

Operating Systems Design: Critique

2019712600

Oh, Seungmin

- **Efficient Virtual Memory for Big Memory Servers**

Large tasks, such as database operations, in most cases, large amounts of operations gain read and write permissions. Experiments in this paper show that such large workloads do not benefit from the flexibility of virtual memory. Therefore, the paper presents new software that can directly access hardware.

The advantage of this paper is that it reveals the fundamental problem of existing memory systems in large workloads. We also introduced a new software approach to solving the problem and proved it to work. On the other hand, the downside is that the paper is so old that it is still useful for current kernel versions of memory systems.

I It is good to have a paper on whether the effect is valid even though various swap systems and new cache memory systems are introduced. And with the advent of new types of large workloads called deep learning, it would be nice to see the benefits of deep learning.

- **FlashFQ: A Fair Queueing I/O Scheduler for Flash-Based SSDs**

SSDs show high performance and maintaining fairness among processes has become an important issue. Current schedulers, however, are too expensive to maintain fairness when multiple processes access IO at the same time. To solve this problem, this paper proposes a new Flash FQ scheduler rather than the existing time slice method and presents the advantages of the scheduler through experiments.

The merit of this paper is the proper center between fairness and its cost, suggesting a new research paradigm. In addition, other related studies compare the results of the relevant studies with their own results and present the direction of development of other studies. On the other hand, it is a pity that I do not have a detailed plan for my research.

Wouldn't it have been better if the paper had taken advantage of other relevant studies (eg. FIOS) and made further plans.