Distributed production plan

Armando Fella on behalf of Italian distributed computing group

Distributed Computing human network

CNAF	Italian group
Caltech	Frank Porter, Piti Ongmongkolkul
SLAC	Steffen Luiz, Wei Yang
McGill	Steven Robertson
Queen Mary	Adrian Bevan
RAL	Fergus Wilson
LAL and Lyon	Nicolas Arnaud
Bari	Giacinto Donvito, Vincenzo Spinoso
Legnaro - Padova	Gaetano Maron, Alberto Crescente
Napoli	Silvio Pardi
Ferrara	Giovanni Fontana, Marco Ronzano
Pisa	Alberto Ciampa, Enrico Mazzoni, Dario Fabiani

Email list: **superb-grid-mng@lists.infn.it**

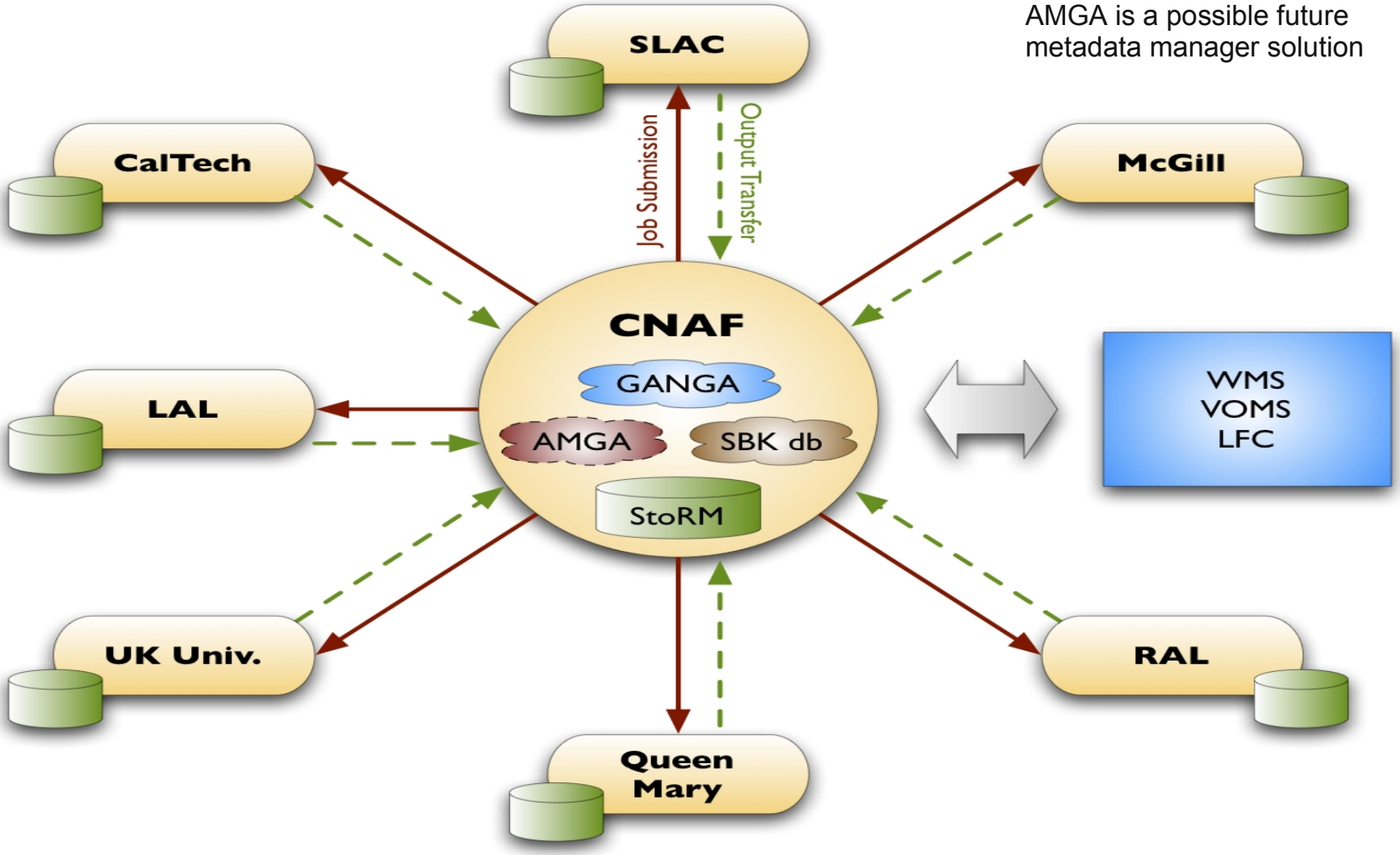
Production design proposals

Next MC productions involve the exploitation of distributed computing resources, two different distributed design systems are proposed:

- the February production distributed system proposal include the installation at remote sites of tools used at CNAF during the Nov '09 test production.
  - the web production interface, local Bookkeeping DB communication, Data handling via direct access to file system
- the setup of a full Grid compliant system will be proposed as solution for April '10 production
  - Full GANGA based job management, Grid Security Interface authentication, central bookkeeping DB communication, data handling via lcg-utils.
- the site resources exploitation during official production should be ruled:
  - the production managers will have priority on systems utilization
  - an agreement on submission policy with user community should be defined

