RGLite plug-in and gLitePROOF package

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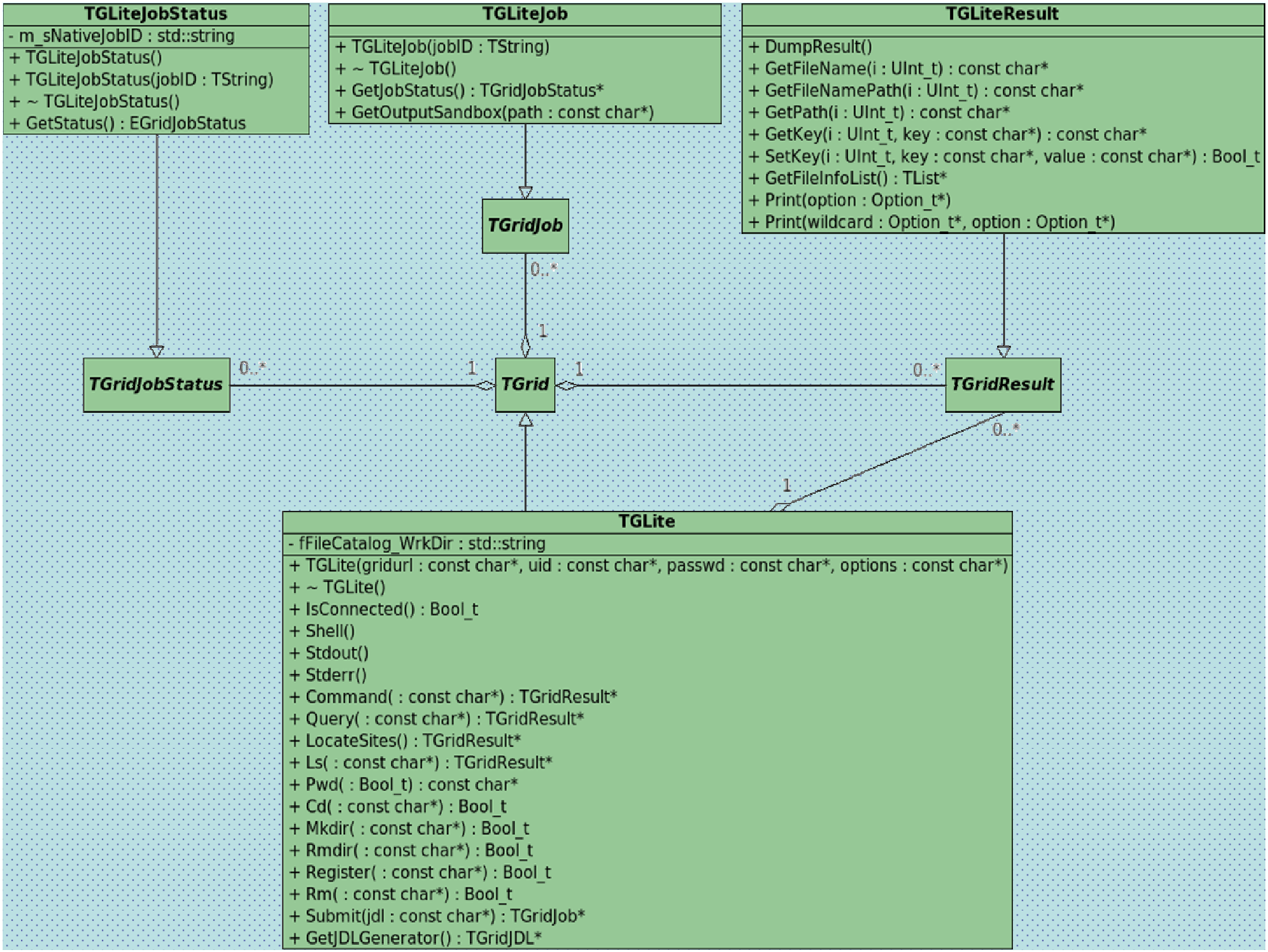
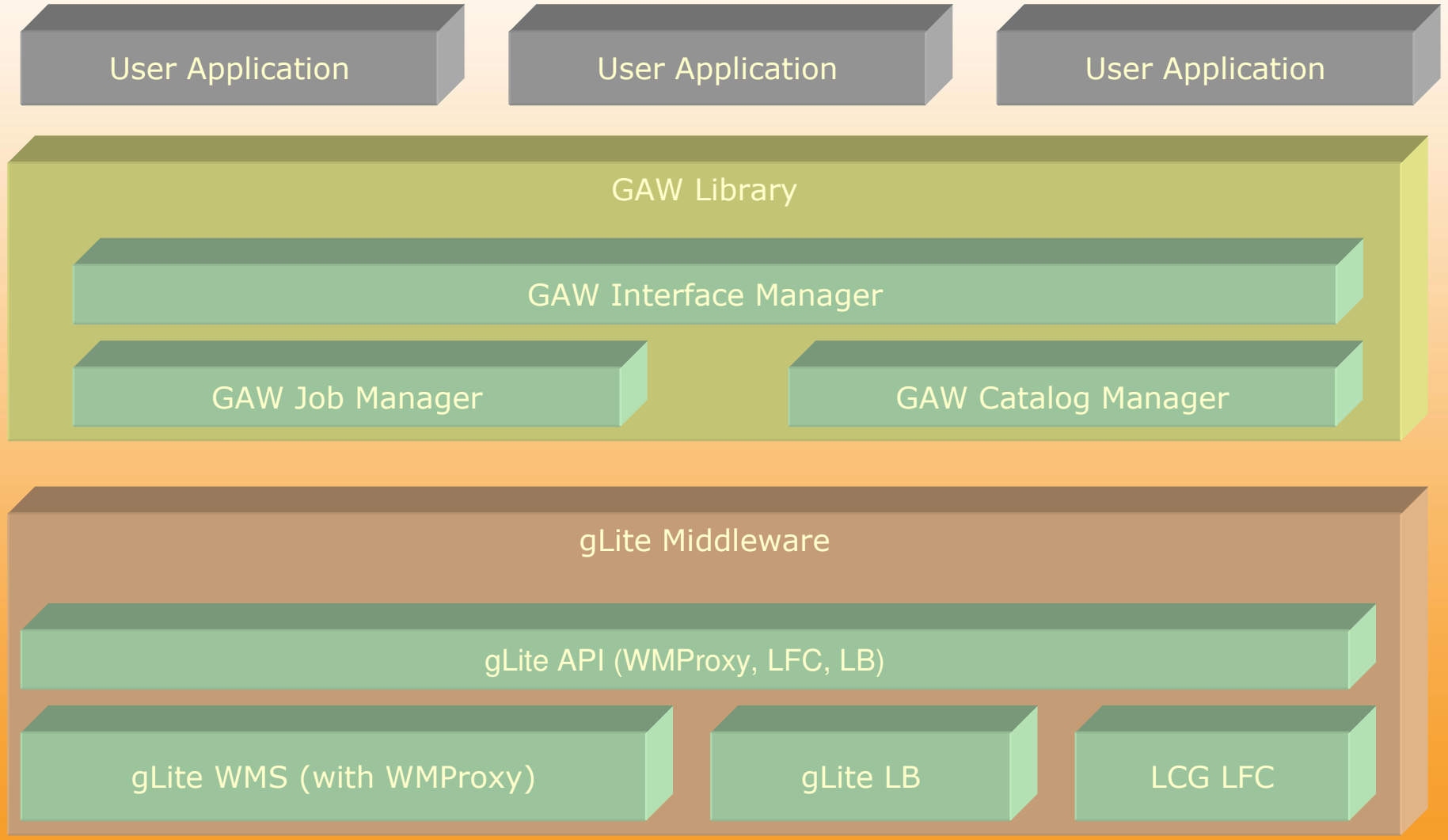
v. 0.5


