PBSWeb: A Web-based Interface to the Portable Batch System

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Overview

1. Introduction to PBSWeb
2. PBSWeb Architecture
3. PBSWeb Implementation
4. Concluding Remarks and Future Work

PBSWeb

On the surface, PBSWeb is a Web-based interface to the Portable Batch System (PBS).

Below the surface, PBSWeb adds (or will add) support for:

1. Greater ease-of-use
2. Remote access of resources: metacomputing, grid computing
3. Workflow management

NOTE: We are **not** affiliated with PBS or Veridian Systems.

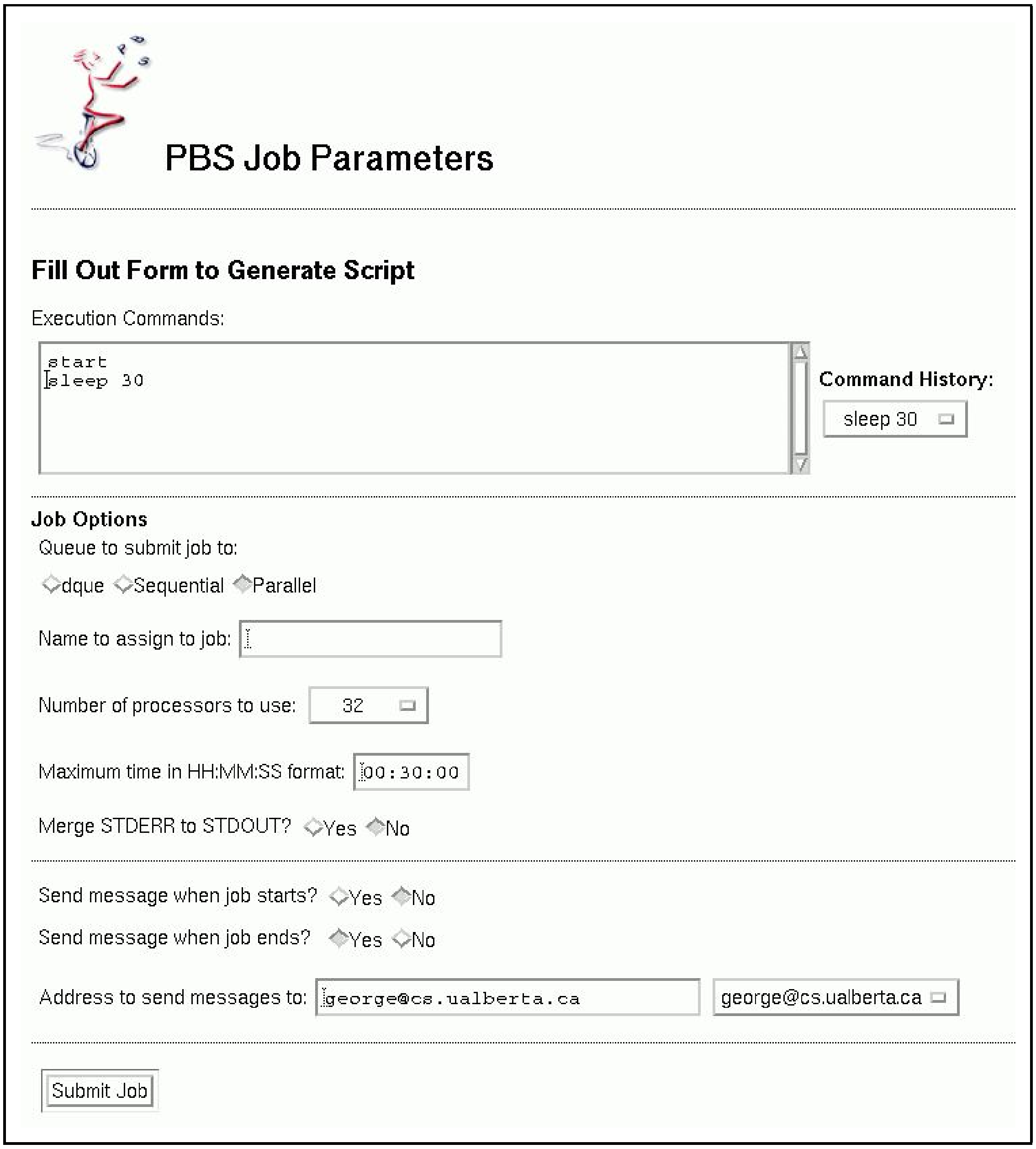
PBS Job Scripts

Batch schedulers can be difficult to use.

