

Distributed computing status

Armando Fella on behalf of distributed computing group

Outline

CNAF resources evaluation

- CPU: babar resources exploitation
- Disk space 2TB available
- Service machines: 1 SL4 (Full/Fast frontend), 1 SL5 (production, mysql), 1 Grid UI lcg shared machine

Enabling CNAF site

- FullSim status, the production setup
- FastSim quick install/test procedure done. Need test/debug

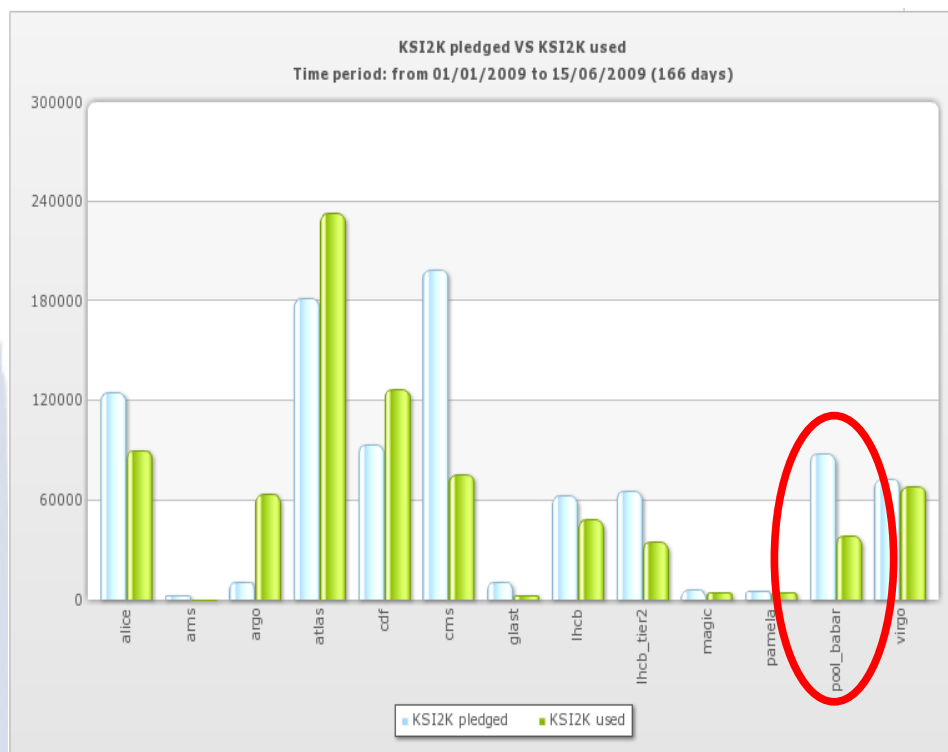
Grid related works

- VO status
- Software installation, the Grid way
- GANGA project starts

Bookkeeping

- Short term main goal: creation of a draft schema able to support/describe Full/Fast Simulation, need coordination
- Study of information systems, grid services

