

HEPCG Work Package 3

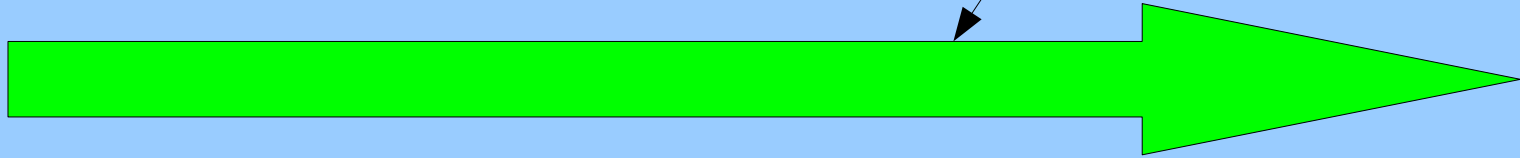
Interactive Analysis

Status and Plans

Kilian Schwarz
GSI Darmstadt

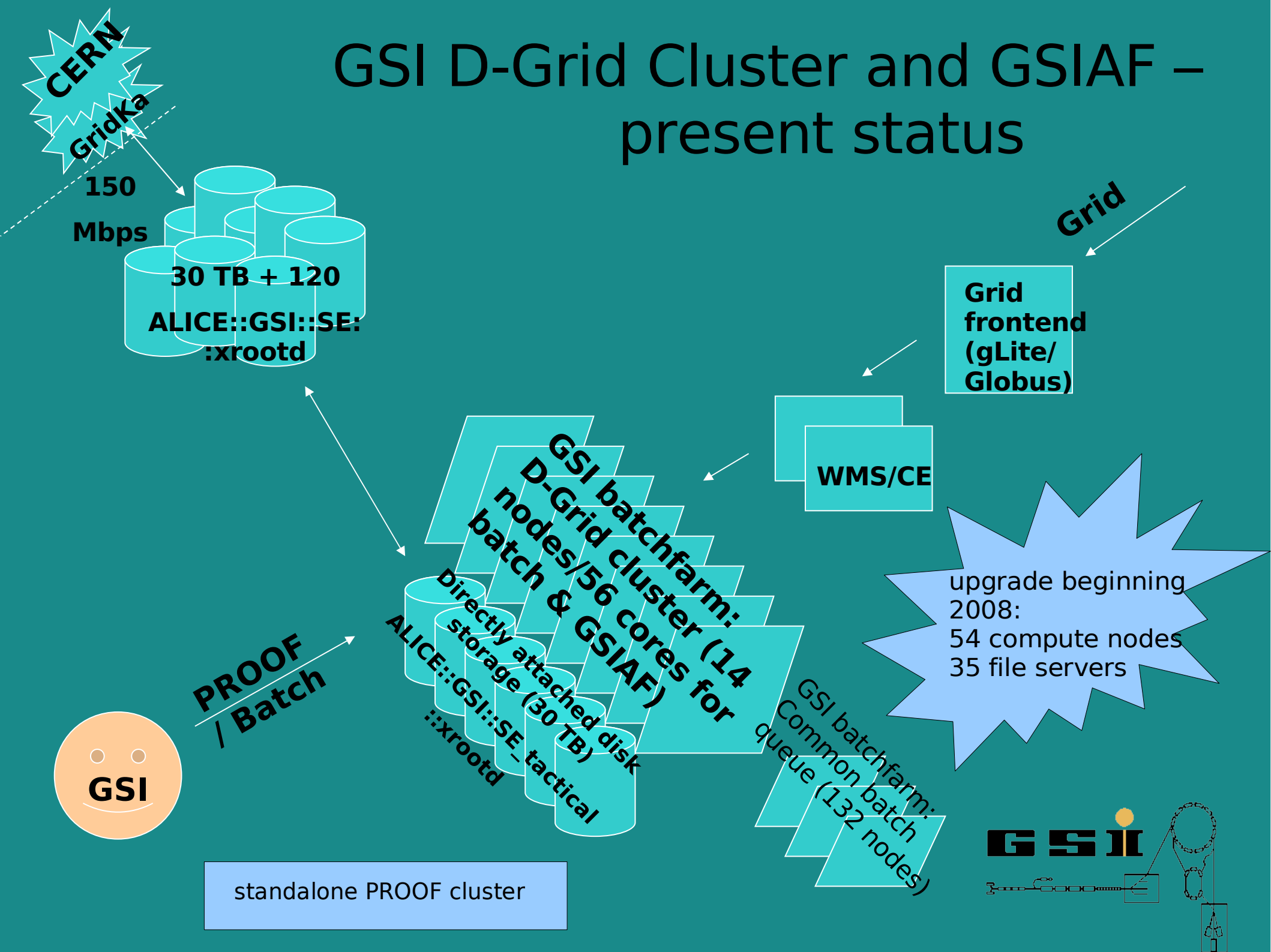
Milestones

12/07: PM 27

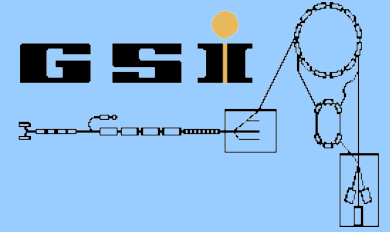


- Interactive Analysis
 - lokales PROOF Cluster (PM18)
 - PROOF auf dem Grid (PM24)
 - GUI (PM36)
 - Tests in user community (PM36)
 - Meilenstein 3.4.1 (dynamische Generierung von PROOF Clustern (PM24)
- Application Oriented Scheduling
 - Test der Jobumgebung (PM24)
 - Logging des Ressourcenverbrauchs bei Auswahl der Ereignisse (Event Listing) (PM24)
