



gLExec install, configuration and use

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Outline

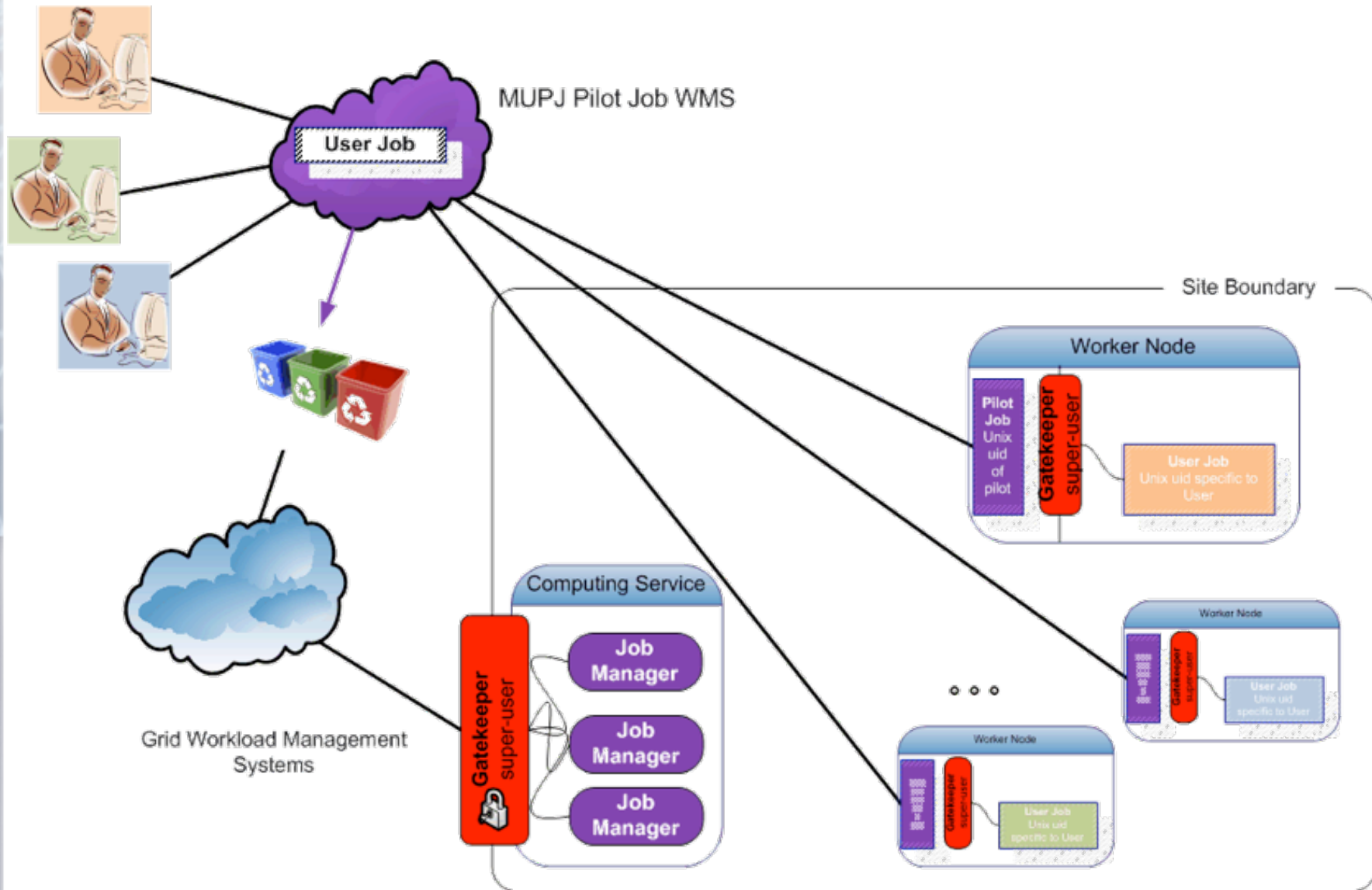
- What is gLExec
- How to set it up, demo
- How to use it

What is gLExec?

*a thin layer
to change unix credentials
based on grid identity and attribute information*

- Input:
 - Grid credentials, i.e. a X.509 certificate
 - User program & arguments to run
- Action:
 - check authorization (Argus, GUMS, etc)
 - acquire & enforce the Unix credentials (LCMAPS, Argus)
- Result:
 - User program run with the mapped credentials

