Anar Manafov, GSI,
HEPCG Workshop,
Jun 2007

A Design Proposal for Interactive Data Analysis on the Grid

"Road map"

- Introduction
- Design of "PROOF on gLite"
- Live demo
- Summary
- Future plans

Introduction

Tools for ROOT based data analysis

- Self-made solutions for local cluster
- Self-made solutions for Grid

PROOF:

- Preinstalled PROOF clusters (local/remote)
- Self-made PROOF job submission
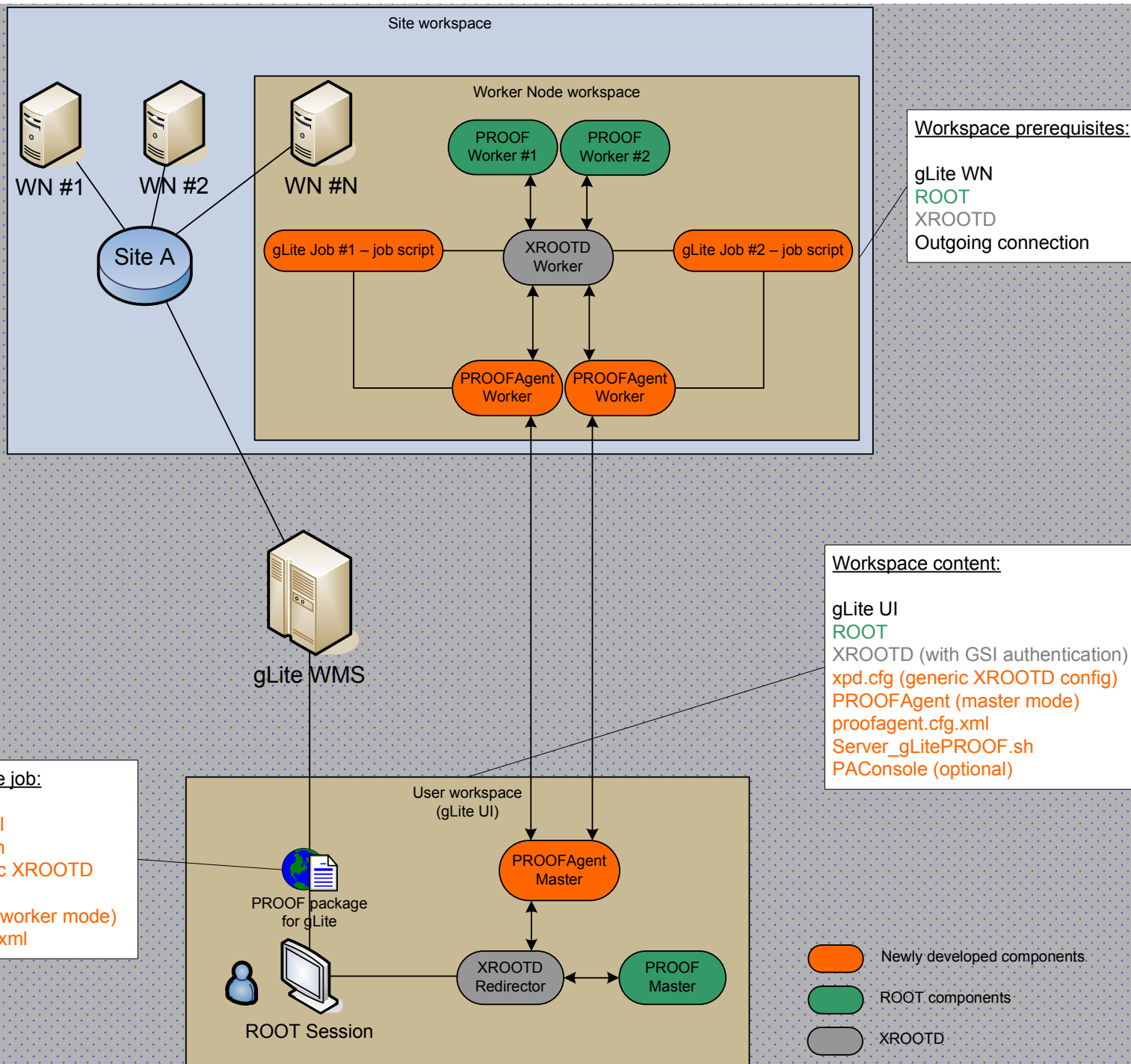- Get an ALICE VO membership and use AliEn+PROOF

RGLite

```
// 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
TGLiteJob* job_glite(job);
job_glite->GetJobOutput("/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, including full file information
result->Print("all");
```

List full file information of a catalog folder

Site workspace

Worker Node workspace

PROOF Worker #1
PROOF Worker #2

WN #1
WN #2
WN #N

Site A

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.xml
Server_gLitePROOF.sh
PAConsole (optional)

Content of gLite job:

gLitePROOF.jdl
gLitePROOF.sh
xpd.cfg (generic XROOTD config)
PROOFAgent (worker mode)
proofagent.cfg.xml

User workspace
(gLite UI)

PROOF package for gLite

PROOFAgent Master

ROOT Session

XROOTD Redirector
PROOF Master

Newly developed components

ROOT components

XROOTD

LIVE DEMO

Summary

- RGLite is ready.
  - ROOT team accepted our suggestions in order to improve TGridXXX.
- A PROOF job submission on gLite MW is ready.
- Using Agile methods of software development.
  - Continues integration,
  - automated build system (tests on SLC3 and FC6),
  - nightly release,
  - projects metrics,
  - task tickets and sprints…

  see it all here: http://wiki.gsi.de/cgi-bin/view/Grid/RGLiteAndGAW

Future plans

- Implement an ability to keep PROOF connection alive after quitting ROOT session.

- Implement a schema with "sub-redirector".

- Implement WMProxy job submission in glite-api-wrapper.

- We need gLite resources in HEPCG VO to test on...