 - Logging des Ressourcenverbrauchs bei Analyse (PM24)
 - Simulation des Ressourcenverbrauchs (PM30)
 - Log Interface (PM30)
 - Meilenstein 3.2.1 - Prototyp (PM24)
- Automatischer Jobmanager
 - Basisfunktionalität (LMU)
 - Tests (LMU)
 - Meilenstein 3.3.1 – Prototyp (LMU)

GSI D-Grid Cluster and GSIAF – present status



Present Status



- Batch Farm/GSIAF and ALICE::GSI::SE_tactical::xrootd nodes dedicated to ALICE:
- 15 D-Grid funded boxes: each
 - 2*2core 2.67 GHz Xeon, 8 GB RAM
 - 2.1 TB local disk space on 3 disks + system disk
- on all machines: Debian Etch 64bit

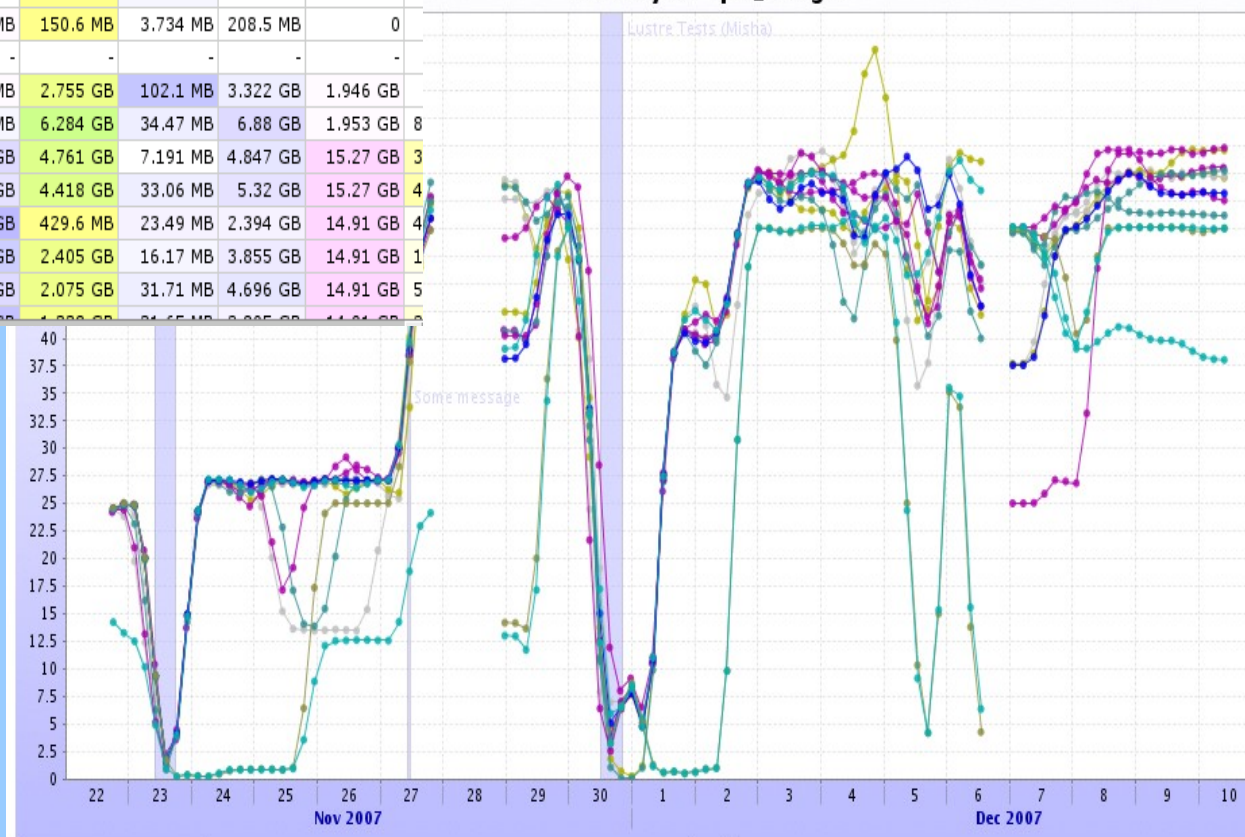
Farm Monitoring (MonaLisa)