CNAF resources: CPU



KSI2K pledged vs used by VOs at CNAF

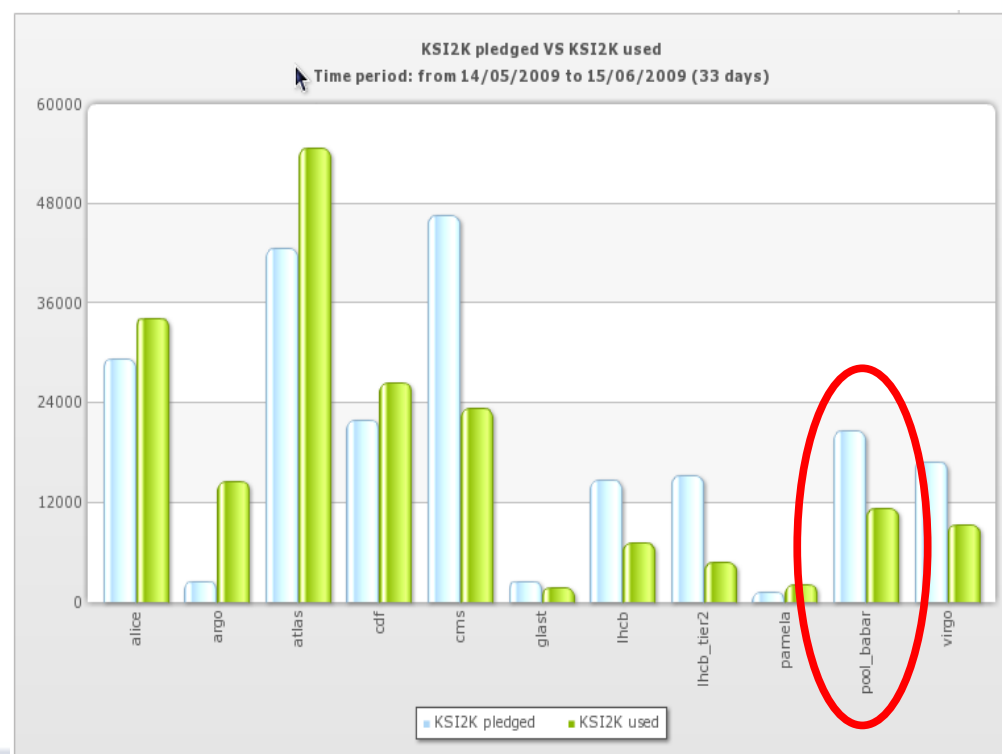
Period: **Jan – Jun six month 2009**

BaBar used/pledge = 43%

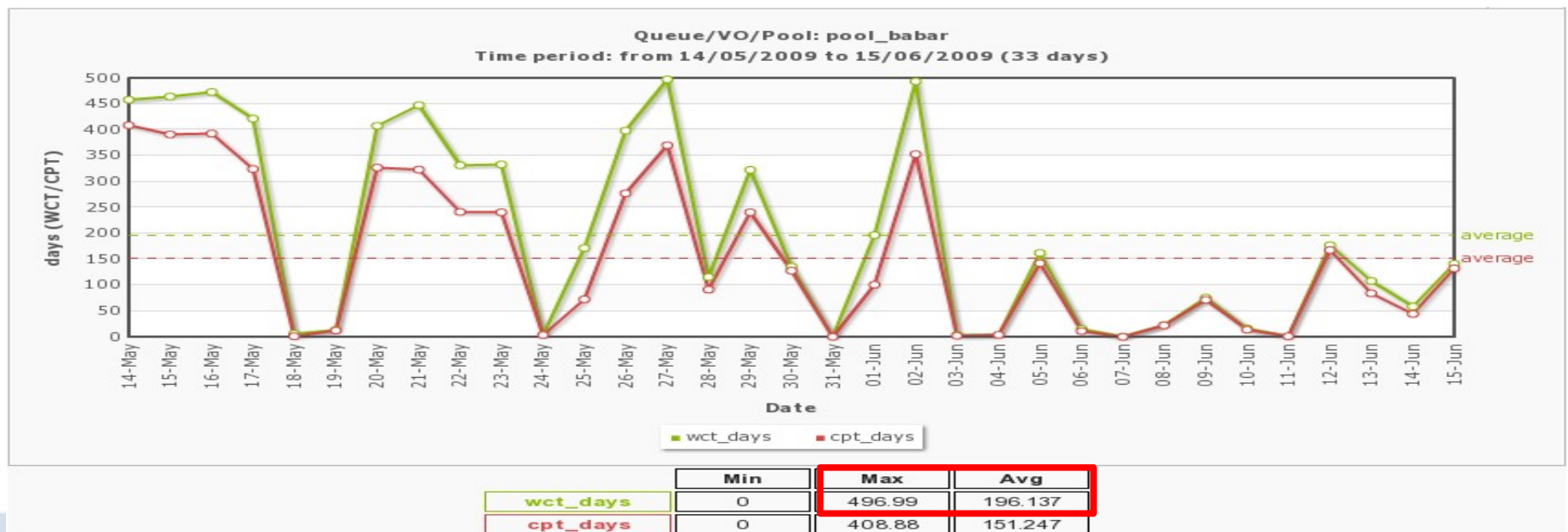
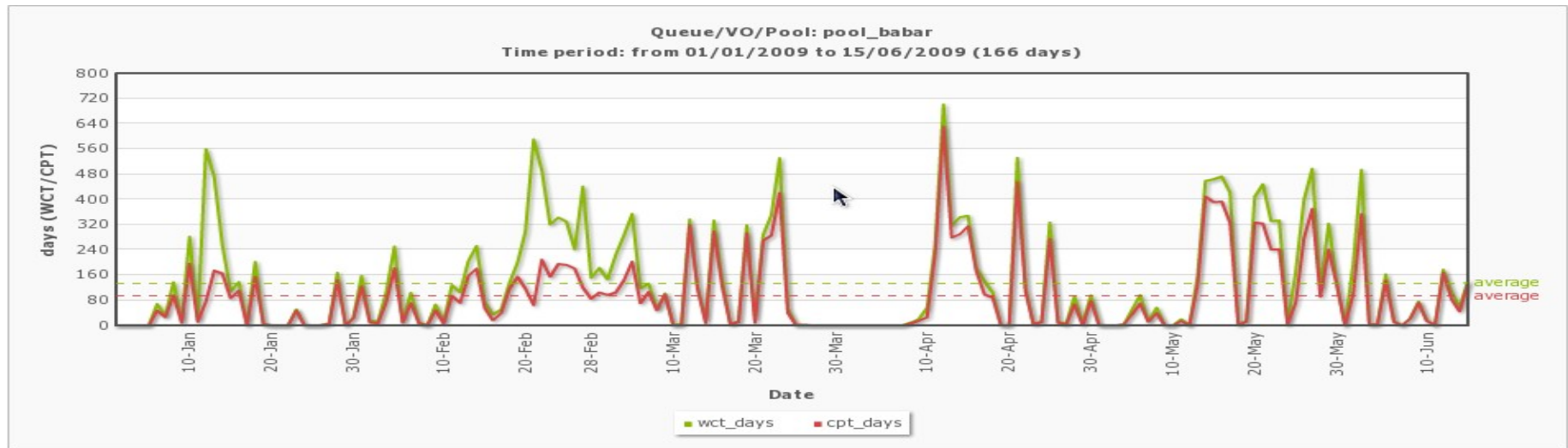
KSI2K pledged vs used by VOs at CNAF

