

Grid Usage at DESY

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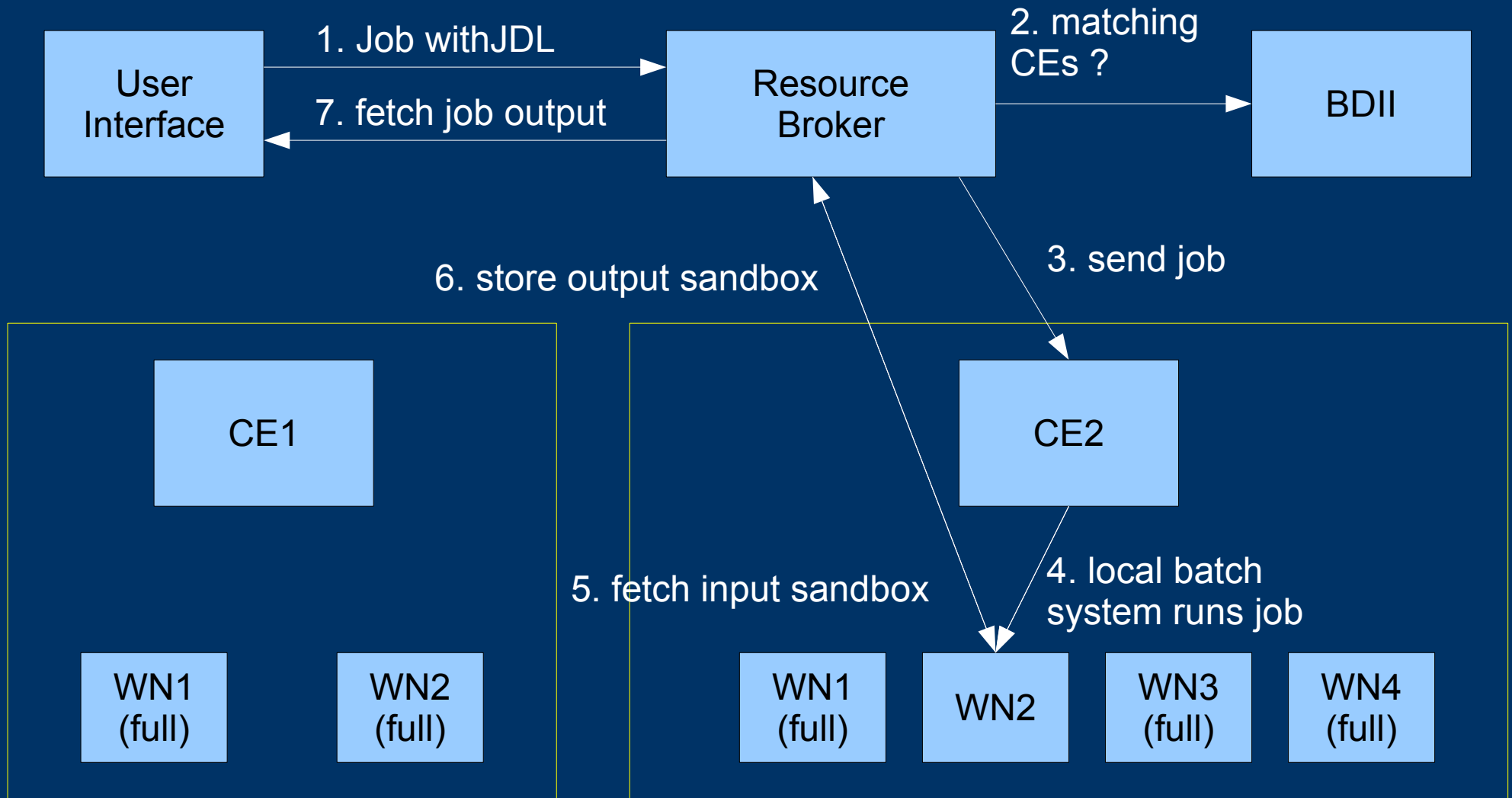
Agenda

- Certificates
 - the job flow in LCG
 - JDL syntax
 - example
 - data management
 - DQ2 (usage at Zeuthen)
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Certificates