GSIAF Cluster

Machines status

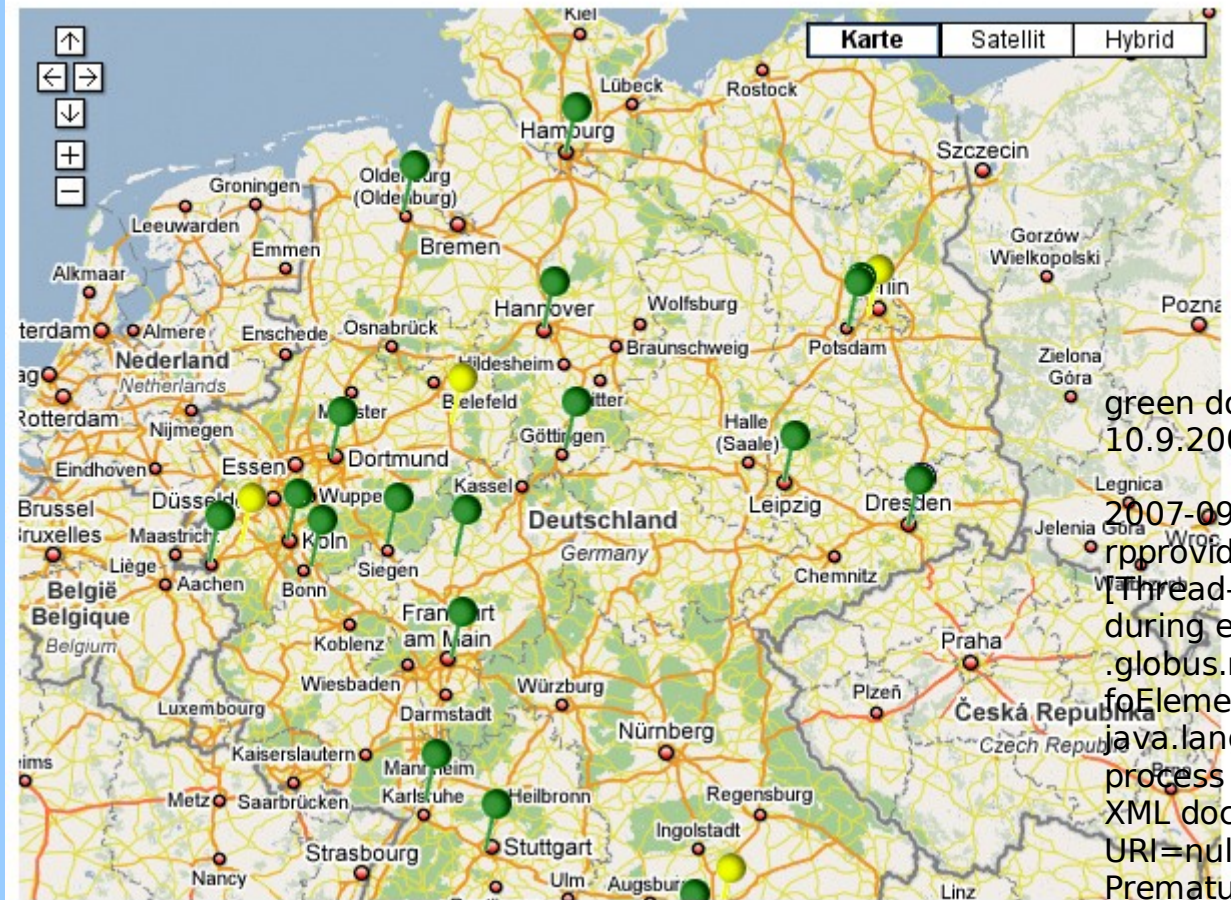
Machine	Machine status		CPU					Memory					Total
	Online	Ping	load	usr	sys	nice	idle	Total	Used	Cached	Buffers	Free	
grid1.gsi.de	Online	0.024ms	0.15	1.51	0.809	0	97.68	4 GB	1.332 GB	956 MB	28.49 MB	2.668 GB	0
grid13.gsi.de	Online	0.371ms	1.24	25.08	27.85	0	47.07	1.194 GB	150.1 MB	592.9 MB	9.875 MB	1.048 GB	0
grid19.gsi.de	Online	0.343ms	0.01	0.35	0.033	0	99.62	1 GB	409.9 MB	563.5 MB	29.99 MB	614.3 MB	0
grid29.gsi.de	Offline	-	-	-	-	-	-	-	-	-	-	-	-
grid32.gsi.de	Online	0.317ms	0	1.05	0.3	0	98.65	4 GB	184 MB	396.6 MB	12.27 MB	3.82 GB	0
grid5.gsi.de	Online	0.911ms	0.19	4.172	1.055	0	94.77	1 GB	403.1 MB	598 MB	14.86 MB	621.1 MB	0
grid8.gsi.de	Online	0.224ms	0.46	10.51	2.218	0	87.27	756.2 MB	547.7 MB	150.6 MB	3.734 MB	208.5 MB	0
gsiaf.gsi.de	Offline	-	-	-	-	-	-	-	-	-	-	-	-
lcb06.gsi.de	Online	0.189ms	0.44	5.402	3.295	0	91.3	3.911 GB	603.3 MB	2.755 GB	102.1 MB	3.322 GB	1.946 GB
lxb255.gsi.de	Online	0.211ms	0	0.008	0.025	0	99.97	7.801 GB	942.8 MB	6.284 GB	34.47 MB	6.88 GB	1.953 GB
lxb256.gsi.de	Online	0.245ms	3.08	31.63	0.234	0	68.13	7.801 GB	2.954 GB	4.761 GB	7.191 MB	4.847 GB	15.27 GB
lxb257.gsi.de	Online	0.181ms	1.17	10.63	0.312	0	89.06	7.801 GB	2.481 GB	4.418 GB	33.06 MB	5.32 GB	15.27 GB
lxb258.gsi.de	Online	0.228ms	6.72	52.19	7.058	0	40.76	7.801 GB	5.407 GB	429.6 MB	23.49 MB	2.394 GB	14.91 GB
lxb259.gsi.de	Online	0.244ms	3.72	42.43	1.726	0	55.85	7.801 GB	3.946 GB	2.405 GB	16.17 MB	3.855 GB	14.91 GB
lxb260.gsi.de	Online	0.324ms	3.8	43.04	2.298	0	54.66	7.801 GB	3.105 GB	2.075 GB	31.71 MB	4.696 GB	14.91 GB