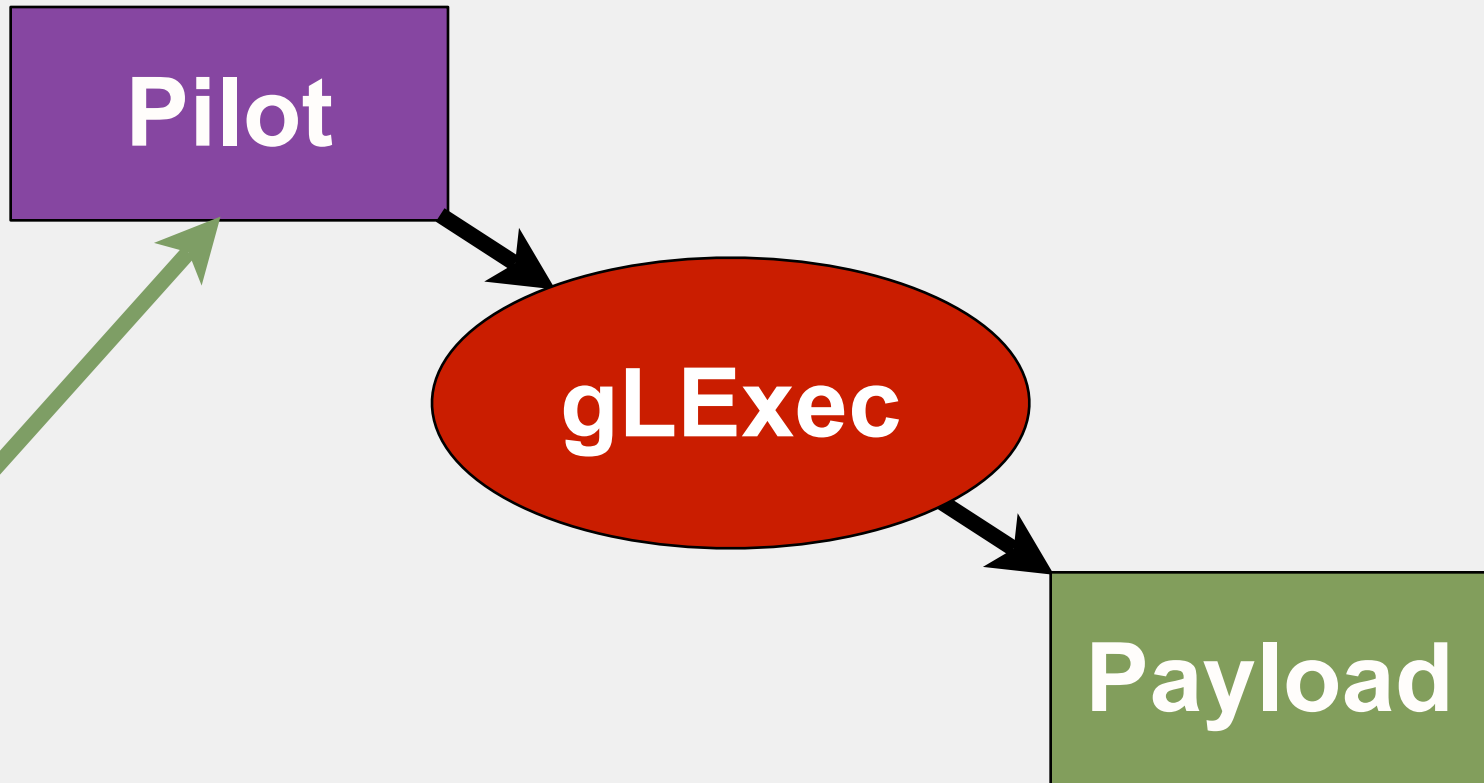
gLExec on the WN & Pilot jobs



Generic pilot job life-cycle

Job on a Worker Node

Download Payload



pstree -a

```
init-+
├─pbs_mom
│   └─bash
│       └─1337.stro.n /var/spool/pbs/mom_priv/jobs/1337.stro.nikhef.nl.SC
│           └─jobwrapper /opt/lcg/libexec/jobwrapper ./CREAM31337_jobWrapper.sh
│               └─CREAM31337_ -l ./CREAM31337_jobWrapper.sh
│                   └─glexec /bin/bash payload.sh
│                       └─payload.sh
```

Install demo

- The live demo showed:
 - Install of gLExec:
 - From a clean VM
 - Yum install of the glexec-wn meta-package
 - Based on EPEL + EMI repos
 - Configuration using YAIM variables
 - Configuring node types “WN” and “GLEEXEC_wn”
 - Flawless gLExec usage authorized by Argus
 - Debugging hints
 - Debugging Argus with “--pep-c-debug”
 - man-page info hints (see glexec.1 and glexec.conf.5)
 - Tips and tricks (see Wiki)

YAIM variables

```
ARGUS_PEPD_ENDPOINTS="https://argus.cr.cnaf.infn.it:8154/authz"
```

```
GLEEXEC_WN_PEPC_RESOURCEID="http://cnaf.infn.it/wn"
```

```
GLEEXEC_WN_ARGUS_ENABLED=yes
```

```
GLEEXEC_WN_SCAS_ENABLED="no"
```

```
GLEEXEC_WN_LOG_DESTINATION=syslog
```

```
GLEEXEC_EXTRA_WHITELIST="dennisvd,okoeroo,msalle,.atlp"
```

```
GLEEXEC_WN_OPMODE="setuid"
```

```
https://twiki.cern.ch/twiki/bin/view/LCG/Site-info\_configuration\_variables#GLEEXEC\_wn
```


gLExec exit codes

- Upon Success
 - The exit code of gLExec will simply be the return value of the command that was executed.
- On Error
 - 201 - client error, which includes:
 - no proxy is provided
 - the binary to execute does not exist
 - 202 - system error
 - glEXEC.conf is malformed
 - lcas or lcmaps initialization failure
 - 203 - authorization error
 - user is not whitelisted
 - local lcas authorization failure
 - proxy expired
 - 204 - exit code of the called application overlap with the previous ones
 - application called by glEXEC exit with code 201, 202, 203 or 204
 - 126 - Shell returns that the executable can't be executed
 - This error code is triggered when the given command is unable to be executed. This could be due to execution permissions problems, ACL problem, or other shell related reasons for not executing.
 - 128+n - Child exited due to signal n.

Questions?

- Helpful wiki:
 - <https://www.nikhef.nl/pub/projects/grid/gridwiki/index.php/GLExec>
 - <http://tinyurl.com/glexec>
 - <http://tinyurl.com/glexecyaim>
- email:
 - grid-mw-security-support@nikhef.nl