ECE5658

Critiques - week10

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1 Traffic Management: A Holistic Approach to Memory Placement on NUMA Systems

(1) **summary of the paper:** This paper introduce new sight for optimizing Non-Uniform Memory Access latency. Previous works focused on memory locality problem because they assumed that fewer remote memory accesses, lower *NUMA* overhead. They were fundamentally right, but the key point discirbed by this paper is that wire delays are not most important factor than memory controller's congestion. Therefore they propose reducing congestion rather than eliminating remote accesses.
(2) **strengths/weakness of the paper:** They grasp details on why remote accesses is slow. From their observation, they draw an practical idea rather than ideal and hard to solve solution (like aware locality).
(3) **any suggestions to improve their idea:** While they globally collect some information, they could also try low-overhead locality-aware properties.

2 Regularities Considered Harmful

(1) **summary of the paper:** This paper aims to reduce row-buffer conflict. They used their own analysis tool and observed that sequential or patterned accesses tend to aggravate the row-buffer conflict. To solve row-buffer conflict, they introduce M-cube algorithm that proposes notion of memory container and randomize accesses.
(2) **strengths/weakness of the paper:** This paper analyze the problem of existing one using their own invented analysis tool. They use two principle (memory container, randomize accesses) to solve two problem (maximizing concurrency, reducing row-buffer conflict). It is very intuitive.
(3) **any suggestions to improve their idea:** They deal with multi-core system, but less consideration on lock contention.