- used for authentication in the grid world
 - X509 standard
 - valid for one year (have to be renewed)
 - must be kept secret!
 - two kinds:
 - „real“ certificate – secured by a password
 - create one with the command „grid-cert-request“ on a UI
 - proxy certificate – used for authentication
 - created via „grid-proxy-init“ or „voms-proxy-init“
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job flow



JDL

- job description language
- specifies the job requirements
- unfortunately not as sophisticated as with local batch systems
- http://www.infn.it/workload-grid/docs/DataGrid-01-TEN-0142-0_2.pdf

JDL example

```
Executable = "test.sh";  
StdOutput  = "std.out";  
StdError   = "std.err";  
InputSandbox  = { "test.sh" };  
OutputSandbox = { "std.out", "std.err" };  
Requirements = other.GlueCEPolicyMaxWallClockTime >= 2500 &&  
                other.GlueHostMainMemoryRAMSize > 512;
```

job submission example

```
[fuchur] ~ % . /afs/desy.de/group/grid/UI/LCG/etc/profile.d/grid_env.sh
[fuchur] ~ % grid-proxy-init
Your identity: /O=GermanGrid/OU=DESY/CN=Andreas Haupt
Enter GRID pass phrase for this identity:
Creating proxy ..... Done
Your proxy is valid until: Thu Oct 12 01:51:09 2006
[fuchur] ~ %
```

job submission example

```
[fuchur] ~ % edg-job-list-match --vo dteam test.jdl
```

Selected Virtual Organisation name (from --vo option): dteam
Connecting to host grid-rb0.desy.de, port 7772

COMPUTING ELEMENT IDs LIST

The following CE(s) matching your job requirements have been found:

CEId

ce2.egee.unile.it:2119/jobmanager-lcgpbs-dteam

fangorn.man.poznan.pl:2119/jobmanager-lcgpbs-dteam

CE.pakgrid.org.pk:2119/jobmanager-lcgpbs-dteam

ce.egee.man.poznan.pl:2119/jobmanager-lcgpbs-dteam

job submission example

```
[fuchur] ~ % edg-job-submit --vo dteam test.jdl
Selected Virtual Organisation name (from --vo option): dteam
Connecting to host grid-rb0.desy.de, port 7772
Logging to host grid-rb0.desy.de, port 9002
```

JOB SUBMIT OUTCOME

The job has been successfully submitted to the Network Server.
Use edg-job-status command to check job current status. Your job identifier (edg_jobId) is:

- https://grid-rb0.desy.de:9000/uiEyqQ6y_CiQMhh17fpngA

```
[fuchur] ~ % edg-job-status https://grid-rb0.desy.de:9000/uiEyqQ6y\_CiQMhh17fpngA
```

BOOKKEEPING INFORMATION:

Status info for the Job : https://grid-rb0.desy.de:9000/uiEyqQ6y_CiQMhh17fpngA
Current Status: Scheduled
Status Reason: Job successfully submitted to Globus
Destination: lcg-ce0.ifh.de:2119/jobmanager-lcgpbs-dteam
reached on: Wed Oct 11 11:56:06 2006

job submission example

```
[fuchur] ~ % edg-job-status https://grid-rb0.desy.de:9000/uiEyqQ6y_CiQMhh17fpngA
```

```
*****
```

BOOKKEEPING INFORMATION:

Status info for the Job : https://grid-rb0.desy.de:9000/uiEyqQ6y_CiQMhh17fpngA

Current Status: Done (Success)

Exit code: 0

Status Reason: Job terminated successfully

Destination: lcg-ce0.ifh.de:2119/jobmanager-lcgpbs-dteam

reached on: Wed Oct 11 12:01:00 2006

```
*****
```

```
[fuchur] ~ % edg-job-get-output https://grid-rb0.desy.de:9000/uiEyqQ6y_CiQMhh17fpngA
```

Retrieving files from host: grid-rb0.desy.de (for https://grid-rb0.desy.de:9000/uiEyqQ6y_CiQMhh17fpngA)

```
*****
```

JOB GET OUTPUT OUTCOME

Output sandbox files for the job:

- https://grid-rb0.desy.de:9000/uiEyqQ6y_CiQMhh17fpngA

have been successfully retrieved and stored in the directory:

/tmp/ahaupt_uiEyqQ6y_CiQMhh17fpngA

```
*****
```

data management

- files are stored on Storage Elements (SE)
- access via SRM (storage resource manager)
- URLs look like this
 - `srm://srm-dcache.desy.de/pnfs/desy.de/atlas/...`
- logical sight on the files stored on SEs is provided by LFC (logical file catalog)
 - guid
 - `guid:c693c08f-e3b4-4baa-bf05-e4d00c68c59c`
 - lfn (logical file name)
 - hierarchical in a directory structure
 - `lfn:/grid/atlas/myfiles/bla`

data management (useful commands)

- lcg-cr
 - copy a file to a SE and store it in LFC also
 - lcg-cp
 - copy a file from or to a SE
 - lcg-rep
 - replicate a file from one SE to another
 - lcg-del
 - delete a file from a SE and LFC
 - lcg-lr
 - list all replica of a file
 - lcg-rf / lcg-uf
 - (un-)register an existing file on a SE in LFC
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DQ2 (Don Quijote)

- ATLAS data management system
 - manages dataset creation, subscription, versioning,
...
 - dataset:
 - consists of one or more files
 - has a version
 - might be extended by some metadata
 - uses FTS (file transfer service) to replicate datasets between SEs
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useful DQ2 commands

- source dq2 environment
 - `./afs/afh.de/project/grid/dq2/setup.sh` (for Zeuthen)
 - other ways documented on the wiki pages
 - dq2 (more on next slide):
 - create / delete / modify datasets
 - documentation see wiki pages
 - dq2_ls:
 - list datasets matching special criterias
 - dq2_get:
 - download datasets
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dq2 commands

- usage: dq2 <command>
 - registerNewDataset
 - create a new dataset
 - registerNewVersion
 - create a new version of a dataset
 - registerDatasetLocation
 - register the availability of a dataset at a site
 - closeDataset
 - close a dataset
 - eraseDataset
 - delete a dataset
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DQ2 example

```
[dv] ~ % . /afs/afh.de/project/grid/dq2/setup.sh
[dv] ~ % export LFC_HOST=lfc-fzk.gridka.de
[dv] ~ % for i in data.1m data.10m; do
for> lcg-rf --vo atlas -l lfn:/grid/atlas/ahaupt/atlas-test/$i \
      srm://globe-door.afh.de//pnfs/afh.de/acs/grid/dteam/ahaupt/$i
for> done
guid:f4112f02-d5df-48cc-a26a-1ee17cd3a189
guid:2f7b76f0-fdc5-4e3b-882f-beb7006ef18b
[dv] ~ % dq2 registerNewDataset user.AndreasHaupt.test-atlas \
      data.1m f4112f02-d5df-48cc-a26a-1ee17cd3a189 \
      data.10m 2f7b76f0-fdc5-4e3b-882f-beb7006ef18b
[dv] ~ % dq2 closeDataset user.AndreasHaupt.test-atlas
[dv] ~ % dq2 registerDatasetLocation -c user.AndreasHaupt.test-atlas DESY-ZN
[dv] ~ % dq2_get -r user.AndreasHaupt.test-atlas
Done
Total:2 - Failed:0
[dv] ~ % ls -l data.1m data.10m
-rw-r--r--  1 ahaupt  sysprog 10000000 Oct 12 16:05 data.10m
-rw-r--r--  1 ahaupt  sysprog 1000000  Oct 12 16:05 data.1m
[dv] ~ %
```


user documentation

- DESY documentation
 - <http://grid.desy.de/>
 - <http://grid.desy.de/users/>
 - official user guides
 - <https://edms.cern.ch/file/454439//LCG-2-UserGuide.pdf>
 - <https://edms.cern.ch/file/722398//gLite-3-UserGuide.pdf>
 - DQ2
 - <https://uimon.cern.ch/twiki/bin/view/Atlas/DDM>
 - <https://uimon.cern.ch/twiki/bin/view/Atlas/DDMClient>
 - <https://uimon.cern.ch/twiki/bin/view/Atlas/UsingDQ2>
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the end

Questions?