History of cpu_usage



D-Grid Ressources

Dynamisch erstellte Karte von Ressourcenanbietern / Wartungszustand



green dot Script was not compatible to Globus 4.0.5
10.9.2007:

```
2007-09-10 17:08:08,243 ERROR  
rpprovider.ResourcePropertyProviderTask  
[Thread-11,timerExpired:159] Unhandled exception  
during execution of org  
.globus.mds.usefulrp.rpprovider.producers.SchedulerIn  
foElementProducer :  
java.lang.Exception: Exception while parsing child  
process stdout into valid  
XML document: org.xml.sax.SAXException: Fatal Error:  
URI=null Line=-1:  
Premature end of file. 2007-09-10 17:08:08,248 WARN  
rpprovider.ResourcePropertyProviderTask [Thread-  
11,timerExpired:164] Timer  
event canceled due to unhandled exception during  
execution of org  
.globus.mds.usefulrp.rpprovider.producers.SchedulerIn  
foElementProducer
```

GSI AF usage experience

- real life analysis work of staged data by GSI ALICE group (1-4 concurrent users)
- 2 user tutorials for GSI ALICE users (10 students each training)
- GSI AF and CAF were used as PROOF clusters during PROOF course at GridKa School 2007
-
- ==> continuous improvement through user requests and debugging

GridKa School 2007

GridKa School 2007 - Agenda - Microsoft Internet Explorer

Datei Bearbeiten Ansicht Favoriten Extras ?

Zurück Suchen Favoriten

Adresse <http://gks07.fzk.de/Agenda.html> Wechseln zu Links

	room number 157	Introduction to the Simple API for grid applications SAGA Tutorial	room: Aula
		room number 162	
20:00	<i>"Kneipenabend"</i>		

