

Layout

- Ganga general intro
- Ganga hands on - basic
- SuperB Ganga plugin
- Hands on procedure – SuperB case
- Please post feedbacks to:
 - superb-ganga@lists.infn.it

Thanks to Jakub T. Moscicki (KUBA)
for borrowed slides

- **Users want:**
 - Development on the laptop; full analysis on “The Grid™”.
 - To get results **quickly**, utilizing all of the resources available, wherever they are.
 - A familiar and **consistent user interface** to all of the resources.
- **Users don't want:**
 - To know the **details** of the grids or the resources.
 - To learn **yet another tool** in order to access some resources
 - To have to **reconfigure** their application to run on different resources.



“configure once, run anywhere”



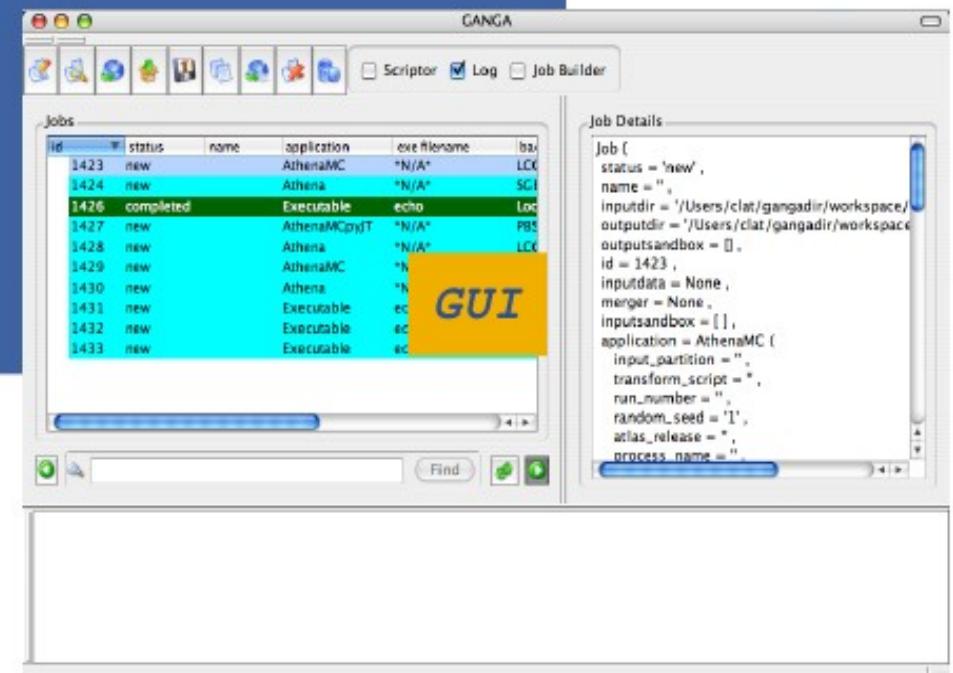
Ganga Overview

- **Ganga is a user-friendly job management tool.**
 - Jobs can run locally or on a number of batch systems and grids.
 - Easily monitor the status of jobs running everywhere.
 - To change where the jobs run, change one option and resubmit.
- **Ganga is the main distributed analysis tool for LHCb and ATLAS.**
 - Experiment-specific plugins are included.
- **Ganga is an open source community-driven project:**
 - Core development is joint between LHCb and ATLAS
 - Modular architecture makes it extensible by anyone
 - Mature and stable, with an organized development process

```
*** Welcome to Ganga ***
Version: Ganga-4-2-8
Documentation and support: http://cern.ch/ganga
Type help() or help('index') for online help.
```

```
In [1]: jobs
Out[1]: Statistics: 1 jobs
-----
#   id      status      name      subjobs      application
#           backend.actualCE
#   1 completed
compute.hpc.unimelb.edu.au:2119/jobmanage
```

