they will make use of for the categorization. Fourth, the authors rate the performance of their algorithm; next, they describe the view they created to display their analysis. Finally, the authors identify the experiments they performed with their analysis model and summarize their work.

This paper works directly with Lttng tracing in order to provide greater understanding of application execution. Additionally, the focus is on the CPU. Because of these two facts, it is very applicable to our project. The paper includes references to the `sched_switch` and `sched_wakeup` tracepoints and explains how to use them to examine CPU and thread behaviour. There is also a good discussion included in the introduction about the benefits of real time analyzation as well as tracing. This discussion can be used to help clarify our own use of real time bad smell detection. The paper is useful because it discusses topics used in our project.

One negative of this paper is that it does not directly discuss actual bad smells. The authors discuss potential execution problems that they find in traces and work to discover their causes. However, they do not attempt to generalize or categorize these problems. This is unfortunate because our project deals with generalized problems instead of specific instances. Because of this, we are not able to use some of the techniques that the authors in this paper use. Overall, this paper is excellent for finding a point to start our work, but is not entirely useful for the actual techniques used.

<https://core.ac.uk/download/pdf/208600028.pdf>