ECE5658

Critiques - week11

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1 Efficient Virtual Memory for Big Memory Servers

(1) **summary of the paper:** This paper introduce efficient virtual memory mapping to physical memory using notion of *direct segment*. Since page based managing is not fitted to this day's big memory application. Their target is big memory application that has significant performance degradation by TLB miss. Their idea is, simply put, mapping continuous large virtual memory to continuous large physical memory.
(2) **strengths/weakness of the paper:** They can use conventional page-based management for page protection while using their huge pages.

2 Coordinated and Efficient Huge Page Management with Ingens

(1) **summary of the paper:** This paper is about Linux's huge page. For the reason of emerging large memory workload, reducing TLB miss became a issue. Linux support huge pages since the 90s. However, until now, using huge pages cause some performance problem and wasting memory on various workload. Therefore, *Ingen* redesign memory management to support higher performance, memory saving, fairness.
(2) **strengths/weakness of the paper:** *Ingen* is followed by emerging hardware of many entries for huge pages. *Ingen* catched this moving trend and take an advanced from firstly actively adapt that hardware into their work.