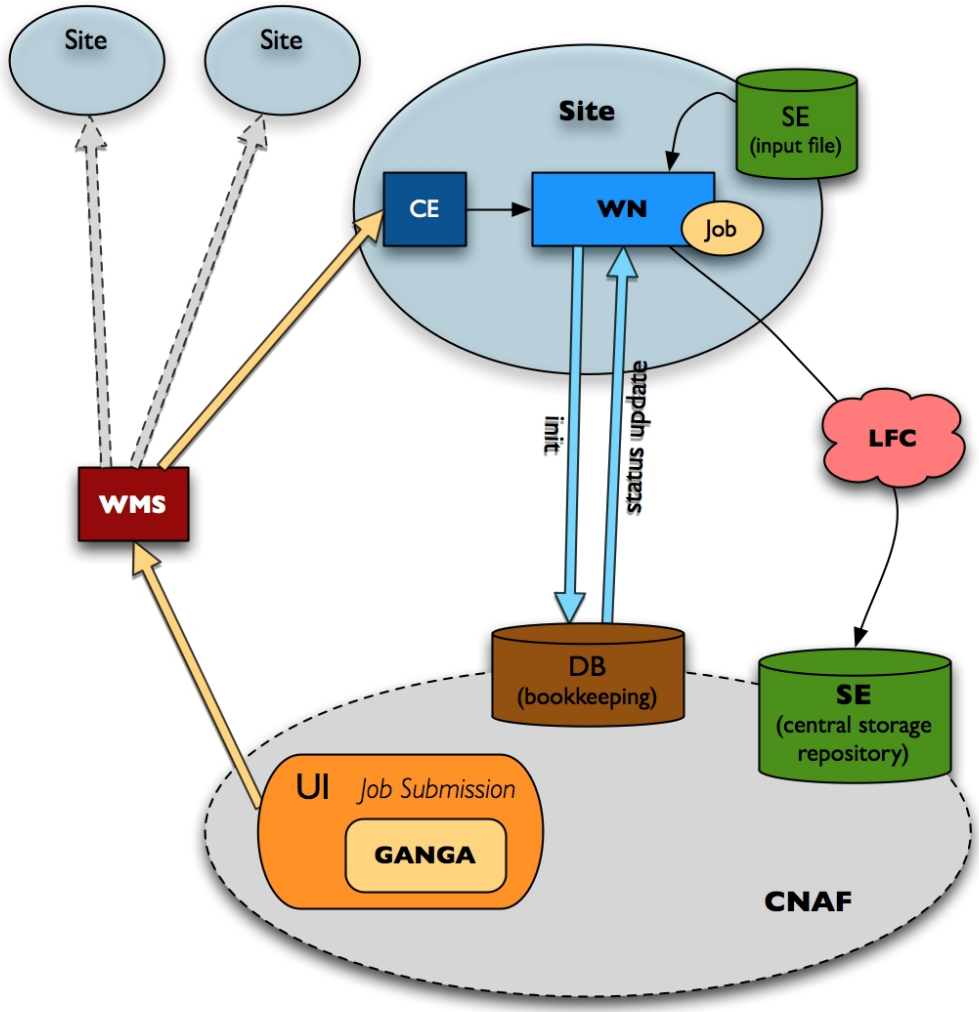
Full Grid integrated production design

AMGA is a possible future metadata manager solution

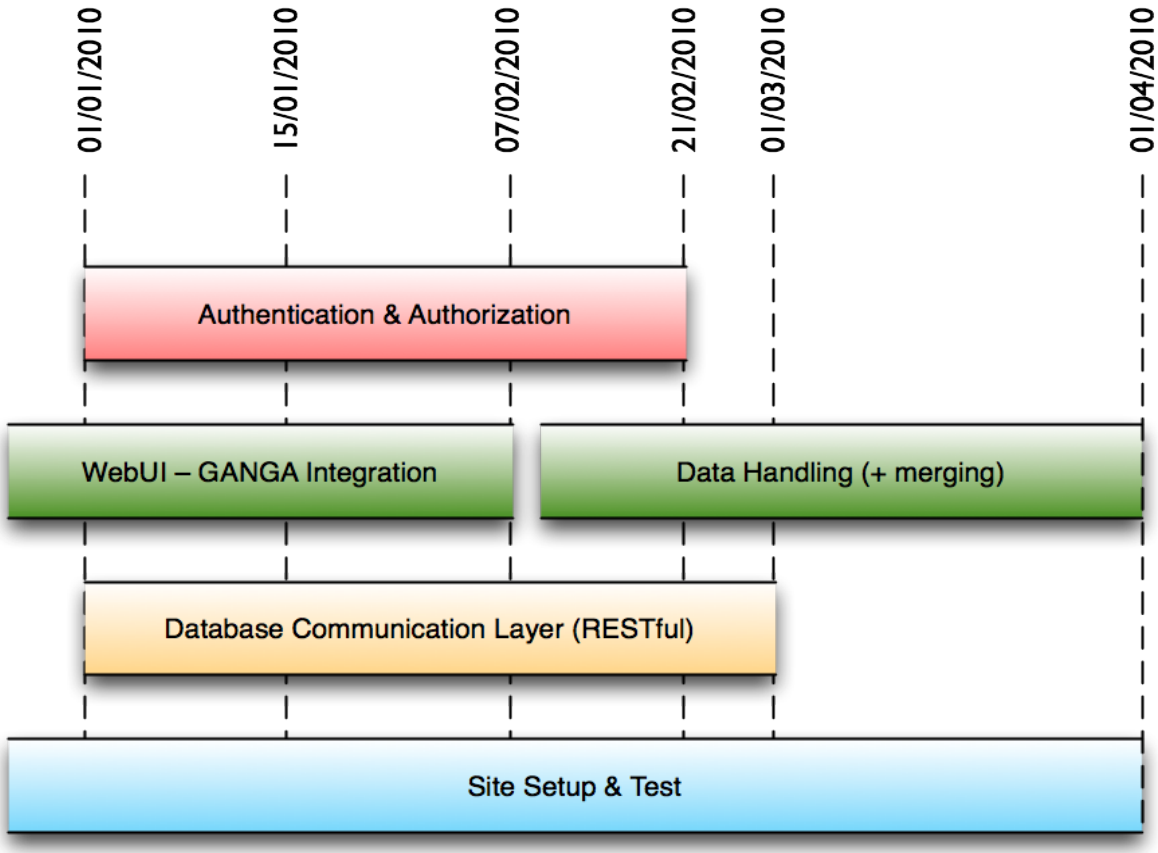


Full Grid integrated production workflow

- The job input files are transferred via
  LCG-Utils to the involved sites
  Storage Elements
- The job submission is performed by GANGA on User Interface at CNAF
- The WMS routes the jobs to the matched sites
- The job is scheduled by the site Computing Element to a Worker Node
- The job during running time
  - accesses the DB for initialization and status update
  - retrieves input files by local Storage Element