CLIP

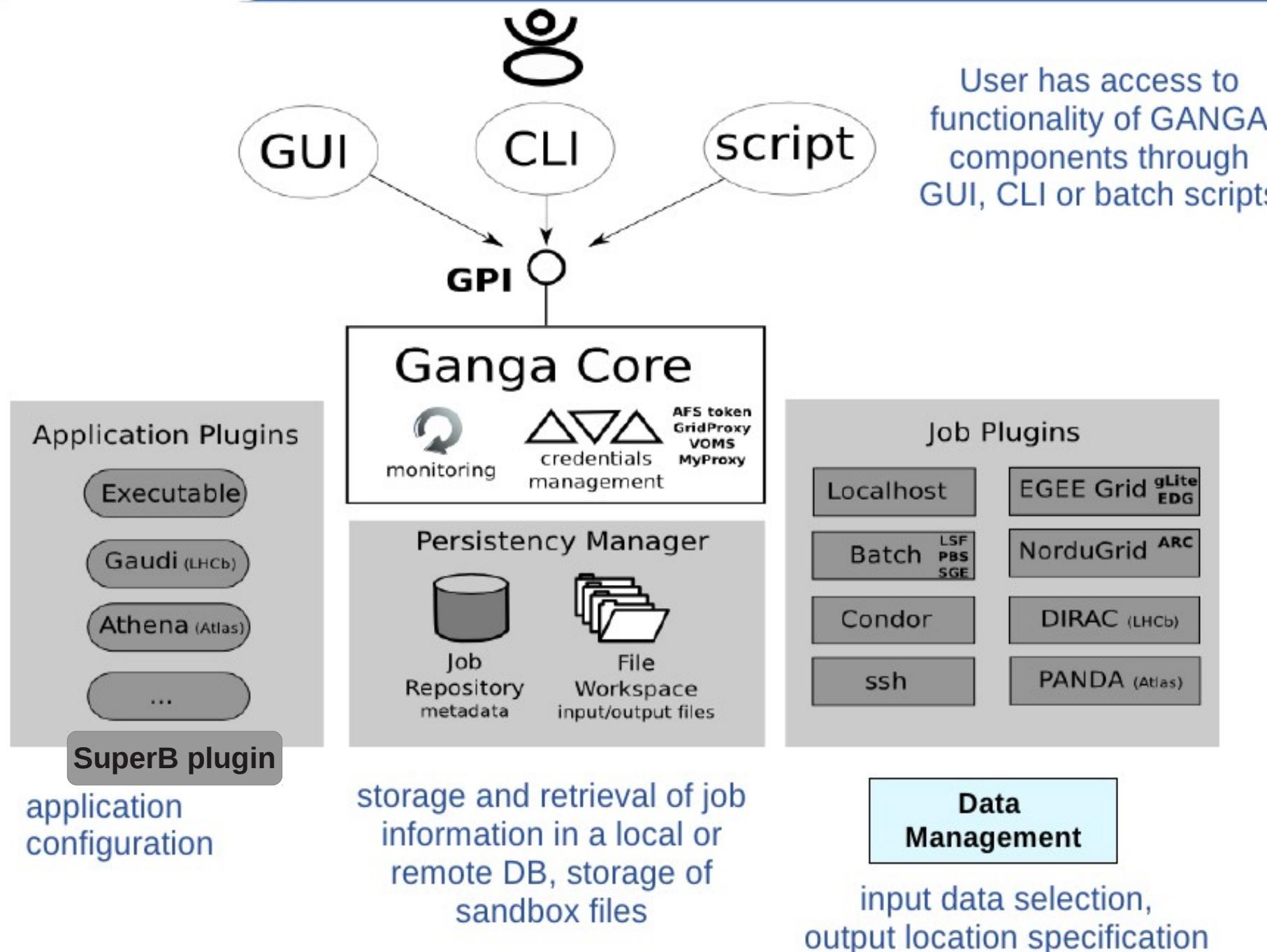


```
#!/usr/bin/env ganga
#-*-python-*-
import time
j = Job()
j.backend = LCG()
j.submit()
while not j.status in ['completed', 'failed']:
    print('job still running')
    time.sleep(30)
```



```
./myjob.exec
ganga ./myjob.exec
In [1]:execfile("myjob.exec")
```

GPI & Scripting



GANGA web monitor

⌚ Ganga Task Monitor: <http://gangamon.cern.ch/ganga/>

USER vettorello
REFRESH Disabled

TIME RANGE
FROM [] TILL [] TIME RANGE Last Month

Users List > vettorello > Jobs

Data Charts

Search:

Time	User	Id	Subjobs	Status	Application	Backend	Execution Host	Name
2011-03-22 12:35:47	vettorello	100	2	submitted	Executable	LCG		
2011-03-22 12:34:26	vettorello	99	1	submitted	Executable	LCG		
2011-03-22 10:46:45	vettorello	96		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	
2011-03-22 10:39:18	vettorello	97	3	submitted	Executable	LCG		
2011-03-22 10:15:16	vettorello	95		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	
2011-03-19 16:57:58	vettorello	94	3	submitted	Executable	LCG		bulk
2011-03-19 16:44:57	vettorello	93	3	submitted	Executable	LCG		bulk
2011-03-19 16:31:15	vettorello	92	3	submitted	Executable	LCG		bulk
2011-03-05 10:59:50	vettorello	0	1	submitted	Executable	LCG		2010_Favaro - GRIF
2011-03-05 10:57:58	vettorello	0	1	submitted	Executable	LCG		2010_September_test - INFN-CAGLIARI
2011-03-04 18:55:44	vettorello	91		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	Template GRIF
2011-03-04 18:01:45	vettorello	90		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	Template GRIF
2011-02-28 16:46:06	vettorello	86		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	VICTORIA-LCG2-SL4
2011-02-28 15:52:13	vettorello	82		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	VICTORIA-LCG2
2011-02-26 12:36:13	vettorello	79		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN-PISA
2011-02-26 12:35:10	vettorello	78		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN-NAPOLI-ATLAS
2011-02-26 12:14:50	vettorello	76		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	UKI-LT2-QMUL
2011-02-26 12:09:43	vettorello	75		submitted	Executable	LCG	bbr-ui.cr.cnaf.infn.it	GRIF
2011-02-26 11:54:21	vettorello	67		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN PISA
2011-02-26 11:27:42	vettorello	73		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN-LNL-2
2011-02-26 11:02:50	vettorello	71		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN FERRARA
2011-02-26 10:56:47	vettorello	69		submitted	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN FERRARA
2011-02-26 10:32:31	vettorello	66		submitted	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN PISA
2011-02-26 10:12:28	vettorello	65		submitted	Executable	LCG	bbr-ui.cr.cnaf.infn.it	INFN PISA
2011-02-26 02:12:10	vettorello	59		finished	Executable	LCG	bbr-ui.cr.cnaf.infn.it	

Showing 1 to 25 of 143 entries

New Snapshot

First Previous Page 1 of 6 Next Last

Ganga hands on, basics

● Open the following wiki pages:

- http://mailman.fe.infn.it/superbwiki/index.php/Main_Page
 - Ganga_setup_for_SuperB (hands on guide)

● Grid resource access prerequisite:

- be a member of VO superbvo.org

● Starting step:

- Login to CNAF User Interface: bbr-ui.cr.cnaf.infn.it
- Create the following alias
 - **alias
ganga="/opt/exp_software/superb/ganga/bin/ganga_wrap.sh"**
- Obtain a proxy
 - **voms-proxy-init -valid=24:00 --voms superbvo.org**

Step 1: Your first Ganga job arbitrary shell script interactive

- In [1]: !emacs -nw myscript.sh

```
#!/bin/sh
echo "Hello ${1} !"
echo $HOSTNAME
cat /proc/cpuinfo | grep 'model name'
cat /proc/meminfo | grep 'MemTotal'
echo "Run on `date`"
```

- In [2]: !chmod +x myscript.sh
- In [2]: j = Job()
- In [3]: j.application = Executable()
- In [4]: j.application.exe = File('myscript.sh')
- In [5]: j.application.args = 'Helsinki'
- In [6]: j.backend = Interactive()
- In [7]: j.submit()
- In [8]: jobs

Step 2: Your first Ganga job arbitrary shell script running local

- In [9]: `j = j.copy()`
- In [10]: `j.backend = Local()`
- In [11]: `j.application.args = 'Budapest'`
- In [12]: `j.submit()`

- In [13]: `jobs`

- In [14]: `j.peek()`
- In [15]: `cat $j.outputdir/stdout`

Step 3: Your first Ganga job arbitrary shell script on Grid

- In [15]: `j = j.copy()`
- In [16]: `j.backend = LCG()`
- In [17]: `j.application.args = ['Somewhere in the world...']`
- In [18]: `j.submit()`

