



DIRAC testbed

SuperBDIRAC development

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Proposal for titles



- 1)Dirac extension development: the SuperB Dirac project
- 2)Dirac integration with a general purpose bookkeeping DB: a complete general suite
- 3)Dirac extended suite: a simple infrastructure for distributed resource exploitation



Conferences & Journals



1)CHEP2013

2)IEEE

3)EGI User Forum

collect info (date, timeline, draft submission, etc. etc.)

- Intro
 - general purpose suite: for small and mid size VOs
- Description of suite design
 - philosophy: simple, standard and long term solution
 - bird's eye view all over the project
- The Dirac extension
 - extension structure description
 - Dirac general purpose project short description + Dirac configuration
 - service and systems description in detail
 - web interface components description

- Bookkeeping DB integration
 - Software layer based on SQLAlchemy
 - advantages using SQLAlchemy: Object relational Mapping, clean code, fast development, change of DB backend
 - BK description, highlighting the general purpose characteristics
 - session, request, dataset
- Job wrapper component
 - general workflow
 - data management policy: stage-in and stage out strategies
- Simulation production use case: the SuperB experience
 - general description: workflow, Dirac portal design
 - past experience: the webui project
 - Session definition interface --> DB dynamic build up

- Test session
 - goal description
 - testbed description
 - results and conclusions
- Conclusions
 - We are offering a Dirac extended suite capable to satisfy the needs on small and mid size VOs in terms of distributed resource exploitation....



BACKUP SLIDES



Latest news



- No more funds for SuperB
- At present time, SuperB must be considered suspended
- A tau-charm factory ?
 - Possible, but not probable
- The question is:
 - How to capitalize done works ?



A snapshot of situation...



- We have expertisement to use and extend DIRAC
- We still have available resources...
- We have a real use case (the SuperB MC production porting)
- Moreover, we have:
 - A new working module (SuperBDIRAC)
 - An innovative DB interface for DIRAC (based on SQLAlchemy)
 - A working webportal extension
 - A populated bookkeeping databse
 - A complete production stack



SuperBDIRAC report



- Latest version: SuperBDIRAC v0-pre2
- SimulationProductionSystem
 - for Simulation Production
 - SBKService running
- TestingSystem
 - free to use for experiments :)
 - Dummy Service SimpleMessage
 - Dummy Agent SimplestAgent
 - Dummy Web page Testing Menu