Period: **14th May - 15th Jun 2009**

BaBar used/pledge = 55%



CNAF resources: CPU



CNAF resources: queues and accounting

Babar/SuperB LSF queues: (in red the suggested SuperB usable queues)

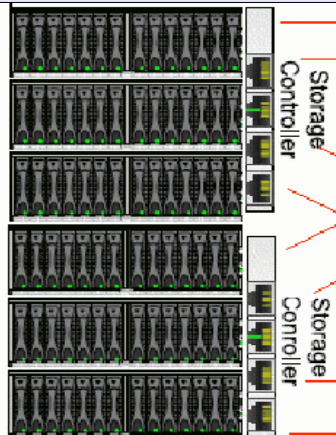
| QUEUE_NAME | PRIOR | STATUS | MAX | JL/U |
|--------------------|-----------|--------------------|-----------|----------|
| babar_test | 80 | Open:Active | 10 | - |
| babar_build | 80 | Open:Active | - | 3 |
| babar_objj | 50 | Open:Active | 600 | 500 |
| babar_xxl | 40 | Open:Active | - | - |
| babar | 40 | Open:Active | 450 | 350 |
| babar_grid | 40 | Open:Active | - | - |
| superb | 40 | Open:Active | - | - |

- The users can submit jobs all over BaBar and SuperB queues
- The two VO accounting/monitor systems are separated
 - ➔ <http://tier1.cnaf.infn.it/monitor/> (accounting or CNAF Monitoring)
- The KSI2K consumption is charged to babar VO

