Job Scheduling Under the Portable Batch System

Paper by: Robert L. Henderson

Presented by: Lambros Mertzanis
Job Scheduling Activities

- Job Selection (Batch)
- Resource Allocation (OS Kernel)

Queue based job selection was the standard.

- FIFO
- Condor
- DQS
- LSF
The Portable Batch System (PBS) can express much more complicated selection policies.

- Job Server
- Resource Monitor
- Machine Oriented Miniserver (MOM)
- Scheduler
Scheduler

- Run jobs
- Delete jobs
- Suspend jobs
- Reconfigure nodes
- Reconfigure the server
Resource Monitor
- Physical Memory
- Virtual Memory
- Swap Space
- Load Average
- File System Size
PBS Policy Interfaces

- BAtch Scheduling Language (BASL)
- Tool Control Language (Tcl)

Features

- Variables for time, process, server data
- Arithmetic & logical operations
- String concatenation
- Conditional statements and loops
foreach host {
    nrun = 0;
    if (loadave < 2.0) {
        foreach job {
            if (jcput < 60) {
                run JID HID;
                nrun += 1;
            }
        }
        if (nrun > 2) exit;
    }
}

Negligible overhead
That's it.