NC STATE UNIVERSITY Message Board

Course: CSC501 - 001
Forum: PA3 discussion

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Author **Topic: Dirty bit value in page tables**

adhanas Sat Mar 29 14:20 who

The below code snippet is a slightly modified version of the example given in FAQ #7.

```
*** CODE SNIPPET START ***
procA() {
char *vloc;
char data;

get_bs(1, 100);
xmmap(5000, 1, 100);
vloc = 5000*4096;

*vloc = 'x';
data = *vloc;
printf("procA data: %c\n", data);

sleep(2);

xmunmap(5000);
release_bs(1);

return;
}

procB() {
char *vloc;
char data;

get_bs(1, 100);
xmmap(6000, 1, 100);

vloc = 6000*4096;
data = *vloc;
printf("procB data: %c\n", data);

sleep(4);
```

```
xmunmap(5000);
release_bs(1);

return;
}

main() {
resume(procA);
resume(procB);
sleep(8);
return;
}
*** CODE SNIPPET END ***
```

Now, when procA does xmunmap(), the dirty bit for the actual data frame is set in procA's page table entry. But, it's not set in procB's page table entry.

First procA unmaps the vaddr range followed by procB, if that helps.

Any idea why is it so? Anyone else seeing something similar to this?

adhanas Sat Mar 29 14:59 who

Typo: xmunmap() in procB should read xmunmap(6000) instead of xmunmap(5000).

adhanas Sat Mar 29 15:30 who

Looks like this is due to the cache maintained by the processor. Refer to section 4.8 of Intel IA-32 developer manual (vol 3) for more details.

One of the suggested solutions in the manual (to flush the hardware cache) is to reload CR0 register. I tried this, but still by dirty bit is not being set when procB unmaps the frame.

rpageda Sat Mar 29 18:39 who

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i thought the dirty bit of page table entry is set when a page is accessed and not the frame.
correct me if I am wrong.

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