Distributed system updates

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for the Distributed Computing Group

First SuperB Collaboration meeting
Queen Mary University, UK
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Presentation Layout

- Distributed resources status
- Distributed frameworks evaluation
- Data distribution system update
- User tool for Grid resources access
- CNAF status report

On going site setup works

- Thanks to all the site contacts for the valuable work
- Number of enabled site: 19
  - **Ohio Supercomputer Center (OSC), http://www.osc.edu/**
    - **Contact: Rolf Andreassen, Doug Johnson**
    - **Status: site setup**
  - **INFN Catania**
    - **Contact: Giuseppe Platania**
    - **Status: software installation**
  - **Polish Grid (PL-Grid)**
    - Contact: J. Chwastowski
    - Status: VO enabling in progress

SuperB VO enabling in OSG

- **The VO has been created in OSG environment (July)**
- **OSG VO support center (SUPERB-SC) has been created, but we need OSG experienced people to be added to it (at present time Steffen Luitz and me).**
  - **Ask to OSG site contacts**

- **Hanging** An OSG site contacts group will be formed to coordinate the efforts, a meeting on regular basis will be setup.
  - **Short term topics proposal:**
    - **VO enabling/integrating operations**
    - **EGI/OSG interoperability**
    - **OSG VOMS replica setup**

Site info summary

Site	Min (cores)	Max (cores)	Available (TB)	Data Access	Grid Flavor	Site contacts
CNAF	500	1000	66	StoRM	EGI	A. Fella
SLAC	400	400	10	NFS	OSG	S. Luiz, W. Yang
CALTECH	250	680	4.5	NFS	OSG	F. Porter, P. Ongmongkolkul, S. Lo
RAL	200	1000	10	Castor	EGI	F. Wilson, C. Brew, A. Martin
RALPP	50	300	5	dCache	EGI	F. Wilson, C. Brew, A. Martin
Queen Mary	300	3456	120	StoRM	EGI	A. Martin, C. Walker
Oxford Univ.	50	200	*1*	DPM	EGI	K. Mohammad, E. MacMahon
CCIN2P3	*500*	*1000*	*10*	dCache	EGI	N. Arnaud, O. Dadoun
GRIF	50	300	2	DPM	EGI	N. Arnaud, O. Dadoun
Victoria	50	100	1	dCache	EGI	A. Agarwal
Pisa	50	500	0.5	StoRM	EGI	A. Ciampa, E. Mazzoni, D. Fabiani
Legnaro	50	100	1	StoRM	EGI	G. Maron, A. Crescente, S. Fantinel
Napoli x3	200	1000	20	DPM	EGI	S. Pardi, A. Doria
Bari	80	130	0.5	StoRM/Lustre	EGI	G. Donvito, V. Spinoso
Ferrara	10	50	0.5	StoRM	EGI	L. Tomassetti, A. Donati
Cagliari	10	50	1	StoRM	EGI	D. Mura
Perugia	10	50	1	StoRM	EGI	R. Cefala'
Torino	50	100	2	DPM	EGI	S. Bagnasco, R. Brunetti
Milano	50	100	2	StoRM	EGI	N. Neri, L. Vaccarossa, D. Rebatto
Catania	50	100	1	StoRM	EGI	G. Platania
OSC	?	?	?	?	OSG	R. Andreassen, D. Johnson
Polish Grid	?	?	?	?	EGI	J. Chwastowski
Total	2910	10616	259			

VO Nagios monitor

- The EGI Grid services monitor for superbvo.org has been configured and activated: set of customizable tests per Grid service

Service Status Details For Host 't2-ce-04.lnl.infn.it'

