ECE5658: Operating Systems Design

Paper Reading Assignment

2019712410 Jeon Hyung-Joon

The Scalable Commutativity Rule:

Designing Scalable Software for Multicore Processors

Summary:

The objective of this paper is to present the scalable commutativity rule and provide a tool for scalability analysis. The hypothesis is that a set of interface operations can be implemented in a way that scales when they commute each other. If the theory is correct, it could help developers in developing more scalable software. With the advent of COMMUTER tool, the scalability of an implementation of an application can be evaluated.

Strengths:

As shown on the experiments, applying the COMMUTER tool to POSIX calls enables scaling of Linux by detecting many problems related to application scalability. The proposed theory provides a new paradigm for software development to understand and exploit multicore scalability starting at the software interface. From this, the authors show optimism for enhancing scalability of applications using the tool and theory.