TGLiteJobStatus
- m_sNativeJobID : std::string
+ TGLiteJobStatus()
+ TGLiteJobStatus(jobID : TString)
+ ~ TGLiteJobStatus()
+ GetStatus() : EGridJobStatus
TGLiteJob
+ TGLiteJob(jobID : TString)
+ ~ TGLiteJob()
+ GetJobStatus() : TGridJobStatus*
+ GetOutputSandbox(path : const char*)
TGLiteResult
+ DumpResult()
+ GetFileName(i : UInt_t) : const char*
+ GetFileNamePath(i : UInt_t) : const char*
+ GetPath(i : UInt_t) : const char*
+ GetKey(i : UInt_t, key : const char*) : const char*
+ SetKey(i : UInt_t, key : const char*, value : const char*) : Bool_t
+ GetFileInfoList() : TList*
+ Print(option : Option_t*)
+ Print(wildcard : Option_t*, option : Option_t*)
TGridJob
0..*
1
TGridJobStatus
0..*
1
TGrid
1
0..*
TGridResult
0..*
1
TGLite
- fFileCatalog_WrkDir : std::string
+ TGLite(gridurl : const char*, uid : const char*, passwd : const char*, options : const char*)
+ ~ TGLite()
+ IsConnected() : Bool_t
+ Shell()
+ Stdout()
+ Stderr()
+ Command(: const char*) : TGridResult*
+ Query(: const char*) : TGridResult*
+ LocateSites() : TGridResult*
+ Ls(: const char*) : TGridResult*
+ Pwd(: Bool_t) : const char*
+ Cd(: const char*) : Bool_t
+ Mkdir(: const char*) : Bool_t
+ Rmdir(: const char*) : Bool_t
+ Register(: const char*) : Bool_t
+ Rm(: const char*) : Bool_t
+ Submit(jdl : const char*) : TGridJob*
+ GetJDLGenerator() : TGridJDL*

