Advanced Grid Jobs I – Collections & Parametric Jobs

SURFsara – Online Grid Computing Course

Outline

□ **Large number of jobs – WMS overhead ?**
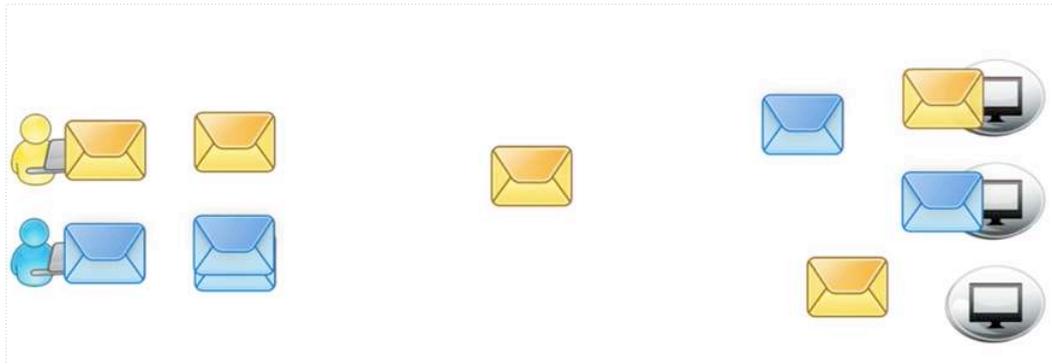
□ **Job Collections**

- Different applications as a single request
  - ✓ Command line option '--collection'
  - ✓ Advanced Collections

□ **Parametric Jobs**

- Same code with different parameters

Job collections

- ❑ **Set of independent jobs submitted all together**
  - ▪ Submit
  - ▪ Monitor
  - ▪ Control
    - … as a single request

- ❑ **Sharing Sandboxes**
  - ▪ Sub-jobs with common input files
  - ▪ 1 copy of each file is transferred

Simple Collections

❑ **glite-wms-job-submit -d $USER -o jobIds --collection <jdl_dir>**

- ▪ <jdl_dir> files:
 - ✓ hostname.jdl
  - ✓ echo.jdl

hostname.jdl:

```
Type = "Job";
JobType = "Normal";
Executable = "/bin/hostname";
Arguments = "-f";
StdOutput = "simple.out";
StdError = "simple.err";
 OutputSandbox = {"simple.out","simple.err"};
ShallowRetryCount = 3;
```

echo.jdl:

```
Type = "Job";
JobType = "Normal";
Executable = "/bin/echo";
Arguments = "Hello Grid!";
StdOutput = "simple.out";
StdError = "simple.err";
 OutputSandbox = {"simple.out","simple.err"};
ShallowRetryCount = 3;
```

