

Resource Accounting in a Multi-Process System

Outline of ideas:

2. Model of general accounting problem: Separate accounting for
- Core Memory
 - Memory Controllers
 - Processors
 - I/O channels (includes I/O device)
 - Secondary Storage area. (missing on some I/O devices.)

7. Issues

- Repeatable ~~costs~~ Charges.
- Charges for shared programs and data.
- Effect of shared programs on repeatable charges.
- Fighting back to make cost ~~cost~~ related to usage, price charged related to cost of giving service.
- ~~Cost~~ Price / Quality of service.
- Predictability of cost / Predictability of resources needed to finish job.
- Allocating charges so that ~~additional~~ need for a particular ~~additional~~ resource in particular case is reflected by sufficient income to pay for the resource. ~~when it is used.~~
- "dedicated" devices, resources, and secondary storage.
- Charges for "tying up" data.
- Charges for proprietary programs.

3.

Processor.

- a. This is a scarce resource.
- b. Can change either on real time used or on # of instructions executed. The latter is likely to be a little more consistent for the same job, but not much.
- c. Problem: the processor cost of using a "shared" program depends on number of ~~processors~~ processors presently sharing it.

Meters used: Count of Processor cycles,
a Real Time Clock.

2. Memory Controller

- a. This is a scarce resource. If there are not enough, processors are often delayed.
- b. Break apart cost of Memory Controller and Memory.
- c. Compute # of Accesses per minute possible ~~by~~ through the memory controller.
- d. Compute a cost per Access which is the fundamental price charged for all Accesses.
- e. Count processor accesses, + I/O system accesses; charge accordingly to return price of Memory Controller.
- f. After system experiment shows actual # of Accesses per minute which are possible, re-adjust cost/Access to reflect this.

Meters needed: Count of Processor channels cycles used.
DCU's for I/O channels.