- In [19]: `j`

- In [20]: `cat $j.backend.loginfo(verbose=1)`

- In [21]: `jobs`

SuperB Ganga plugin I

- Use case driven procedure

id	work_session_type
0	FastSim Production Analysis
1	FullSim Production Analysis
2	Personal Production (Fast or Full)
3	Personal Analysis

- Fast/Full simulation ntuple reduction:

- **IN** dataset --> **OUT** dataset, bulk submission

- Personal simulation production:

- **IN** null --> **OUT** dataset, bulk submission

- Personal analysis:

- **IN** dataset --> **OUT** dataset and/or not structured files, bulk submission

SuperB Ganga plugin II

● Job Input data management: data driven model

- **Class SuperBDataset, the methods:**

- **addInputDataset()**: shows all datasets, asks user to choose one, and add it to the dataset list to be analyzed, the results can be filtered per production and/or per site if previously set.
- **delInputDataset()**: delete one dataset to the dataset list to be analyzed.
- **setProduction()**: set a production: so addInputDataset only shows the datasets of this production.
- **setRunSite()**: set a site where the job will be routed: so addInputDataset only shows the datasets residing on this site.
- **createJobInput()**: get the whole Ifns of the dataset list, divide according to the user's requests and the input size then create some txt lists that will be used by the subjobs.
- **setOutputDataset()**: define the output dataset name; initialize related metadata on data placement DB

SuperB Ganga plugin III

- >User will provide to ganga a tarball containing executable, config files and eventually a directory containing the files or lists of job input files