Sites Overview



https://bbrbuild01.cr.cnaf.infn.it:8443/DIRAC/SuperB-Production/dirac_admin/simulationproduction/SiteManagement/overview														
System ▾ Jobs ▾ Views ▾ Virtual machines ▾ Simulation production ▾														
Selected setup: SuperB-Production														
Sites Overview														
Name	Flavor	Banned	Target Site	OS	Arch	Prepared Thr	Running Thr	Failed Thr	Bunch Dim	FastSim supported	FastSim enabled	FullSim supported	FullSim enabled	Note
INFN-PERUGIA	EGI	---	false	SL-4	i386	3	6	3	6	false	false	false	false	It has SL4 and i386 [Manzali 22-12-2011]
INFN-TORINO	EGI	---	false	SL-5.3	x86_64	30	300	10	50	true	true	true	true	error in FullSim: libG4OpenGL.so [Manzali 22-12-2011]
CIT-HEP	OSG	---	false	SL-5.3	x86_64	20	300	10	100	true	true	false	false	/nfs/raid4/osg-app/superbvo.org/SL-5.3_x86_64/bin/ is empty, superb-env.sh not
GridUNESP_CENTRAL	OSG	---	false			0	0	0	0	false	false	false	false	This site need to be configured and tested
WT2	OSG	---	false	SL-5.3	x86_64	50	160	10	100	true	true	false	false	LCG-Utils doesn't work [Manzali 22-12-2011]
GRISU-UNINA	EGI	---	false	SL-5.3	x86_64	2	30	10	10	false	true	false	false	ABORTED: hit job shallow retry count (10) I think there is a problem with Producti
IN2P3-CC	EGI	---	false	SL-5.3	x86_64	50	700	10	100	true	true	true	true	error in FullSim: libG4OpenGL.so [Manzali 22-12-2011]
INFN-BARI	EGI	---	false	SL-5.3	x86_64	30	300	10	50	true	true	false	false	error in FullSim: libG4OpenGL.so [Manzali 22-12-2011]
INFN-CAGLIARI	EGI	---	false	SL-5.3	x86_64	5	300	3	10	false	true	false	false	ABORTED: failed (LB query failed) [Manzali 22-12-2011]
INFN-FERRARA	EGI	---	false	SL-5.3	x86_64	12	300	10	3	false	true	false	false	random /opt/exp_soft/superbvo/SL-5.3_x86_64/bin/superb-env.sh not found; [Ma
INFN-FRASCATI	EGI	---	false	SL-5.3	x86_64	25	100	10	100	true	true	true	true	
INFN-LNL-2	EGI	---	false	SL-5.3	x86_64	30	500	10	50	true	true	false	false	error in FullSim: libG4OpenGL.so [Manzali 22-12-2011]
RAL-LCG2	EGI	---	false	SL-5.3	x86_64	30	800	10	100	true	true	true	true	ABORTED: hit job shallow retry count (10) [Manzali 22-12-2011]
SPRACE	EGI	---	false			0	0	0	0	false	false	false	false	This site need to be configured and tested
UKI-LT2-QMUL	EGI	---	false	SL-5.3	x86_64	50	950	10	100	true	true	true	true	error in FullSim: libG4OpenGL.so [Manzali 22-12-2011]
UKI-SOUTHGRID-RALPP	EGI	---	false	SL-5.3	x86_64	30	550	10	50	true	true	true	true	error in FullSim: libG4OpenGL.so [Manzali 22-12-2011]
UNINA-EGEE	EGI	---	false	SL-5.3	x86_64	3	6	3	6	false	true	false	false	ABORTED: hit job shallow retry count (10) [Manzali 22-12-2011]
VICTORIA-LCG2-SL4	EGI	---	false	SL-4	i386	30	300	10	50	false	false	false	false	It's an old site with SL4 + 32 bit , no longer used [Manzali 19-01-2012]
CIT_CMS_T2B	OSG	---	false	SL-5.3	x86_64	3	5	2	5	false	true	false	false	It's an old site, no longer used [Manzali 19-01-2012]
INFN-PISA	EGI	---	false	SL-5.3	x86_64	50	1000	10	100	true	true	false	false	
CA-MCGILL-CLUMEQ-T2	EGI	---	false	SL-5.3	x86_64	200	200	10	20	false	false	false	false	
INFN-CATANIA	EGI	---	false			0	0	0	0	false	true	false	false	This site need to be tested
IN2P3-LPSC	EGI	---	false	SL-5.3	x86_64	30	200	10	50	true	true	true	true	
IN2P3-IRES	EGI	---	false	SL-5.3	x86_64	30	200	10	50	true	true	true	true	
INFN-T1	EGI	---	true	SL-5.3	x86_64	200	1200	10	300	true	true	true	true	
VICTORIA-LCG2	EGI	---	false	SL-5.1	i386	40	300	10	50	false	true	false	false	Now it has 64 bit architecture
UKI-SOUTHGRID-OX-HEP	EGI	---	false	SL-5.3	x86_64	30	300	10	100	true	true	true	true	error in FullSim: libG4OpenGL.so [Manzali 22-12-2011]
FNAL_FERMIGRID	OSG	---	false	SL-5.3	x86_64	50	500	10	50	false	true	true	true	xx
INFN-MILANO-ATLASC	EGI	---	false	SL-5.3	x86_64	30	300	10	100	true	true	true	true	
INFN-NAPOLI-ATLAS	EGI	---	false	SL-5.3	x86_64	40	300	10	50	true	true	false	false	Now it works for FastSim [Manzali 22-12-2011]
CYFRONET-LCG2	EGI	---	false	SL-5.3	x86_64	50	700	5	50	true	true	true	true	
GRIF	EGI	---	false	SL-5.3	x86_64	30	500	10	50	true	true	true	true	ABORTED: failed (LB query failed) [Manzali 22-12-2011]



SBK5, WebUI and DIRAC



- SuperB production rely on SBK5 and WebUI
 - but SBK5 and WebUI were designed for general use...
- DIRAC offers all you need for distributed computing
 - but not everything you want...
 - No DB management layer to change DB backend
 - No general use bookkeeping database
 - No production “framework”



Next steps proposal



- Using SuperB production use case....
 - Finalize SuperBDIRAC as a DIRAC extension to offer
 - A production management tool
 - An interface to a general use bookkeeping database
 - A generic layer to use different DB backend
- List of existing experiments and research topics that need access to more computing power
- Try to apply SuperBDIRAC to his new use case to prove that our work is of general usage



Discussion time



- Proposal ?
- Suggestion ?



SuperB DIRAC

next steps



- gridmonService – DIRAC read data from gridmon
- Use gridmon (filled by Nagios) to ban/unban sites
- Site management via DIRAC webportal
 - Sites overview
 - Site details
- Launch Severus via DIRAC
 - Using DIRAC for stagein and stageout



SuperB DIRAC goals



- A complete Simulation Production stack via DIRAC
 - FastSim (working in progress)
 - FullSim
 - Site Management per session
 - Production and Request management
 - Bunch jobs submission and monitoring
- Mass Data Transfer
 - Transfer and entire dataset via FTS
- Test LFC and DFC sync



Credits



- Marcin Chrzaszcz Kracow
- Christian De Santis Rome
- Giacinto Donvito Bari
- Armando Fella Pisa
- Rafał Grzymkowski Kracow
- Bruno Santeramo Bari
- Miłosz Zdybał Kracow

