

Paper Review: Message Logging Protocol

Summary

The goal of this paper is to present the results from a study comparing modern approaches to pessimistic and optimistic message logging on high performance computing platforms. Pessimistic logging implies that the system logs all incoming messages to some type of stable storage before processing, while optimistic logging allows computation to continue while messages are processed. This paper discusses the pros and cons of each, based on the researchers' data. It also points out flaws in previous thoughts on message logging methodology.

Strengths

The thing I liked most about this paper is how thoroughly they explained their topic before ever showing any data from the study. The introduction made it clear what they were studying and why they were studying it. I appreciated that they included a whole section to explain exactly what message logging is. We have talked about it in class, but this is a very detailed description that could bring someone up to speed even if they had never heard of it before. In the Implementation Details and Experimental Comparison sections, the authors give a detailed (but not overly technical) overview of the methodology, software, and hardware used in their research. The data that is presented shows that they ran their tests on a few different kernels, as well as with increasing number of processes in order to test the scalability of their methods.

Shortcomings

I found that the labelling in Figures 1 & 2 are not very intuitive. If you read the related sections you can begin to make some sense of what it means, but one should be able to look at the graphic and understand it without much effort. I also wish that the authors would have provided a more thorough explanation of deterministic and non-deterministic events in this context. I took one theory class that dealt with this topic, but not having any real-world experience with them I feel like I don't really understand their impacts on this study based on what I read in the paper.

Improvements

My main suggestions for improvement would be to elaborate on the things I pointed out in shortcomings. First, make Figures 1 & 2 more intuitive and readable. The reader's understanding of message logging depends on this section, and if he/she is confused after reading this section then the rest of the paper isn't going to make much sense. Also, please provide a better explanation of the effects of determinism vs. non-determinism in the study.

Question(s)

What are some of the improvements that *active optimistic message logging* provides over the more traditional methods of message logging?