Storage access path infrastructure

2 EMC CX-380 SAN system:

- 200 TB data disk raw
- 1TB SATA disks
- Storage controller 32Gb/s



4 Gb/s

4 Gb/s

8 DELL PE M600
Diskserver

20 Disk-server Dell PE M600 enclosure, PE M100B blade:

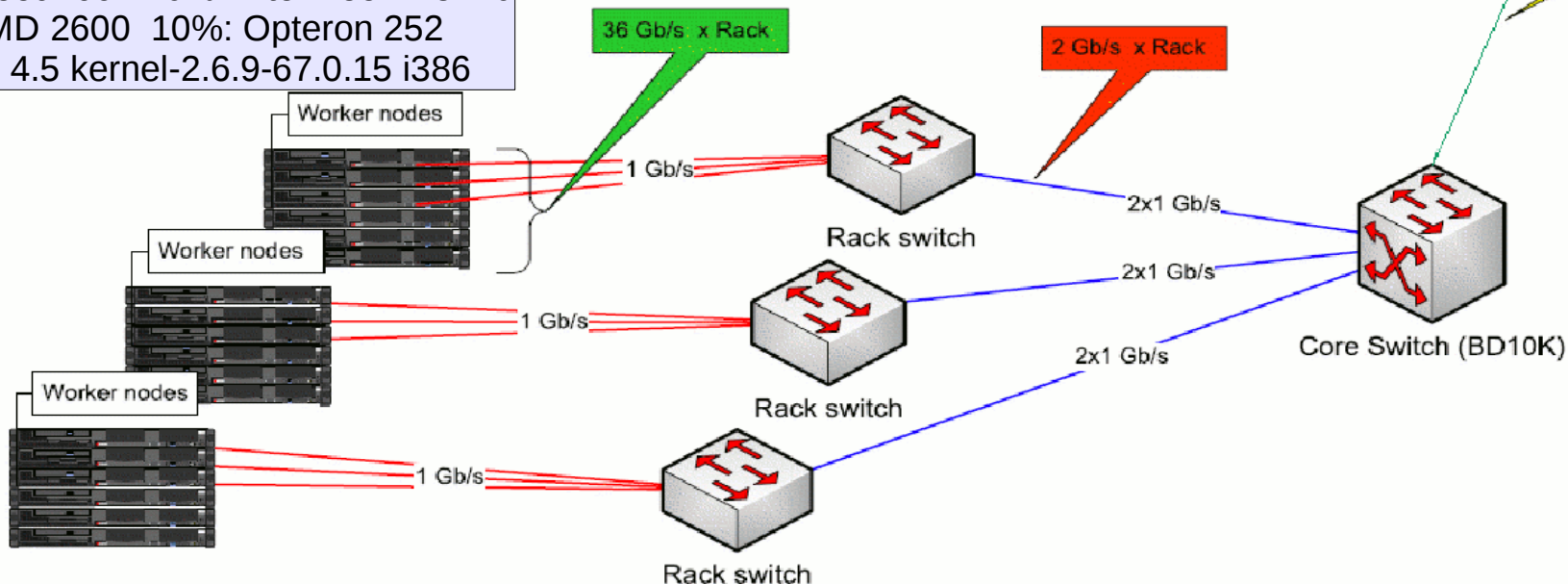
- 2.33 Gz Intel Xeon dual 4 core
- 16 GB ram
- Dual port qllogic HBA
- 1Gb Ethernet link
- SLC 4.6 kernel-2.6.9-67.0.15 x86_64

1 Gb/s

4 Gb/s

Production farm

- Wood200 70%: Intel Xeon E5420
- Wood266 20%: Intel Xeon E5440
- AMD 2600 10%: Opteron 252
- SLC 4.5 kernel-2.6.9-67.0.15 i386



CNAF resources: disk space and services machines

Disk space

- 2 TB GPFS disk space available
- Accessible r/w by farm nodes and frontend machines
- Set up to be quickly usable in grid way (via SRM2, StoRM)
- Path: /storage/gpfs_babar6/sb/

Services machines

- Full/Fast frontend: bbr-serv08, SL4, gcc3/4 --> SL5
 - Dell 1950 series, dual quad E5320 @ 1.86GHz x86_64
- Production test machine: bbr-serv09, SL5, mysql, phpmyadmin, production sw layer
 - Dell 1950 series, dual quad E5320 @ 1.86GHz x86_64, 1 TB on board
- Grid User Interface: ui01-lcg, shared resource

Full/Fast Sim status at CNAF

Full Simulation environment

- The bbr-serv08 SL4 machine is in use by Bruno developers
- The Full Simulation SL4 i386 packages installed into shared dedicated area
- Bruno execution tested in interactive, batch and Grid mode. Wiki references:
 - [Distributed_computing_main_portal/CNAF_services/How_to_work_on_Full_Simulation](#)
 - [Distributed_computing_main_portal/CNAF_services/How_to_access_Grid_resources](#)
- Production sw layer developed by Giuliano Castelli installed in bbr-serv09:
 - Back end DB: MySql
 - Automated job submission
 - Automated production setup: Bruno Macro and seed files creation

Fast Simulation environment

- The bbr-serv08 SL4 machine is the identified frontend machine
- The Fast Simulation SL4 i386 packages installed into shared dedicated area
- The standalone release V0.1.0 installation and interactive execution has been tested via simple user on bbr-serv08, need more test. Wiki references:
 - Wiki: [CNAF_services/How_to_work_on_Fast_Simulation](#)

Grid related: VO status

EGEE sites can enable the VO, at present time:

INFN Ferrara , McGill-lcg2 and CNAF sites are SuperB VO enabled (Steven Robertson is the contact for McGill-lcg2 site).