  - transfers the output to the CNAF Storage Element



Full Grid integrated production timeline



February production design description

Production system components to be installed at sites:

- Bookkeeping MySQL DB, phpmyadmin as management web interface (optional)
- Apache web server
- PHP 5 scripting language + apache php module
- Web production and monitor interface software (submission to Grid and to batch)

Requirements:

- One server host accessible from worker nodes where the above components should be installed (prod.server@your.site)
- Disk space to contain input production files (local Storage Element)
- Disk space accessible from WN, the output files should be stored in a system five like file system (Eg.: ext3, xfs, jfs, gpfs....). The output files should be copied back to CNAF central storage at end production time.

February production procedure proposal

1) Background files production at CNAF :

- The background files to be used as input for Fast Simulation are produced at CNAF

2) Background files transfer to sites :

- The background files should be transferred to file system accessible from WN

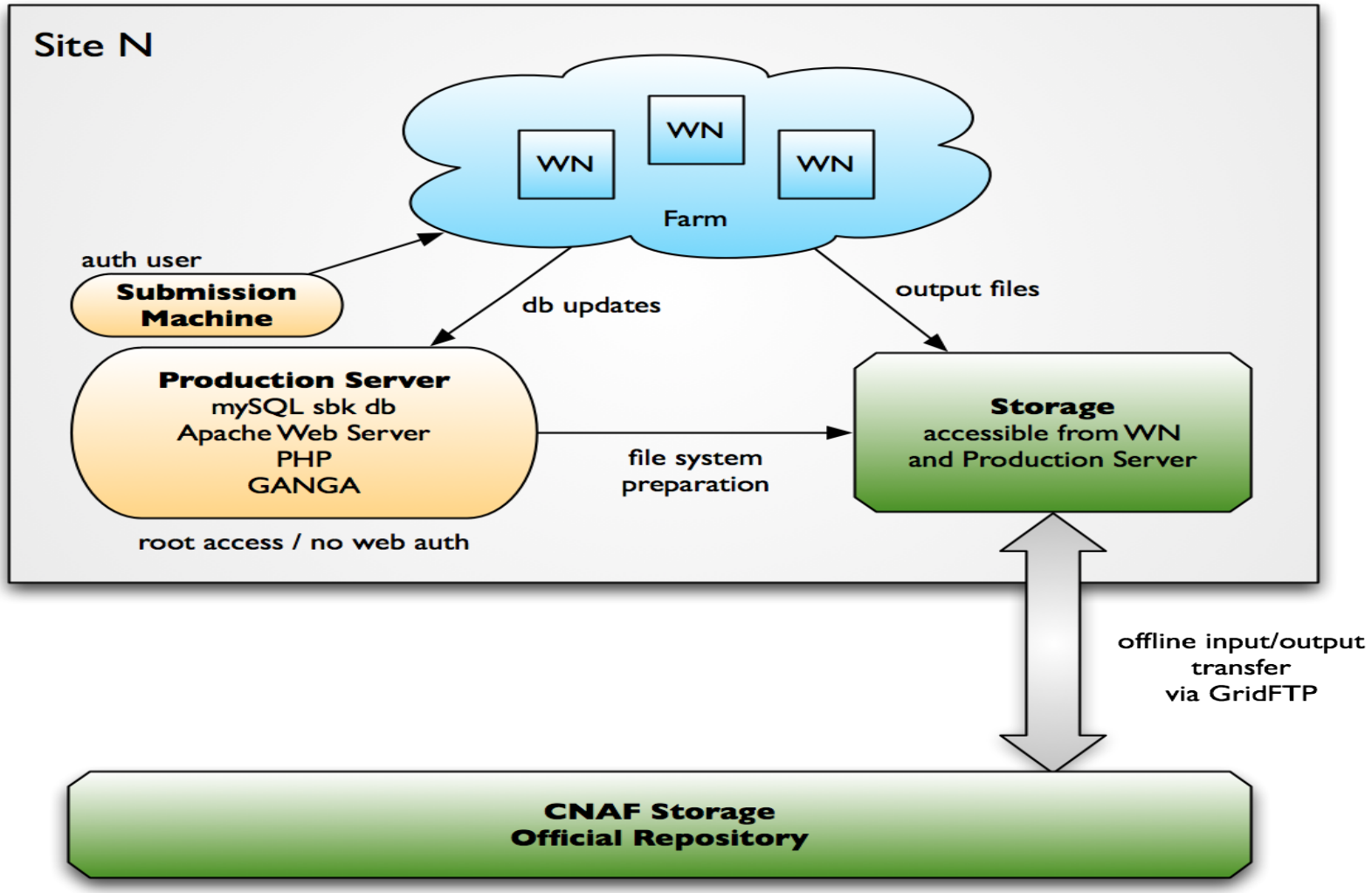
3) Perform the production at sites :