glite-api-wrapper



RGLite example

```
// Initializing RGLite plug-in
TGrid::Connect("glite");
// Submitting a Job to gLite Grid
TGridJob *job = gGrid->Submit("JDLs/proofd.jdl");
// querying a Status of the Job
TGridJobStatus *status = job->GetJobStatus();
status->GetStatus();
// Getting a Job's output back to the user
job->GetOutputSandbox("/home/anar/");
```

- Job submission,
- status querying,
- output retrieving.

```
// Initializing RGLite plug-in
TGrid::Connect("glite");
// Changing current File Catalog directory to "dteam"
gGrid->Cd("dteam");
// Querying a list of files of the current FC directory
TGridResult* result = gGrid->Ls();
// Printing the list out
Int_t i=0;
while (result->GetFileName(i))\
> printf("File %s\n",result->GetFileName(i++));
```

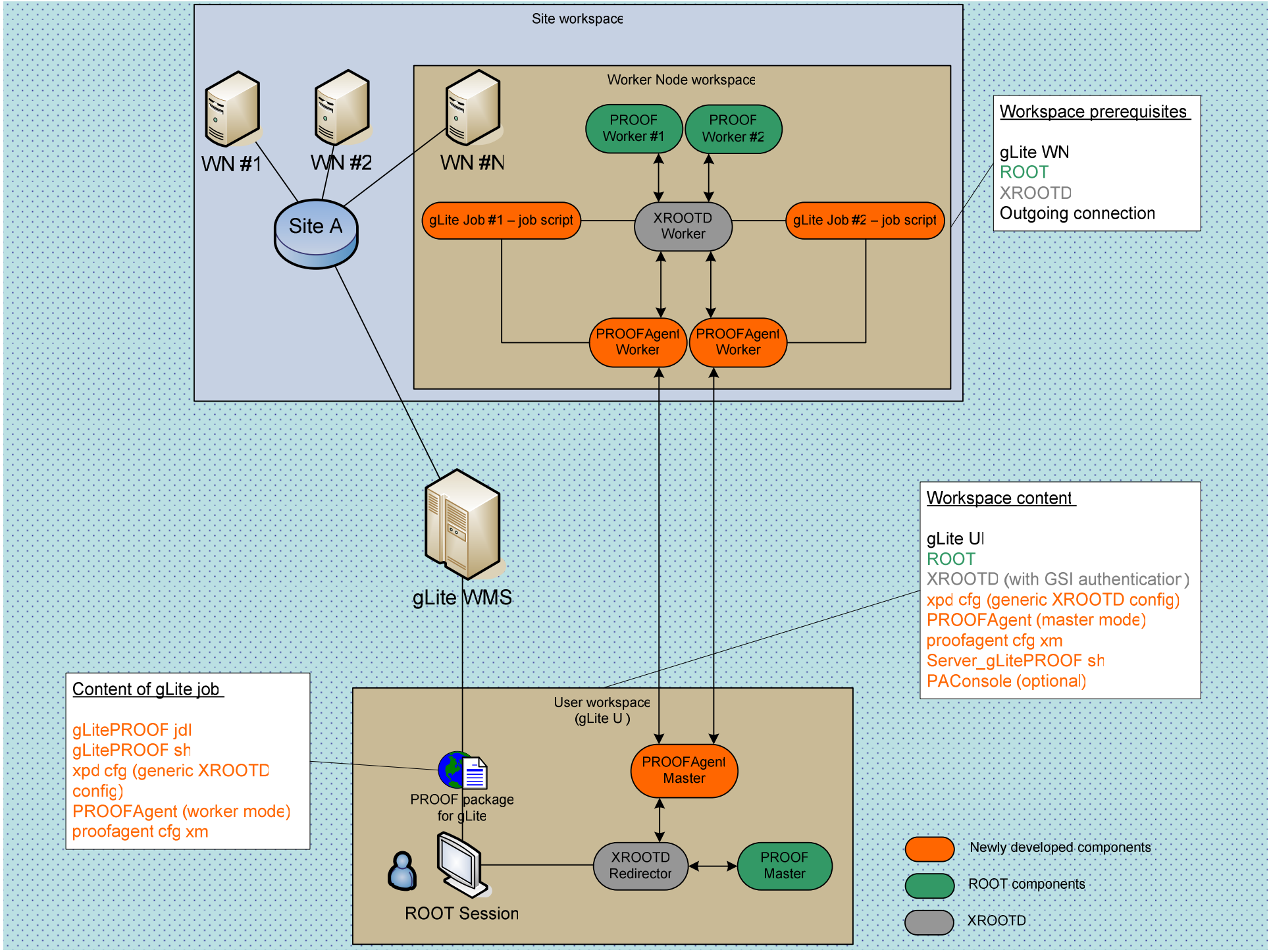
- Changing file catalog directory,
- querying lists of files.