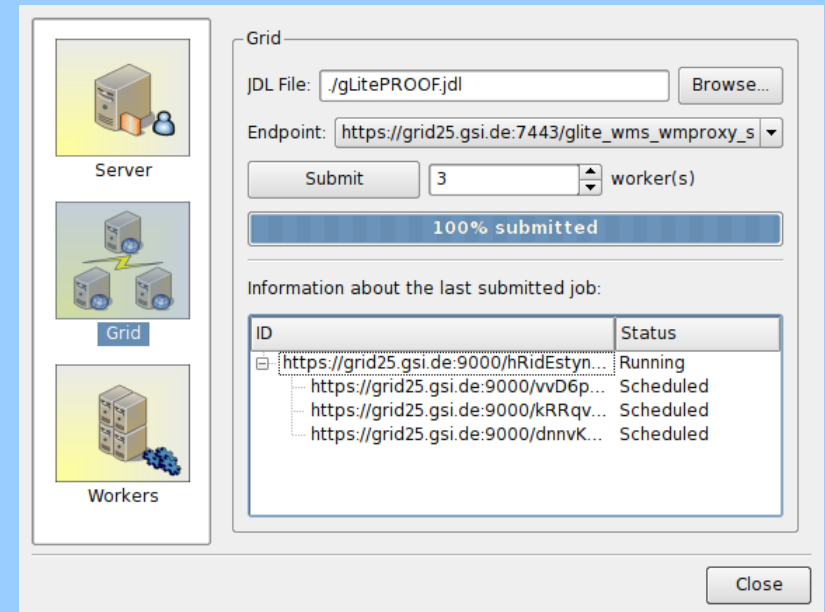
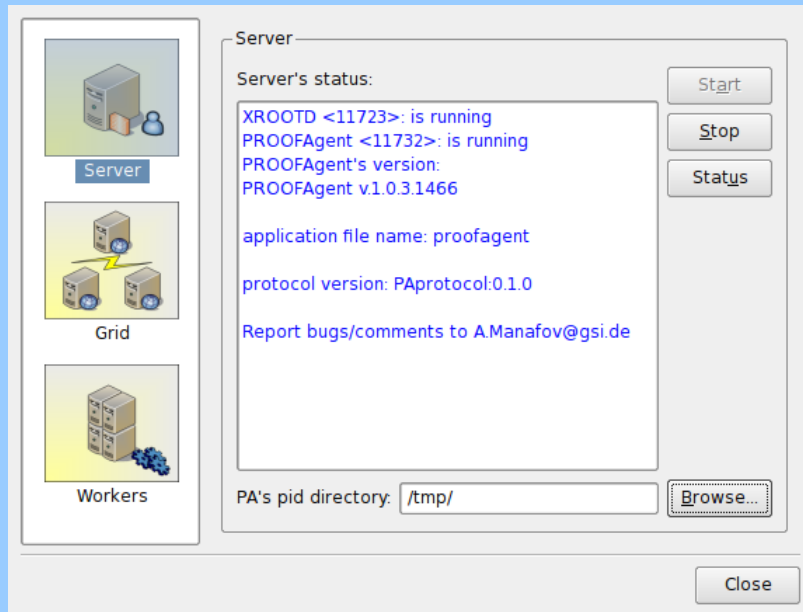
Thursday, September 13

9:00-9:45	Grid Access Manager (U. Biewer, IBM) abstract		
9:45-10:30	Research and Education on Microsoft HPC (Dr. Ingo Dahm, Microsoft) A Live Demonstration with Wolfram gridMathematica (Maryam Karbalai, Additive GmbH) MatLabMMA.zip abstract		
10:30-11:00	<i>Break</i>		
11:00-11:30	Grid Applications in D-Grid (W. Gentzsch, D-Grid) abstract		
11:30-12:00	Grid Business Models (J. Altmann, IU Bruchsal) abstract		
12:00-12:30	dCache (O. Synge, DESY) abstract		
12:30-14:00	<i>Break</i>		
14:00-19:00	Unicore course (R. Breu, FZ Juelich, and team) abstract room: Aula	dCache course (O. Synge, DESY, and team) abstract Installing dCache with dCache Yaim dCache Clients room number 157	PROOF (J.F. Grosse-Oetringshaus and Andreas Joachim Peters, CERN) abstract info tar-ball RGLite demo (Anar Manafov, GSI) abstract room number 162
20:00	<i>School dinner</i>		