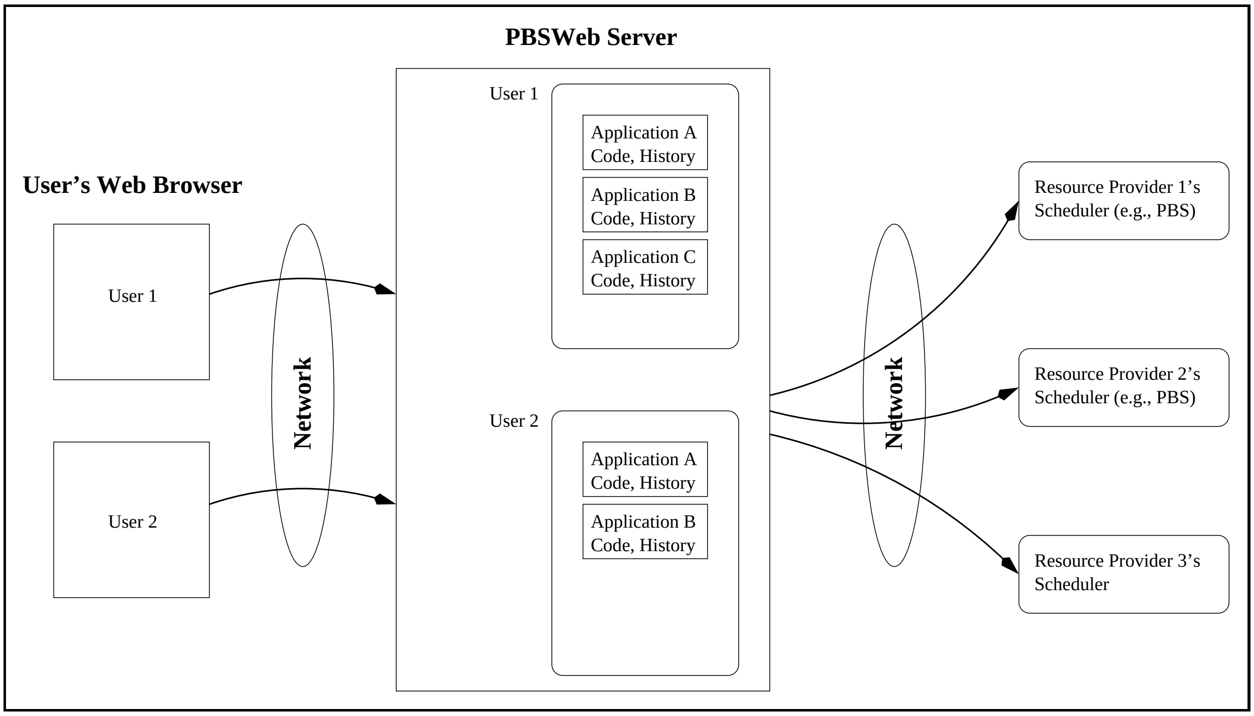
```
# Do all this under tcsh
#PBS -S /bin/tcsh

# Use default queue
#PBS -q dque

# How many CPUs?
#PBS -l ncpus=4

# Name of job
#PBS -N TestCharron

# CPU time limits
#PBS -l walltime=00:20:00
#PBS -l cput=02:40:00

# Mail is to be sent for abort, begin, end conditions
#PBS -m abe
#PBS -M someemail@cs.ualberta.ca

mpirun -np 4 parallelsort.psrs
```