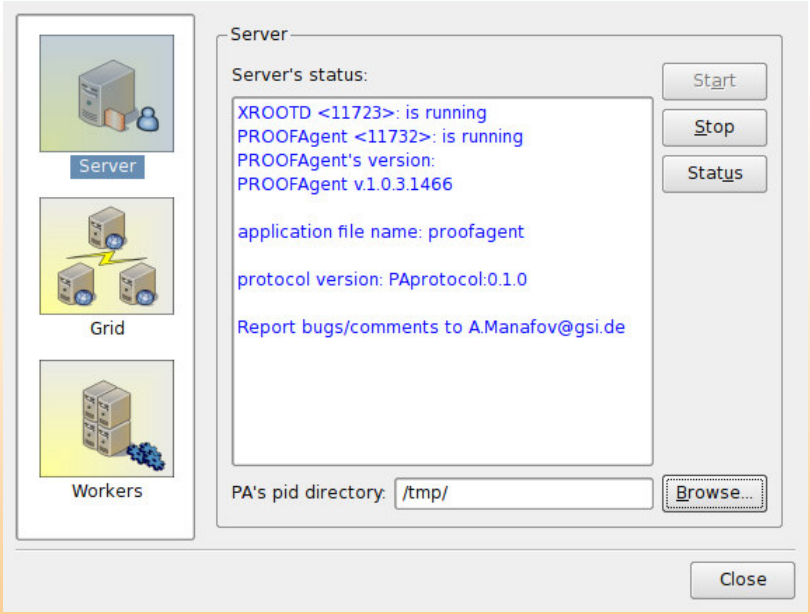
RGLite features

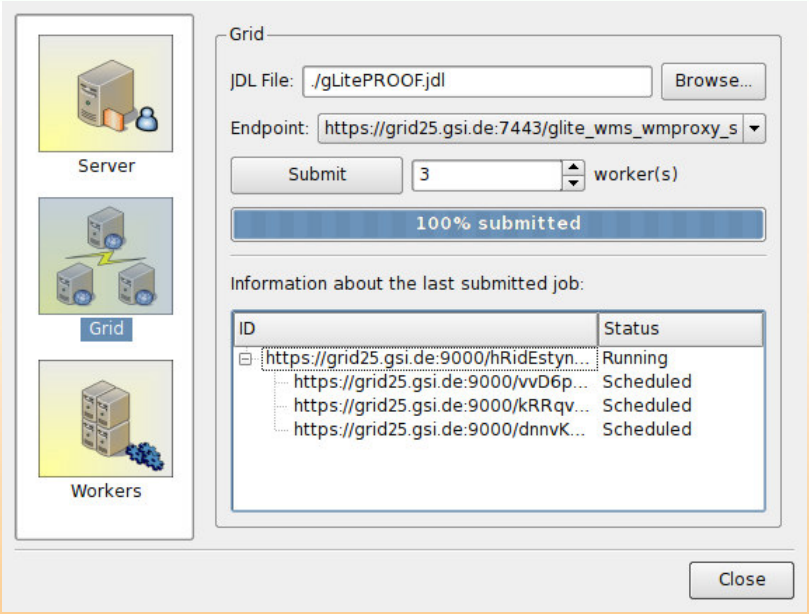
- Workload Management System operations:
  - job submission – normal, DAG and parametric jobs (gLite WMProxy API), NEW
  - smart look-up algorithm for WMP-Endpoints, NEW
  - job status querying (gLite LB API),
  - job output retrieving (Globus GridFTP).
- File Catalog operations (gLite/LCG LFC API):
  - smart session manager, NEW
  - set/query the current working catalog directory,
  - list files, directories and their stats,
  - add/remove files in a catalog namespace,
  - add/remove directories,
  - add/remove replicas from a given file.
- An executive logging.
- Support of an external xml configuration file.

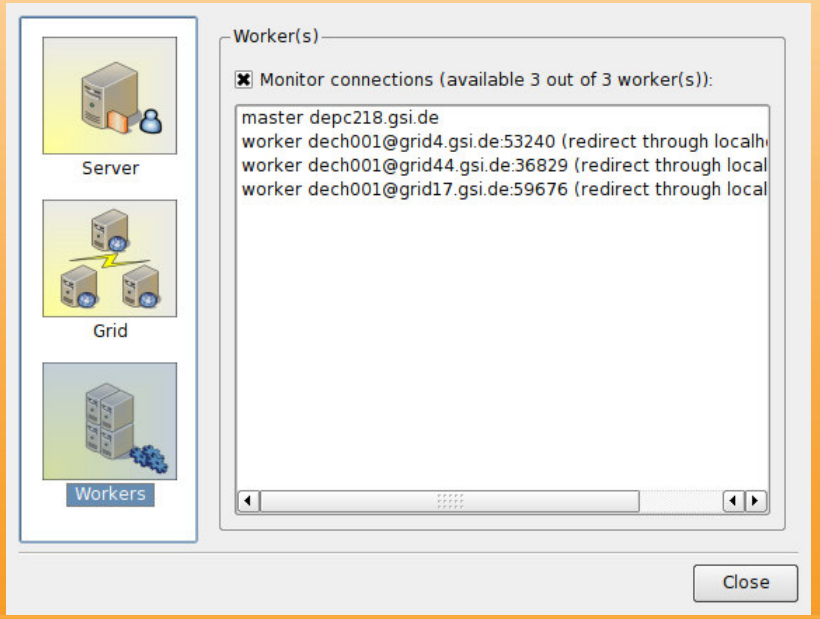
gLitePROOF – a gLite PROOF package.

