Review & benchmarking

Virtualization 

Virtual memory

I/O: DMA, drivers, block devices, disk & RAID

File Systems:
- Security: access control, authentication, attacks & counter measure

Driver:
- User
- Top half
- DMA setup
- Bottom half
- HW -> DMA -> IRQ

RAID:
- User 
- Hardware

Performance:
- Drive: NS seeks/sec
- RAID 0, 1, 5, 6: R B/s

Tradeoff between performance and reliability.

(storage overhead)
Organizing principles:
- software mediation
  - software requests (system calls, etc)
- hardware hooks
  - virtual memory
  - HW vnt
  - external device
  - RAID NAT

Benchmarks

With benchmarks, we are able to find out how good is X.
how much faster is X than Y.

→ appropriate benchmarks

- SPEC - real programs
- kernel benchmarks - whetstone
drystone

- synthetic benchmarks