Host	Service	Status	Last Check	Duration	Attempt	Status Information
t2-ce-04.lnl.infn.it	org.sam.CREAMCE-DirectJobState-superbvo.org	OK	09-12-2011 13:45:58	0d 0h 12m 8s	1/2	OK: DONE.
	org.sam.CREAMCE-DirectJobSubmit-superbvo.org	OK	09-12-2011 13:45:58	0d 0h 8m 57s	1/2	OK: DONE.
	org.sam.CREAMCE-JobState-superbvo.org	OK	09-12-2011 13:48:23	0d 0h 16m 30s	1/2	OK: success.
	org.sam.CREAMCE-JobSubmit-superbvo.org	OK	09-12-2011 13:48:23	0d 0h 16m 30s	1/2	OK: success.
	org.sam.WN-Bi-superbvo.org	OK	09-12-2011 13:44:03	0d 0h 10m 52s	1/2	cmsfarm-08-14.lnl.infn.it: OK: getCE: t2-ce-04.lnl.infn.it:8443/cream-lsf-superb1
	org.sam.WN-Csh-superbvo.org	OK	09-12-2011 13:44:05	0d 0h 10m 50s	1/2	cmsfarm-08-14.lnl.infn.it: OK
	org.sam.WN-Rep-superbvo.org	OK	09-12-2011 13:44:47	0d 0h 10m 8s	1/2	cmsfarm-08-14.lnl.infn.it: OK: success.
	org.sam.WN-RepCr-superbvo.org	OK	09-12-2011 13:44:15	0d 0h 10m 40s	1/2	cmsfarm-08-14.lnl.infn.it: OK: File was copied to SE t2-srm-04.pd.infn.it and registered in LFC lfcserver.cnaf.infn.it. CLI
	org.sam.WN-RepDel-superbvo.org	OK	09-12-2011 13:44:47	0d 0h 10m 8s	1/2	cmsfarm-08-14.lnl.infn.it: OK: Replicas for [lfn:/grid/superbvo.org/SAM/sam-lcg-rm-cr-cmsfarm-08-14.lnl.infn.it.110912134407.2913515] were deleted. CLI
	org.sam.WN-RepFree-superbvo.org	OK	09-12-2011 13:44:06	0d 0h 10m 49s	1/2	cmsfarm-08-14.lnl.infn.it: OK: ok
	org.sam.WN-RepGet-superbvo.org	OK	09-12-2011 13:44:22	0d 0h 10m 33s	1/2	cmsfarm-08-14.lnl.infn.it: OK: File was copied from SRM. Diff successful. CLI
	org.sam.WN-ReplSenv-superbvo.org	OK	09-12-2011 13:44:06	0d 0h 10m 49s	1/2	cmsfarm-08-14.lnl.infn.it: OK: LCG_GFAL_INFOSYS is set to egee-bdii.cnaf.infn.it:2170
	org.sam.WN-RepRep-superbvo.org	OK	09-12-2011 13:44:46	0d 0h 10m 9s	1/2	cmsfarm-08-14.lnl.infn.it: OK: File was replicated to SE(s) ccsrm02.in2p3.fr. Replicas listed successfully. CLI
	org.sam.WN-SoftVer-superbvo.org	OK	09-12-2011 13:44:07	0d 0h 10m 48s	1/2	cmsfarm-08-14.lnl.infn.it: OK: 3.2.0

Service Status Details For Host 'gridsrm.pi.infn.it'

Host	Service	Status	Last Check	Duration	Attempt	Status Information
gridsrm.pi.infn.it	org.sam.SRM-All-superbvo.org	OK	09-12-2011 13:35:58	0d 0h 16m 36s	1/4	OK: success.
	org.sam.SRM-Del-superbvo.org	OK	09-12-2011 13:36:25	0d 0h 16m 9s	1/4	OK: File was deleted from SRM.
	org.sam.SRM-Get-superbvo.org	OK	09-12-2011 13:36:25	0d 0h 16m 9s	1/4	OK: File was copied from SRM. Diff successful.
	org.sam.SRM-GetSURLs-superbvo.org	OK	09-12-2011 13:35:58	0d 0h 16m 36s	1/4	OK: Got SRM endpoint(s) and Storage Path(s) from BDII
	org.sam.SRM-GetTURLs-superbvo.org	OK	09-12-2011 13:36:18	0d 0h 16m 16s	1/4	OK: protocols OK-[file, gsiftp]
	org.sam.SRM-Ls-superbvo.org	OK	09-12-2011 13:36:06	0d 0h 16m 28s	1/4	OK: listing [/superb/testfile-put-1315834558-faf14859378a.txt]-ok:
	org.sam.SRM-LsDir-superbvo.org	OK	09-12-2011 13:35:58	0d 0h 16m 36s	1/4	OK: Storage Path[/superb/]-ok:
	org.sam.SRM-Put-superbvo.org	OK	09-12-2011 13:36:06	0d 0h 16m 28s	1/4	OK: File was copied to SRM.

