

# Shadow page tables

VMM creates and manages page tables that map virtual pages directly to machine page these tables are loaded into the MMU on a context switch

## → **VMM page tables are the shadow page tables**

VMM needs to keep its virtual to machine tables consistent with changes made by OS to its virtual to physical tables

- VMM maps OS page tables as read-only (i.e., write-protected)
- When OS writes to page tables, trap to VMM
- Memory tracing :VMM applies write to shadow table and OS table and returns
- Memory-mapped devices must be protected for both read- and write- protected

# Memory mapping summary