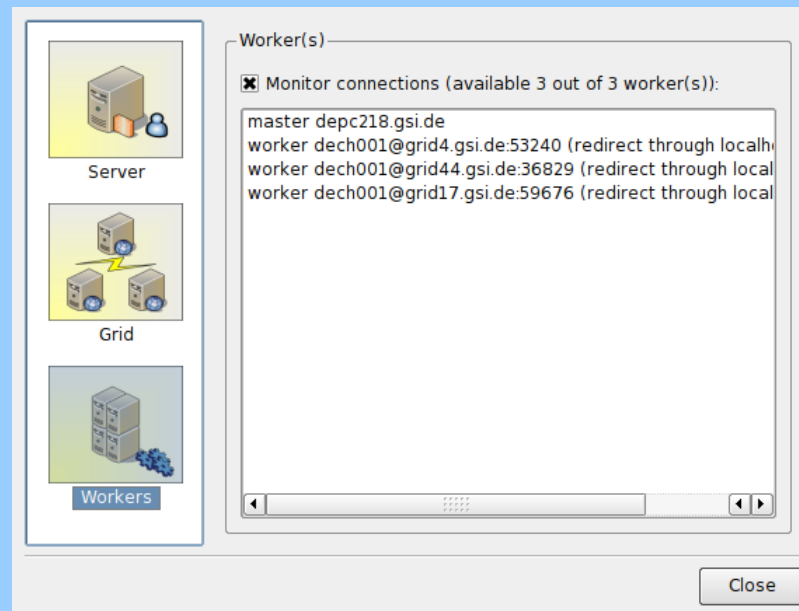
Internet

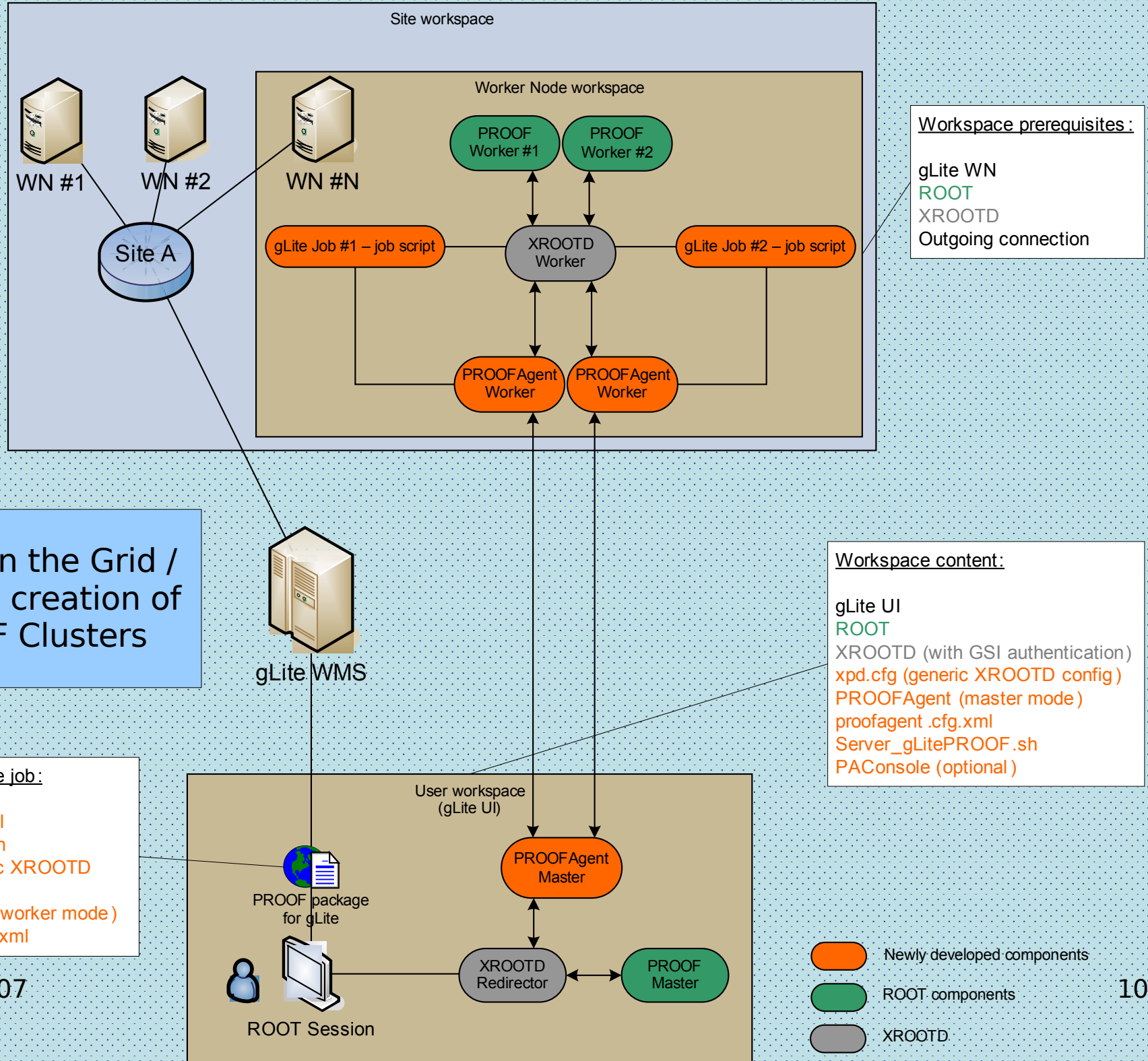
Start Internet ... Microsoft Po... X-Win32-Kon... X-Win32 ... Rechner DE 12:59

PROOF on the Grid (GUI)



and ROOT gLite
interface





13-Dec-2007

application oriented scheduling

TEntryListFromFile - 0

- A utility class managing **TEntryLists** from different files.
Use case: the user has entry lists for the trees of the chain, stored in separate files. We don't want to load all of them in memory at the same time.
- This class is called by

