

# Virtual Memory Goals

- Provide a convenient abstraction for programming by giving each program its own virtual address space
- Allow programs to see more memory than exists
- Allocate scarce memory resources among competing processes to maximize performance with minimal overhead
- Enforce protection by preventing one process from messing with another's memory

# Definitions

- Programs load/store to **virtual addresses**
- Actual memory uses **physical addresses**
- Virtual memory hardware is the **MMU (Memory Management Unit)**
  - Usually part of CPU and configured through privileged instructions (e.g., load bound reg)
  - Translates from virtual to physical addresses
  - Gives per-process view of memory called **address space**