Laptops and Processes

▸ **Modern laptops are multicore**

  ■ Mostly interactive tasks and hence prefer interactive applications

  ■ Frequent suspend - does that affect scheduling?

▸ **Process synchronization**

▸ **Users use productivy apps, multimedia apps and solitaire**

Laptops - memory and storage

▸ What do you do with 2 GB on a laptop?

- Leave memory of exitted programs to quicken startup?
  - Energy cost
- Use massive buffered IO?
  - Reliability when memory runs out

▸ Disks and Flash

- Disks support fully operational, spin-down, park modes

Laptops and protection

▸ Physical security still possible

▸ Rarely multiuser

Desktop

- Dual processor/core
  - 2.8 GHz dual core x2 and 64 bit processor
- GBs of memory
- Multiple hard disks
  - Hard disk can be up to 750 GB per disk!!

Desktop and Process scheduling…

▸ What do you do with these beasts?

- Web browse
- Emails
- Word
- Multimedia encoding/creation

▸ Scheduling a balance of interactive and batch processing

Memory and File system

▶ RAID becomes increasingly necessary for most machines, given that 250 GB hard drive is ~$60

▶ Desktops, if they knew that they would be on UPS, can afford to really use a lots of caching and buffering

▶ Security wise, desktops are similar to workstations in that they are single user at a time

Server

▸ One of the specification is the size that server will take in a rack. 1U is the smallest size and blade servers, which fit one unit are all the rage

▸ Each blade can be dual, two core 2.8 GHz, 12 GB memory, 2x146GB 15k rpm hard disk - $8000

▸ 1 rack - 60 racks

  ▪ ($ 0.5m)

Servers

▸ **Mission critical systems**

- Three tier systems - production, backup and test
- Virtual hosting to protect against interference with other processes
- Data center support service level agreements (SLA) - OS should be aware of these

▸ **Each rack can consume 10 Kw**

- Additional 10 Kw in cooling
- Data center can be powered exclusively by a 300 MW power station.