Advanced Collections submit

```
mooc@ui:~
mooc$
```
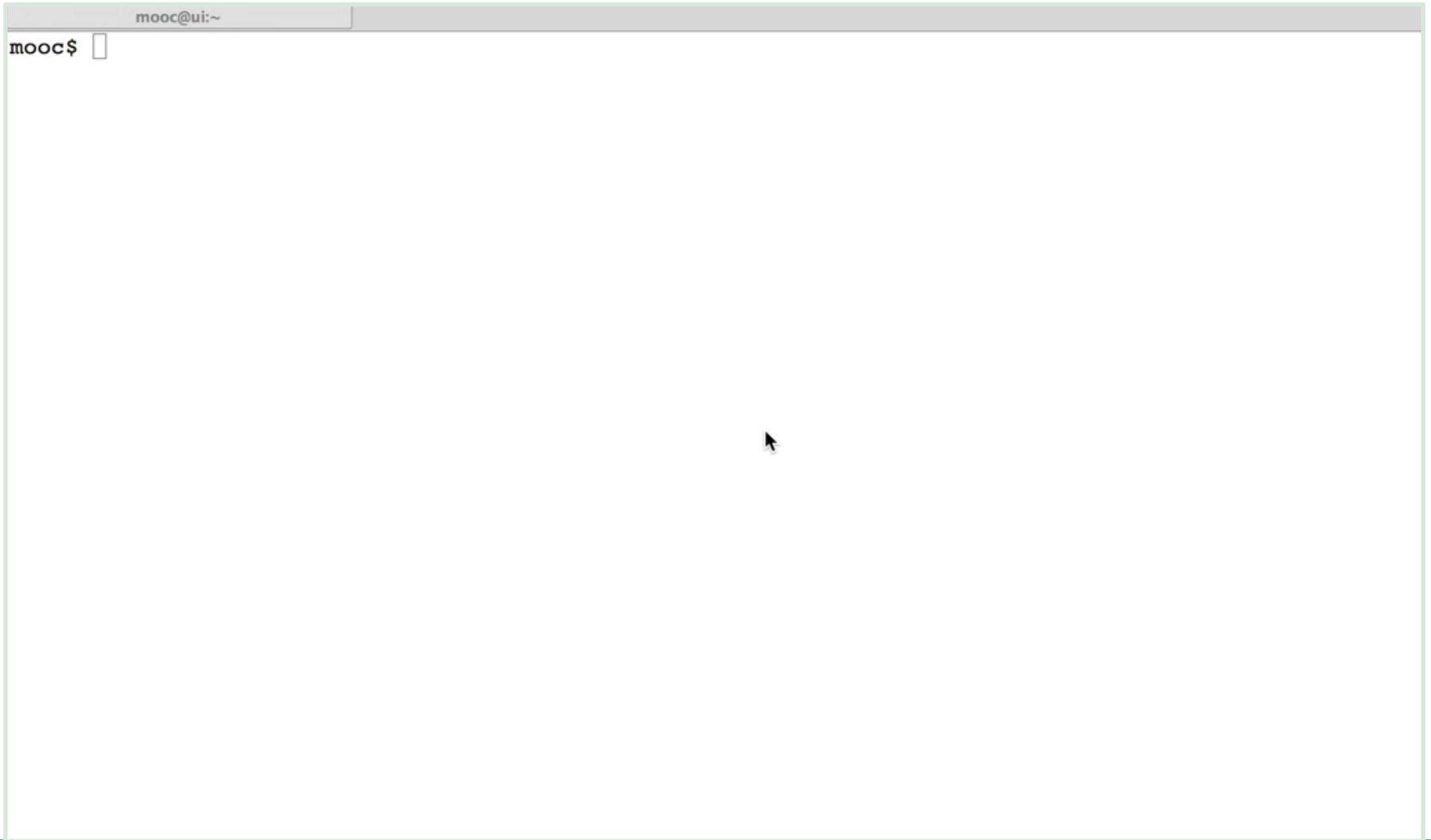
Advanced Collections Output


```
mooc$ cd moocexamples/7_collections/
mooc$ ls
collection.jdl  script_node1.sh  script_node2.sh
mooc$ vim script_node1.sh
mooc$ vim script_node2.sh
mooc$ nano collection.jdl
mooc$ nano input_common1.txt
mooc$ nano input_common2.txt
mooc$ ls
collection.jdl  input_common1.txt  input_common2.txt  script_node1.sh  script_node2.sh
mooc$ startGridSession tutor
mooc$ glite-wms-job-submit -d $USER -o /home/mooc/moocexamples/jobIDs collection.jdl
```

Job Detail

Job Detail +

https://wms2.grid.**sara.nl**:9000/zwfvzAwwS9Szwrw9FAtsPA

Google Translate intranet sara.nl subtrac resource Requests Cloud admin Cloud Redmine Cloud Wiki Bookmarks

https://wms2.grid.sara.nl:9000/zwfvzAwwS9Szwrw9FAtsPA

Job ID	https://wms2.grid.sara.nl:9000/zwfvzAwwS9Szwrw9FAtsPA
CREAM ID	
Parent job	
Status	Done
Type	Collection
Seed	WMPROXY
No. of Children	3
Subjob Failed	
VM Status	

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Parametric jobs

❑ **Parameter sweep…**

```
#!/bin/bash
for i in {1.. 100}
do
        # Create JDL file and inputs for i'th step:
        [ Some shell scripting here ]
        # Submit the i'th job:
        glite-wms-job-submit -a -o jobIDs param$i.jdl
done
```

❑ **Parametric jobs:**

- Set of jobs to be generated from one JDL
- Same code on different parameters
- JobType = "Parametric";
- Key word: _PARAM_
- >[50 – 100] jobs → Choose a pilot job framework

Parametric submit

```
mooc@ui:~
mooc$ 
```