Report

WSClock is a variation of the working set algorithm and the clock algorithm. Working set is the set of pages currently being used by a process. This algorithm's main concept is to make sure the working set of the process is in the memory before a process is run. When a page fault is found, a page is located which is not in the working set and then it is removed. The entire page table is also scanned to find a page for removal. Given R is the referenced bit and t is the number of clock ticks, if R = 1, the current virtual time is set to the time of the last used field in the page table. This shows that the page was in use during the page fault and will not be removed. If R = 0 and Age > t, then the page is not in the working set and is removed. If R = 0 and age <= t, then the page is in the working set and is not removed. WSClock builds on this concept, implementing some concepts from the Clock algorithm. In WSClock, pages are put in a circular list like in the Clock algorithm. R is checked for each entry, time of last use, and referenced bit. If R = 1, the page is not removed. The R bit is set to 0 and the clock hand moves to the next page. If Age > t, then the page is not in the working set and is replaced by a new page. If Age <= t, then the page is in the working set and is not removed. The clock hand is then moved to the next page. Example pseudo code is given below,

If Reference Bit = 0

If the age of the page is less than T...

This page is in the working set.

Advance the hand and keep looking

If the age of the page is greater than T...

If page is clean

Reclaim the frame and we are done!

If page is dirty

Schedule a write for the page

Advance the hand and keep looking