Various commands: `qsub`, `qstat`, `qdel`, `qhold`, `qalter`

A GUI for PBS

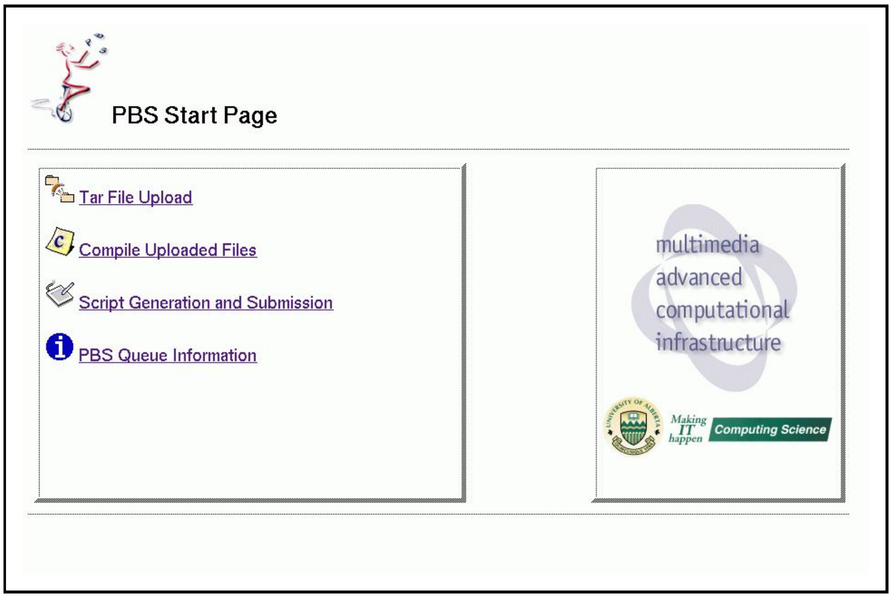

PBS Job Parameters
Fill Out Form to Generate Script
Execution Commands:
start
sleep 30
Command History:
sleep 30
Job Options
Queue to submit job to:
dque Sequential Parallel
Name to assign to job:
Number of processors to use:
32
Maximum time in HH:MM:SS format:
00:30:00
Merge STDERR to STDOUT? Yes No
Send message when job starts? Yes No
Send message when job ends? Yes No
Address to send messages to:
george@cs.ualberta.ca
george@cs.ualberta.ca
Submit Job

