Charles Kiorpes
July 8th, 2014

Optimal Refresh Rate for AGING and NRU

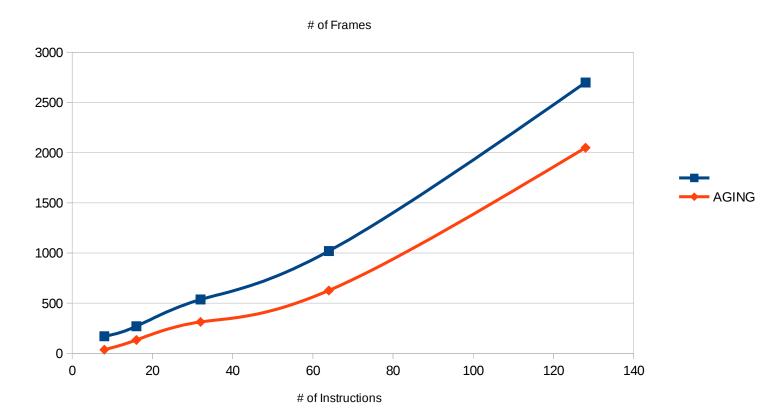# of Frames

# of Instructions

The best refresh rate for the NRU and Aging algorithms varied based on the number of frames available in RAM. I ran the algorithms over a range of periods for each trace file and for each of 8, 16, 32, 64, and 128 frames. The resulting graphs show an optimal refresh rate that shifts upwards as the frame count increases. My overall comparison refresh period for each number of frames was determined by averaging the three trace files' best period for each number of frames. The best choice, if it were possible, would be to select a refresh rate based on the size of memory. If the refresh rate were forced to be constant over changing size of memory, I would choose a value between 500 and 1000 instructions, since this range results in an acceptable number of page faults over a greater range of memory sizes.

Below is an example of the distribution of page faults and disk writes over a changing period for the swim.trace file with 32 frames available in memory.

Charles Kiorpes
July 8th, 2014