Resource for next production

Monte Carlo resource request

- Estimate for Monte Carlo simulation: 134×10^9 events

- Extrapolating by 2010_September production: 9x10^9 in 2 weeks
  - **--> more than 7 months**
  - **In addition do we need an appropriately large sample of bkg frames as well?**
  - Need to obtain evt duration estimation per request
- Next approachable site:
  - **McGill** and **INFN-Frascati**
    - **Need new site contacts:**
      - **UK: Manchester, others ?**
      - **Other communities ?**

HEP framework evaluation: Dirac

- Two Dirac instances installed at CNAF and Bari
- Analysis use case exploited, Production will be the next
- The final evaluation report is planned for November 2011

- **See G. Donvito presentation at Computing R&D session on September 15th , 08:30**

- Thanks to Dirac/LHCb community for the extensive support and enthusiasm:
  - **Andrei Tsaregorodtsev, Ricardo Graciani and Vanessa Hamar**
    - **Http://diracgrid.org**

HEP framework evaluation: PhEDEx

- **Evaluation plan:**
  - **Study DB schema and PhEDEx agents interaction**
  - **Configure a minimal DB metadata fills to permit PhEDEx services activation**
  - **Study the possibility of porting DB from Oracle to PostgreSQL information system**
- **The definition of a prototype data placement SuperB DB is in progress**
  - **Requirement for GANGA framework too**

HEP framework evaluation: PhEDEx II

- **PhEDEx evaluation group under definition**
  - **G. Donvito, S. Pardi, P. Franchini, K. Raczka (PL), AF**
  - **Join the group!**

- **Requirement evaluation in progress:**
  - **Oracle instance will be installed at CNAF (Sept. 26th)**
  - **PhEDEx instance Machines/connectivity under definition**

- Thanks to PhEDEx/CMS community for the support
- Thanks to CNAF storage and DB group for the support
- https://cmsweb.cern.ch/phedex/

Data distribution update

- 2010_September, Generics, 2.2 TB, have been transferred to IN2P3-CC and RAL via FTS
  - **FTS channel configuration:**
    - **Smooth step, small debug effort RAL side**
  - **A set of scripts have been developed to configure and automate the transfers of thousand of small files**
    - **Average file size 200MB, suggested file size: 2GB**
      - **Need a merge step**
  - **Transfers have been completed with 10% fail rate in 2 days per channel**
  - **Need effort for submission, monitor and resubmission operation**
    - **Obvious: need a transfer suite (long term) and a generalization of script layer for short time transfer request**

Data distribution update II

- Production job transfers the output where it is expected to be
  - **A replica at CNAF is desirable**
  - **Minimal granularity is the production request**
- Dataset has been defined as the set of parameters defining the request:
  - **FastSim: ProdSeries, DG, Generator, Analysis, BKG mix type**
  - **FullSim: to be defined**
- Information about Dataset, Files, Site will be modelled in a prototype data placement DB

User tool for Grid access

- The GANGA SuperB layer is under development
  - **Use cases: analysis and personal production**
    - **Automatic job data preparation**
    - **Automatic running site selection**
    - **Job stage out setup configuration**
    - **On line job monitoring**
    - **Integration with prototype data placement DB**
    - **October: GANGA hands on meeting**

- GANGA ref. http://ganga.web.cern.ch/ganga/

CNAF operations

- **Storage system layer upgrade - Next week**
  - **Frontend and backend separation**
    - **improvement in load balancing and reliability**
  - **New functionality:**
    - **File transfer via http protocol, improved monitor**
- **CNAF disk space: user area and production repository**
  - **anticipated 50TB added to gpfs_superb, total 100TB – Next week**
- **FTS (File Transfer Service) configured**
  - channels: CNAF - IN2P3 and CNAF – RAL
- **LJSFi - The Light Job Submission Framework for Installation**
  - **Distributed software management - Start in October**
- **CVMFS – CERN Virtual Machine FS**
  - **Experiment software distribution – Start in October**

Involved people

- O. Dadoun LAL
- G. Donvito INFN-Bari
- A. Fella INFN-Pisa
- P. Franchini INFN-CNAF
- S. Luitz SLAC
- E. Luppi INFN-Ferrara
- S. Makarychev ITEP
- M. Manzali INFN-Ferrara
- A. Paolini INFN-CNAF
- S. Pardi INFN-Napoli
- K. Raczka PL-Grid
- B. Santeramo INFN-Bari
- L. Tomassetti INFN-Ferrara
- + 1 Ferrara student