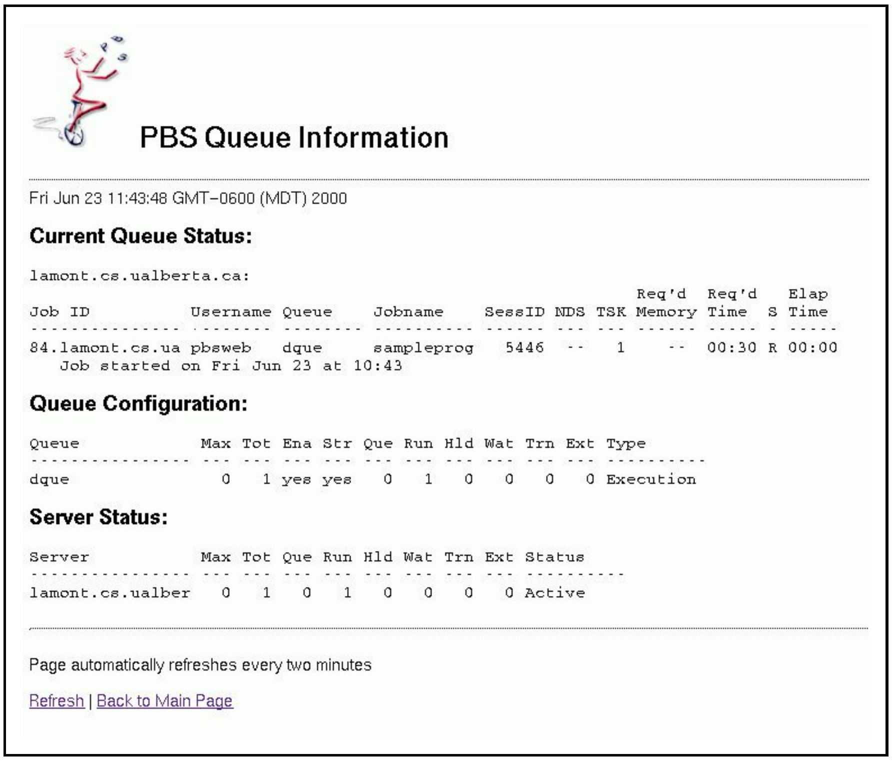
PBSWeb Architecture



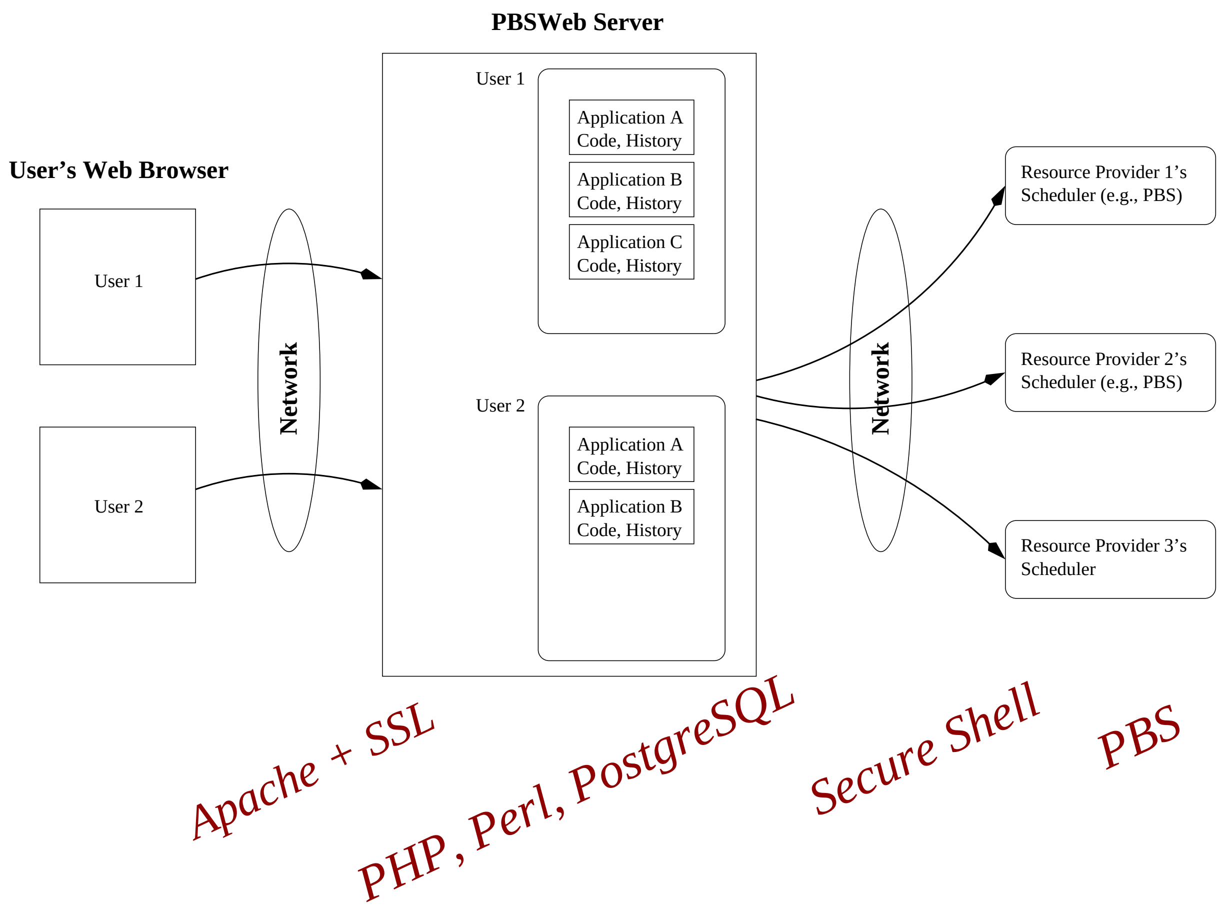
1. GUI is Web-based
2. PBSWeb Server maintains a history and source code repository
3. Layered on top of resource scheduler (e.g., PBS, LSF)

PBSWeb: Screenshots





Implementation



Concluding Remarks

Our approach:

1. Web-based GUI
   - improved ease-of-use
   - easy remote access, platform independence
2. History Database
   - per-user, per-application
   - easier to manage experiments and workflow
3. Source Code Repository
   - easier to share among experimenters
   - metacomputing, grid computing

PBSWeb is an on-going project. Contact us for the software.