It is a number of utilities and configuration files developed at GSI in terms of the D-Grid project and aims to implement a PROOF distributed data analysis on the gLite Grid.


Site workspace
Worker Node workspace
WN #1
WN #2
WN #N
Site A
PROOF Worker #1
PROOF Worker #2
gLite Job #1 – job script
XROOTD Worker
gLite Job #2 – job script
PROOFAgent Worker
PROOFAgent Worker
Workspace prerequisites
gLite WN
ROOT
XROOTD
Outgoing connection
gLite WMS
Workspace content
gLite UI
ROOT
XROOTD (with GSI authentication)
xpd.cfg (generic XROOTD config)
PROOFAgent (master mode)
proofagent.cfg.xm
Server_gLitePROOF.sh
PAConsole (optional)
Content of gLite job
gLitePROOF.jdl
gLitePROOF.sh
xpd.cfg (generic XROOTD config)
PROOFAgent (worker mode)
proofagent.cfg.xm
User workspace (gLite UI)
PROOFAgent Master
PROOF package for gLite
XROOTD Redirector
PROOF Master
ROOT Session
Newly developed components
ROOT components
XROOTD


Server
Grid
Workers
Server
Server's status:
XROOTD <11723>: is running
PROOFAgent <11732>: is running
PROOFAgent's version:
PROOFAgent v.1.0.3.1466
application file name: proofagent
protocol version: PAprotocol:0.1.0
Report bugs/comments to A.Manafov@gsi.de
Start
Stop
Status
PA's pid directory:
/tmp/
Browse...
Close


Server
Grid
Workers
Grid
JDL File:
./gLitePROOFjdl
Browse...
Endpoint:
https://grid25.gsi.de:7443/glite_wms_wmproxy_s
Submit
3
worker(s)
100% submitted
Information about the last submitted job:
ID
Status
https://grid25.gsi.de:9000/hRidEstyn...
Running
https://grid25.gsi.de:9000/vvD6p...
Scheduled
https://grid25.gsi.de:9000/kRRqv...
Scheduled
https://grid25.gsi.de:9000/dnnvK...
Scheduled
Close


Server
Grid
Workers
Worker(s)
Monitor connections (available 3 out of 3 worker(s)):
master depc218.gsi.de
worker dech001@grid4.gsi.de:53240 (redirect through localh
worker dech001@grid44.gsi.de:36829 (redirect through local
worker dech001@grid17.gsi.de:59676 (redirect through local
Close

gLitePROOF summary

- Requirements
  - Client-Side: gLite UI 3.1, ROOT 5.17+,
  - Remote-Side: WMP Endpoint, open out. traffic (Globus ports on WNs).
- Easy in use
  - user friendly GUI,
  - works out of the box.
- Easy to extend
- Combines resources of the Grid and advantages of PROOF
  - transparency (local ROOT analysis <-> PROOF <-> gLitePROOF),
  - scalability (The basic architecture should not put any implicit limitations on the number of workers).
- Works on heterogeneous machines (gLite WNs)
- Uses xrootd and Grid methods to access data

Summary

- RGLite
  - TGridXXX interface are implemented in RGLite for gLite MW.
  - NEW ROOT team accepted our suggestions to TGridXXX interface.
  - NEW uses WMP job submission.
  - NEW is compatible with gLite UI 3.1.
  - NEW is ready to be integrated into ROOT distributive (Jan 2008).
- gLitePROOF package
  - NEW Alpha release (tested against FZK and GSI WMSs).
  - Setups "on-the-fly" a PROOF cluster on gLite Grid.
  - NEW works with mixed type of gLite worker nods (x86_64, i686...).
  - NEW supports reconnections.
  - NEW provides GUI.
- Use of Agile methods of software development:
  - Continues integration (automated builds on SLC3, SL4, and F8, nightly builds).
  - Unit tests.
  - Projects metrics.
  - Task tickets and sprints…

Trac: https://subversion.gsi.de/trac/dgrid

Wiki: http://wiki.gsi.de/cgi-bin/view/Grid/RGLiteAndGAW

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