# Job Scheduling Under the Portable Batch System

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## Job Scheduling Activities

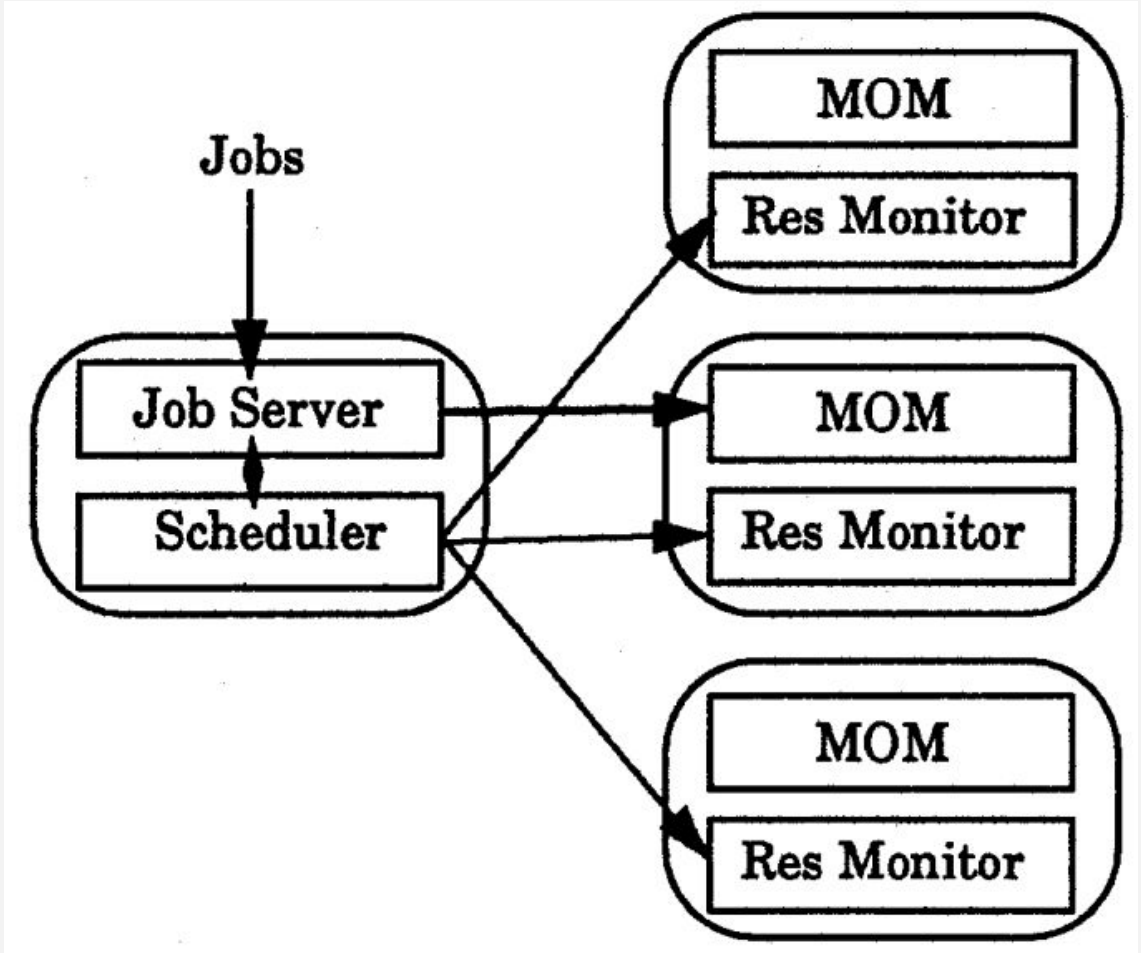
- Job Selection (Batch)
- Resource Allocation (OS Kernel)

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


Jobs
Job Server
Scheduler
MOM
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MOM
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## 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.