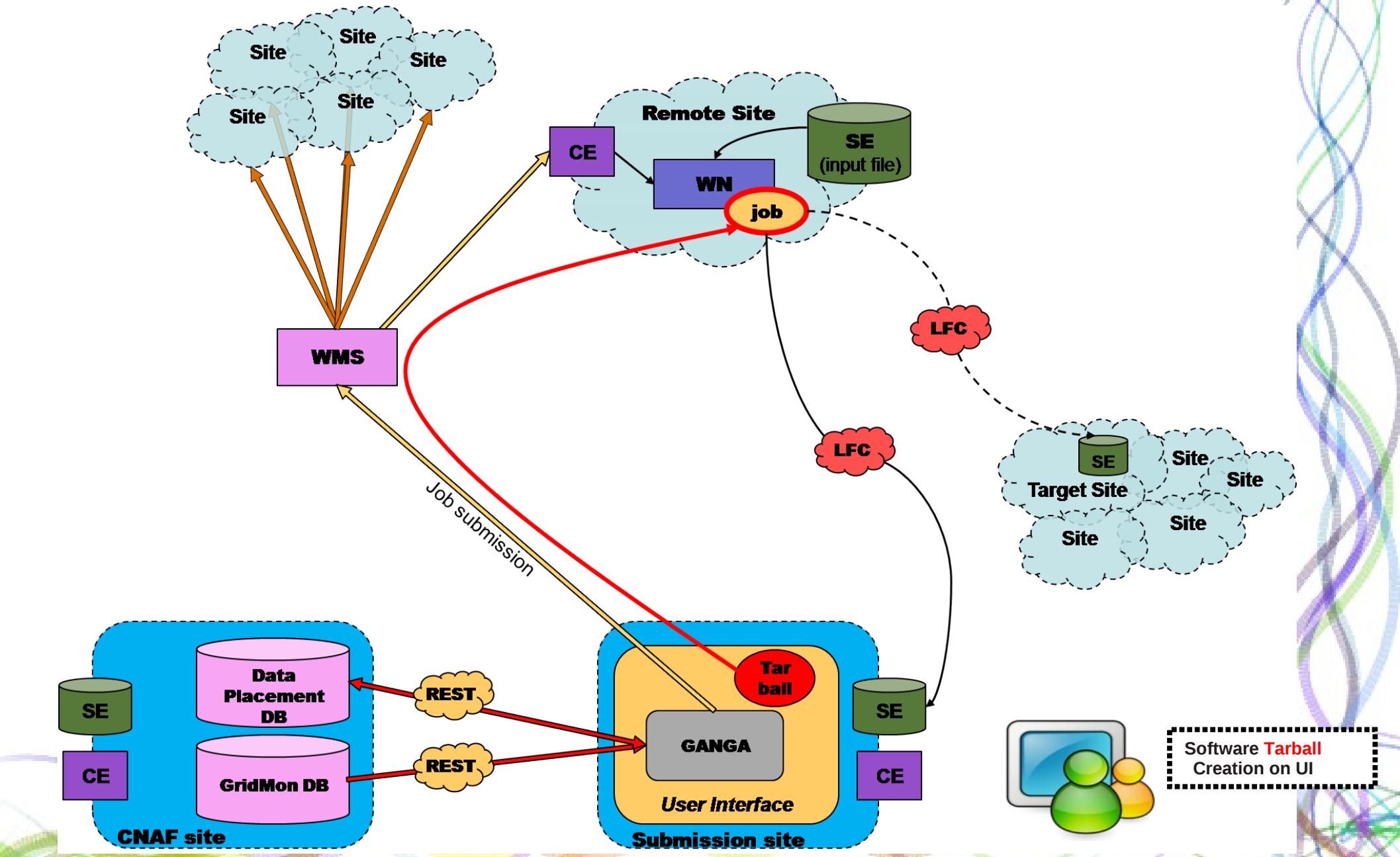
- **Class SuperBApp, the methods:**

- `setOutputSite()`: shows all the supported outputSites, asks user to choose one site then sets target site where job analysis output will be transferred.

- **Properties:**

- `exepath`: executable *relative* path after analysis software unpacking. eg: analysisSoftware/analysisExe.sh
 - `sw_archive`: Local UI absolute path to analysis software compressed archive. eg:
`/storage/gpfs_superb/users/ganga_util/GangaSuperB/test/analysisSoftware.t
ar.bz2`
 - `sw_directory`: Local UI absolute path to analysis software directory. eg:
`/storage/gpfs_superb/users/ganga_util/GangaSuperB/test/analysisSoftware`
 - `outputSite`: target site for job stage out. eg: INFN-T1.

Analysis job workflow



Step 4: Your first SuperB Ganga job

FastSim SP reduction

- ➊ Follow instructions at following wiki page
 - mailman.fe.infn.it/superbwiki/index.php/Ganga_setup_for_SuperB
 - Section: **“Hands on guided procedure”**
- ➋ And/or enter in `ganga` CLI and launch `SuperBHelp()` method.

Feedback please!!!

- Please post feedbacks to:
 - **superb-ganga@lists.infn.it**

References

Wiki SuperB Ganga portal:

- http://mailman.fe.infn.it/superbwiki/index.php/Distributed_Computing/Ganga_setup_for_SuperB

- Users

- Home page: <http://ganga.web.cern.ch/ganga/>
- Working with GANGA: <http://ganga.web.cern.ch/ganga/user/html/GangaIntroduction/>
- Ganga's Manual: <http://ganga.web.cern.ch/ganga/release/5.5.21/reports/html/Manuals/>
- Ganga Task Monitor: <http://gangamon.cern.ch/ganga/#user=&from=&till=&timeRange=lastDay&refresh=0&tid=&p=1&sorting=&or=&uparam=>

- Developer

- Wiki Atlas ganga: <https://twiki.cern.ch/twiki/bin/view/Atlas/DistributedAnalysisUsingGanga>
- How to create a plugin for ganga: <https://twiki.cern.ch/twiki/bin/view/ArdaGrid/HowToPlugInNewApplicationType>
- Other: <http://iscsvs.cern.ch/cgi-bin/viewcvs-all.cgi/?root=ganga>

CHEP09 materials:

- <http://indico.cern.ch/contributionDisplay.py?contribId=423&sessionId=63&confId=35523>
- <http://indico.cern.ch/contributionDisplay.py?contribId=141&sessionId=63&confId=35523>
- <http://indico.cern.ch/contributionDisplay.py?contribId=265&sessionId=63&confId=35523>
- <http://indico.cern.ch/contributionDisplay.py?contribId=312&sessionId=63&confId=35523>

CHEP10 materials:

- <http://117.103.105.177/MaKaC/contributionDisplay.py?contribId=159&sessionId=47&confId=3>