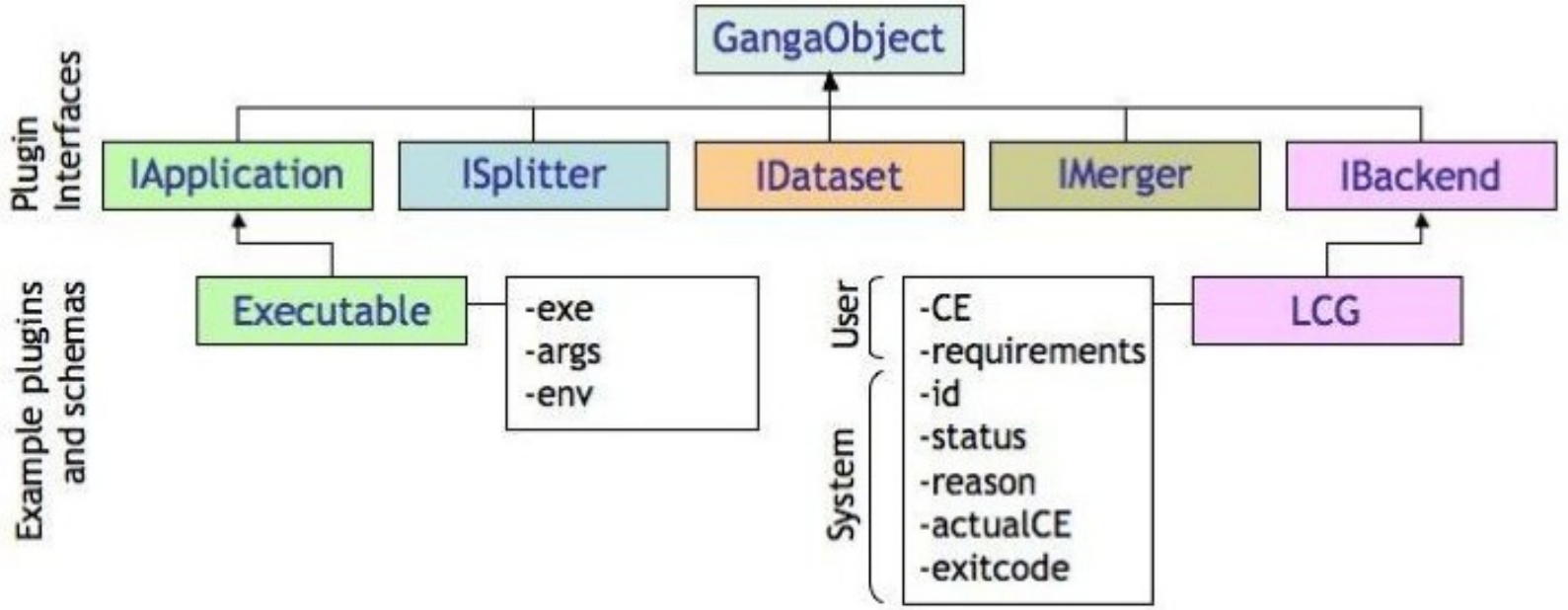
Questions, comments ?

backup

Info, docs, email list

- SuperB wiki Distributed Computing root page:
  - **http://mailman.fe.infn.it/superbwiki/index.php/Main_Page**
- Distributed Computing mailing list:
  - **superb-distrcomp [at] lists.infn.it**
- VO enabling procedure in EGI/OSG, list of requirements in terms of services, packages and functionality SuperB requires to be present on sites
  - **http://mailman.fe.infn.it/superbwiki/index.php/How_to_Grid/Site_setup**
  - **http://mailman.fe.infn.it/superbwiki/index.php/VO_enabling_procedure_information**
  - **Site contact mailing list: superb-grid-mng [at] lists.infn.it**

GANGA SuperB plugin



"Plugins for different types of application, backend, dataset, splitter and merger inherit from interface classes, which have a common base class. Schemas for the Executable application and for the LCG backend are shown as examples."

www.gridpp.ac.uk/papers/chep06_harrison.pdf

Projects evaluation

- Understanding the status of the projects already in place in the field of distributed computing for HEP. Very important
  - **Distributed system frameworks: job management, data handling, resource monitor. LHC Computing Grid FIRST**
    - Dirac, Panda, PanDA Dynamic Data Placement , PhEDEx
  - **ATLAS framework for software installation in distributed environment, see S. Pardi presentation in this session**
  - **HTTP access layer to StoRM Storage Element: test phase**
  - **Distributed data access systems**
    - HadoopFS, Gluster, xRootD, EOS

Check point intro II

- **Computing TDR: the distributed computing side**
- **Transverse to all topics: collect and organize SuperB specific requirements**
  - evaluate distributed frameworks already in place in HEP scenario
  - participate into development and beta testing phase of coming up projects of interest
  - based on requirements, plan for services still not on the table