

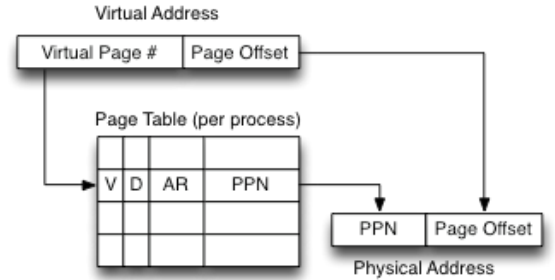
Virtual Memory

What are three specific benefits of using virtual memory? [there are *many*]

Virtual to Physical Address Translation

Page Table

Split memory into a bunch of equal sized chunks called pages. Better still, split a section of disk into these chunks as well. Map any virtual page into a physical page via table look up -- the page table. Each process gets its own page table.



Translation Lookaside Buffer (TLB)

A cache of page table entries. Each block is a single page table entry. If an entry (corresponding to a virtual page) is not in the TLB, it's a TLB miss. If that entry is also not in memory (it's been paged out), it's a page fault. Who gets kicked out on a page fault? What happens if there just isn't enough physical memory?

The TLB and the Page Table together make up a translation unit that maps from virtual addresses to physical addresses.

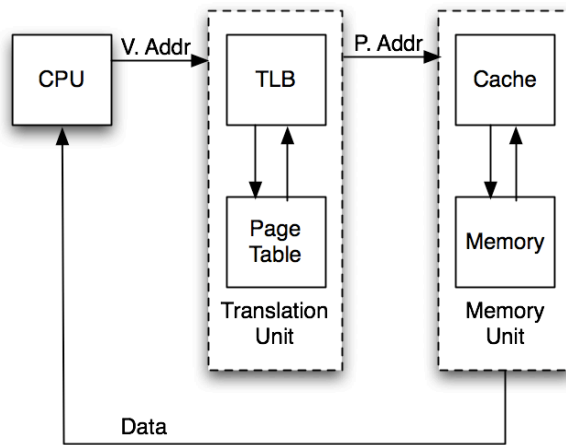


Figure 1: Logical Flow "Big Picture"

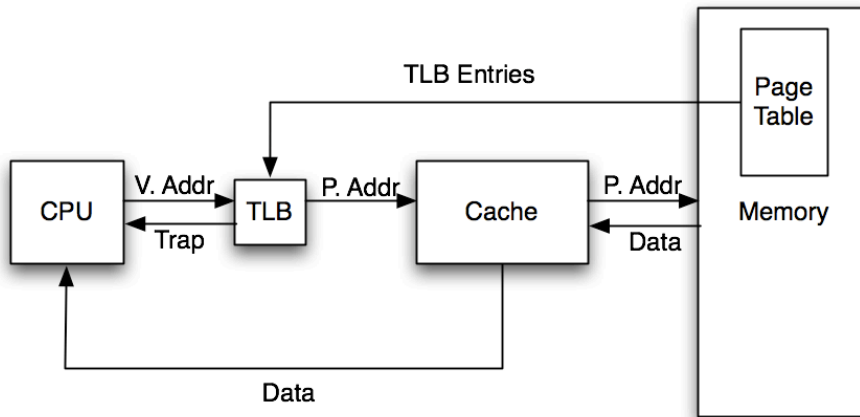


Figure 2: Physical Implementation "Big Picture"