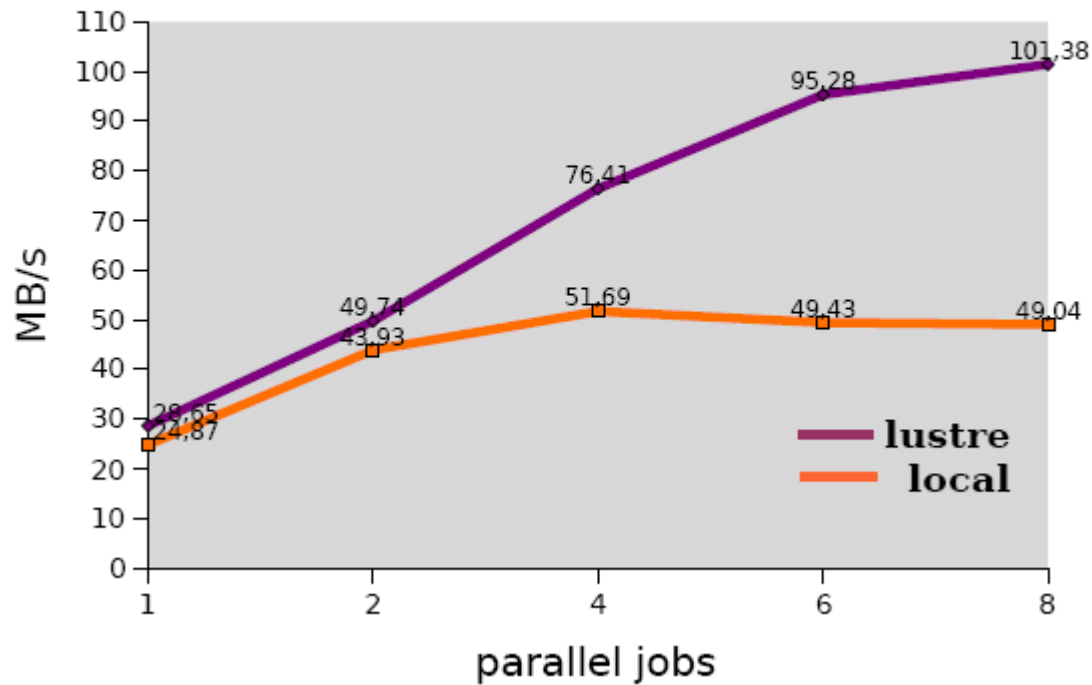
```
TChain::SetEntryListFile(const char *filename, Option_t *opt)
```

- It finds the entry list files, corresponding to **TChainElements**, and only loads a file in memory, when an entry from this **TEntryList** is requested (by **TChain::GetEntryNumber()**)
- If there is an error opening an entry list file, the tree, corresponding to this list, is not processed.

ROOT Workshop 2007 11

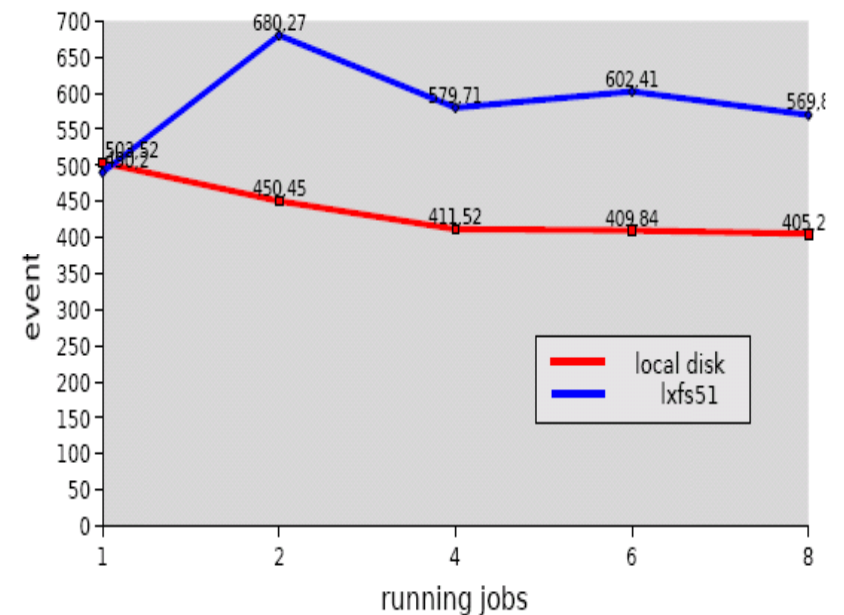
optimised PROOF I/O

Parallel Jobs Reading
from Local Disk / from Lustre Cluster



ROOT Files 1.2 GB

speed for parallel jobs (simple task) at lxb281



13-Dec-2007

AliESDs: 3.5 MB

Identifying differences between local ROOT and PROOF jobs. Simplifying debugging and resource monitoring

PROOF Processing Logs: localhost

```
// ----- Start of element log -----  
// Ordinal: 0.0 (role: worker)  
// Path: Anna@localhost:1093//tmp/proof/Anna/session-denbp035-1197467813-14327/worker-0.0-denbp035-1197467813-14327  
// # of retrieved lines: 2  
// -----  
14:56:57 14336 Wrk-0.0 | Error in <TTree::SetBranchAddr>: The pointer type given "Short_t" (2)  
14:56:57 14336 Wrk-0.0 | Error in <TTree::SetBranchAddr>: The pointer type given "Short_t" (2)  
// ----- End of element log -----
```

Choose workers: all master 0.0 Lines: from -10 to 0 Grep for: Error Display

VERSION 5.17.07 5 DECEMBER 2007
* You are welcome to visit our Web site *
* http://root.cern.ch *

ROOT 5.17/07 (branches/dev/proof@21318, Dec 12 2007, 14:56:43 on linux)
CINT/ROOT C/C++ Interpreter version 5.16.27, Oct 25, 2007
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.
root [0] .L ~/script/prooftest2.C+
root [1] prooftest2()
Starting master: opening connection ...
Starting master: OK
Opening connections to workers: OK (2 workers)
Setting up worker servers: OK (2 workers)
PROOF set to parallel mode (2 workers)