- Use the web User Interface to produce the simulated data
- Store the data into an accessible disk space

4) Output files transfer to CNAF central storage :

- The job output files should be transferred to CNAF

February production procedure proposal



Conclusion

- The February distributed solution is an hybrid solution looking toward the full Distributed (Grid compliant) solution.
- The coordination/cooperation with involved site contacts is a key element
- The time needed for the February production completion depends strictly by the number of sites ready at the production start time

BACKUP Slides

Site setup procedure

Wiki reference page:
http://mailman.fe.infn.it/superbwiki/index.php/How_to_Grid/Site_setup

Three main setup procedure steps:

A) the grid site should enable the VO on each Grid element
B) data handling solution validation: LCG-Utils
C) software installation procedure

For each point, the wiki section for simple test exists:
http://mailman.fe.infn.it/superbwiki/index.php/How_to_Grid/Site_setup/Tests

and job based test:
http://mailman.fe.infn.it/superbwiki/index.php/How_to_Grid/Site_setup/Job

Please send an email to list superb-grid-mng@lists.infn.it reporting the site setup status A, B or C to keep track of progress and permit the planning of next step distributed model validation.

Production tool status

Grid submission: GANGA based job submission test

- job data handling tasks successfully tested
  - lfc name space creation, output transfer via lcg-util
- job submission on remote site with data handling successfully tested
- job output merger solution successfully tested

Production tools development (FastSim)

- web production manager tool:
  - used in successful Nov '09 production
- web monitor tool:
  - the jobs update the SBK DB during run time state

See Luca Tomassetti presentation

What is missing to the full Grid DCM

Grid job communication with bookkeeping DB
in a WAN scenario the job should be able to

- Authenticate it self to the DB service
  - GSI compliant authentication via proxy validation
- Creation of a RESTfull based communication service:
  - Frontier and AMGA systems under study

Grid job management

- Retry policy
  - resubmission procedures and error recovery in Grid env
- Grid based monitor system

Conclusion & discussion

- The improvement of the actual production system solution moving toward the Full Grid compliant solution is the first point into the to do list.

- What we need to understand/investigate:

- Site resources availability update (CPU, Disk, host)
- sites possible config problems:
  - WN access to disk for accessing r/w input and output files
  - off line files transfer tools

- The site setup procedure is in progress, a new set of requirement should be added to verify the sites capabilities and production system installation procedure