The VO configuration parameters have been distributed in INFN GRID release update 40/41

The VO setup at CNAF is completed and tested, 2TB disk space is ready to be StoRM (SRM2.2) configured.

Three mailing lists have been created to discuss/manage Grid computing issues:

superb_grid_mng@lists.infn.it

- List to discuss distributed computing related issues within experts

superb_grid_users@lists.infn.it

- The generic contact used to reach VO users (receiver of EGEE BROADCAST tool).

superb_vo_admins@lists.infn.it

- The generic contact used to reach VO managers and administrators (receiver of EGEE BROADCAST tool).

Remote software installation (I)

The problem: define an automated procedure able to install RPM packages on remote machines via simple user, in a per site defined, installation path. The dependency and conflict checks should be system coherent: the rpm installation process should be informed of system locally installed pkg.

- **HEP experiment solutions:**

- CMS: apt + rpm
- ATLAS: home made -pacman- installer (tgz source based)
- ARGO, VIRGO, GLAST, LHCb: tgz source based systems

- **YUM/RPM lacks:**

- YUM demands super user as installation performer
- YUM doesn't permit multi-relocation path options
- RPM configuration macro languages not permit multi relocation

(Michele Braghini)

Remote software installation (II)

The solution involves the use of yumdownloader tool (included by yum-utils pkg) permitting to resolve dependencies, conflicts and perform the download from yum official repository. The tool permit such a features set in SL5 OS.

- Environment setup: \$VO_SUPERB_SW_DIR definition included
- Private RPMDB creation: `rpm --initdb--dbpath $VO_SUPERB_SW_DIR/rpmdb`
- Hosting system RPMDB acquisition: file transfer from official rpmdb path
- Yum.conf, yum.repo and superb.repo creation in \$VO_SUPERB_SW_DIR
- GPG-KEY import and installation
- Packages download:
 - ➔ `yumdownloader -c $VO_SUPERB_SW_DIR/yum.conf --resolve --destdir $VO_SUPERB_SW_DIR/download/ superb-sim`
- Packages installation:
 - ➔ `rpm -i --dbpath $VO_SUPERB_SW_DIR/rpmdb/ --relocate /etc=$VO_SUPERB_SW_DIR/etc/ --relocate /opt=$VO_SUPERB_SW_DIR/ $VO_SUPERB_SW_DIR/download/*.rpm`

(Michele Braghini)

GANGA: Grid submission manager

- End user learning curve in Grid exploitation is quite steep
- Ganga is a tool for computational-task management and easy access to Grid resources, it is a frontend for job definition and management.
- The setup and configuration of a GANGA system starts at INFN Ferrara
The student Andrea Passuello is involved in Ferrara Grid site setup/management and in GANGA deployment

References:

Home page: <http://ganga.web.cern.ch/ganga/>

Wiki Atlas ganga: <https://twiki.cern.ch/twiki/bin/view/Atlas/DistributedAnalysisUsingGanga>

Users mailing list: atl-usercalc@lists.infn.it

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>

SBK Bookkeeping

The Bookkeeping group started the discussion on two main line:

- Definition of a draft sbk version, short term:
 - Svn info driven
 - Need a work of identification of Full and Fast info to be bookkeep, need coordination
 - Full info tables separated by Fast info ones?
 - What info are included into Full/Fast info intersection?
 - Starting point the management table of Giuliano Castelli for first FullSim production layer
- Study of Data Handling/Bookkeeping solutions in HEP experiment, Information system and tools evaluation
 - Postgresql evaluation as Information System
 - The Bookkeeping frontend system AMGA deployment and test are in progress at INFN Ferrara
 - 3D project study

Reference:

Indico SBK meeting page containing minutes of all the meetings and material repository

<http://agenda.infn.it/conferenceDisplay.py?confId=1531>

3D Project: <https://twiki.cern.ch/twiki/bin/view/PSSGroup/LCG3DWiki>

Frontier Home Page: <http://frontier.cern.ch/>

TO DO

Short term:

- ♦ make the CNAF environment stable for FastSim development
- ♦ define a draft of SBK DB schema modeling Full and Fast Simulation production workflow
- ♦ test/improve the production software layer

More relaxed:

- ♦ remote sw installation procedure optimization and test
- ♦ GANGA/AMGA evaluation works
- ♦ Grid enabled production software layer development

Write more and more wiki pages :)

That's all, question?