PROOF Query Progress: Anna@localhost

Executing on PROOF cluster "localhost" with 2 parallel workers:
Selector: Analyzer.C
2 files, number of events 20, starting event 0

Initialization time: 0.5 secs
Processed: 20 events (0.00 MBs) in 0.4 sec
Processing rate: 47.4 evts/sec (0.0 MBs/sec)

☐ Close dialog when processing is complete

Max. memory usage Memory Plot

Stop Cancel Close Show Logs Rate plot

Memory monitoring

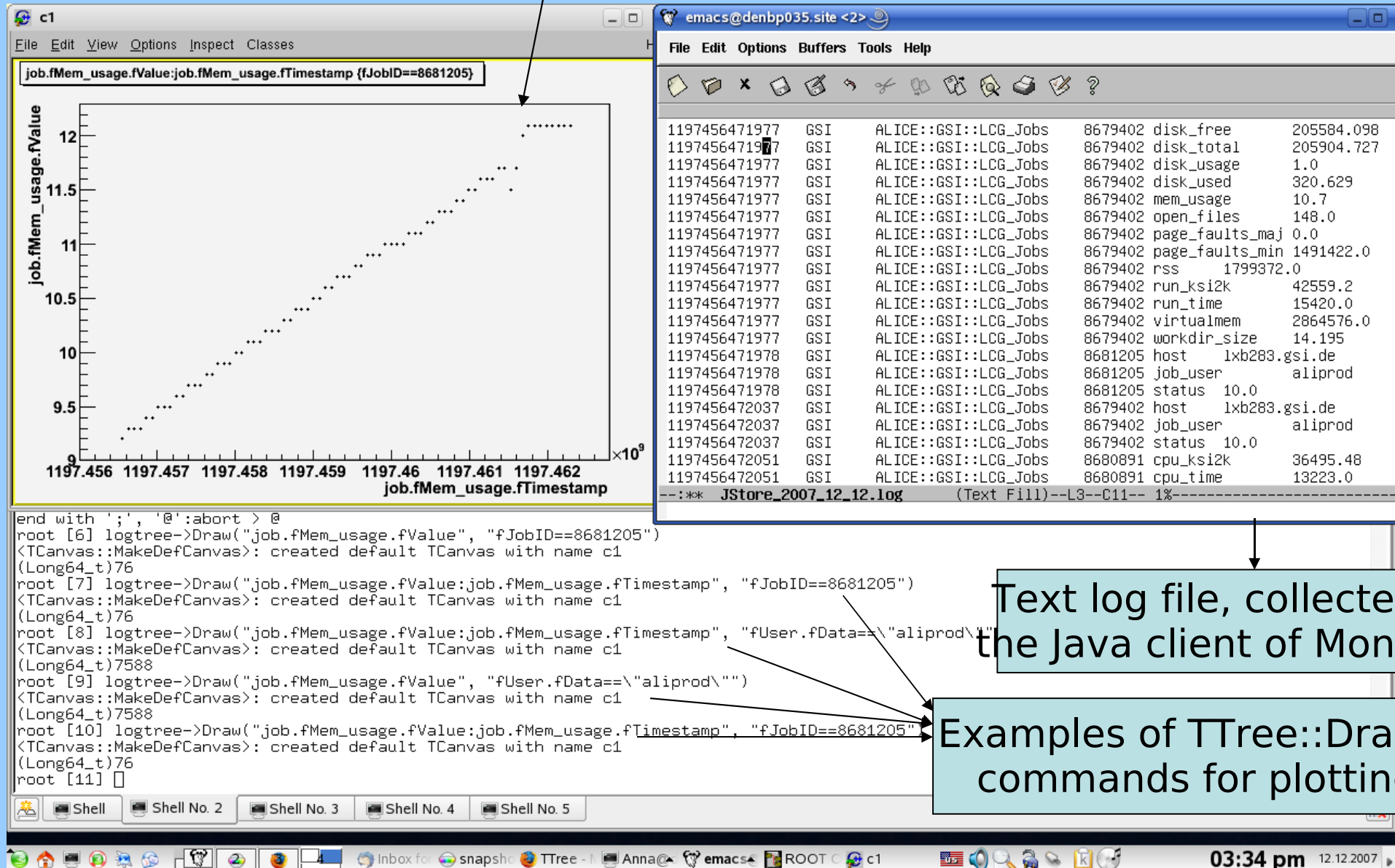
Remote Grep in logs

Simple GUI for log handling

03:00 pm 12.12.2007

Memory consumption against time for a given job

additional job information via ALICE MonaLisa repository. Output is stored in ROOT trees which can be browsed offline



outview

- distribute RGLite via ROOT
- more discussion and testing with community concerning usage and setup of local and distributed PROOF clusters
- implementation of new features after user feedback up to Release version
- proceed with PROOF log and debug interface until Release version will be published