

# Approach 2 : virtualizing the CPU/MMU

- ➡ Observations - most instructions are the same regardless of processor privileged level e.g. `incl %eax`

Why not just give instructions to CPU to execute?

- Problem - safety  
How to prevent privilege instructions from interfering with hypervisor and other OSes?
- Solution - use protection mechanisms already in CPU

- ➡ "Trap and emulate" approach

- run virtual machine's OS directly on CPU in unprivileged user mode
- privileged instructions trap into monitor and run simulator on instruction

# Virtualizing interrupts

OS assumes to be in control of interrupts via the interrupt table

So what happens when an interrupt or trap occurs in a virtual environment?

- ➡ The VMM handles the interrupt (in kernel mode) using the "virtual" interrupt handler table of the running OS
- ✓ Some interrupt can be shadowed