Thanks to DIRAC developers, especially to
Andrei Tsaregorodtsev, Federico Stagni, Matvey Sapunov,
Krzysztof Daniel Ciba, Ricardo Graciani, Adrian Casajus



BACKUP SLIDES



Development server



- `bbrbuild01.cr.cnafe.infn.it`
 - `/opt/dirac/pro/SuperBDIRAC.<developer_name>`
- Guidelines for development
 - http://mailman.fe.infn.it/superbwiki/index.php/Dirac_testbed/SuperBDIRAC#Guidelines_for_SuperBDIRAC_developers
 - Please, suggest improvements in development guidelines
- Perform by hand commits on repo
 - Script to automatize procedure not yet ready



SuperBDIRAC module installation status



- `bbrbuild01.cr.cnaf.infn.it`
 - Production
- `sb-serv04.cr.cnaf.infn.it`
 - Development
- `gridtest-05.ba.infn.it`
 - Installation procedure test



SuperB DIRAC shared development



- /opt/dirac/pro
 - SuperB DIRAC.main
 - SuperB DIRAC.bruno
 - SuperB DIRAC.mylosz
 - SuperB DIRAC.marcin
 - SuperB DIRAC.rafal
- Symbolic link
 - SuperB DIRAC → SuperB DIRAC.main (for example)
- Working directly on sb-serv04
- Update SVN directly from sb-serv04



SVN usage



- Now, only sb-serv04 should be used for development purposes
 - If needed, also bbrbuild01 can be used for same task
 - especially when new DIRAC head node will be available
- `svn co https://sbrepo.pd.infn.it:8910/WebUi/trunk/DIRAC`
- `svn commit -m "Update from git release"`
- `svn push`
- SVN now available on sb-serv04 (thanks to Armando)



SVN usage improvements



- <https://sbrepo.pd.infn.it:8910/WebUi/trunk/DIRAC/SuperBDIRAC>
- Introduce trunk, tags and branches (one branch foreach developer
- .../SuperBDIRAC/trunk
- .../SuperBDIRAC/tags/<tagged_release>
- .../SuperBDIRAC/branches/<bruno|mylosz|rafal|marcin>
- Sync (automatically or via script) personal branches with personal SuperBDIRAC version
 - See previous slide



SuperB DIRAC status



- SuperB DIRAC installed and usable
 - New system defined: SimulationProductionSystem
 - Dummy service tested
- Now we can place all our code in proper places under SuperB DIRAC
- VM DIRAC properly installed
 - Together to SuperB DIRAC (SuperB DIRAC doesn't depends by VM DIRAC)
 - If occi or amazon cloud resources available, we can test job submission to cloud



SimulationProductionSystem



- Easy to configure, transparent usage
- We can start using Mylosz code to create a working service (named SBKAlchemy ?)
 - To return site's data
 - Info needed to create Site Management webpage



Task assignement proposal



- Bruno
 - Solve repo troubles
 - Complete Severus porting under DIRAC
- Mylosz
 - Prepare a working service
 - To return Site's list
- Marcin, Rafal
 - Webpage to diplay site's list (taking data from Mylosz's service)
 - Permission management:
 - The same page (site's list) but adding an “edit” button foreach site
 - Page should be availble only for sb_productionmanager members



Groups



Groups and Role in VO and DIRAC

Group/Role	Type	Description	VO share	DIRAC mapping
/superbvo.org	Standard User	Generic user group	0	sb_user
/superbvo.org/Role=ProductionManager	Production Manager	User role related to MC production management	20	sb_productionmanager
/superbvo.org/Role=SoftwareManager	Software Manager	VO Software administrator	0	sb_softwaremanager
/superbvo.org/Role=Analysis	Standard User	User role related to analysis task	0	sb_analysis
	DIRAC administrator	DIRAC administrator		dirac_admin
	DIRAC pilot job	Useful for DIRAC		sb_pilot



DIRAC API



- DIRAC offers a powerful set of API
 - We need a good quality documentation to speed up development
- API documentation
 - <http://diracgrid.org/files/docs/CodeDocumentation/API/index.html>
 - Epydoc generated – updated – maintained by developers



Useful links



- **DIRAC official site**
 - <http://diracgrid.org/>
- **DIRAC official forum**
 - <https://groups.google.com/forum/?hl=en&fromgroups#!forum/diracgrid-forum>
- **DIRAC repository**
 - <https://github.com/DIRACGrid>
- **DIRAC API documentation**
 - <http://diracgrid.org/files/docs/CodeDocumentation/API/index.html>
- **DIRAC testbed for SuperB wiki page**
 - http://mailman.fe.infn.it/superbwiki/index.php/Distributed_Computing/Dirac_testbed
- **DIRAC testbed webportals:**
 - bbrbuild01.cr.cnaf.infn.it
 - <https://bbrbuild01.cr.cnaf.infn.it:8443/DIRAC/>
 - sb-serv04.cr.cnaf.infn.it
 - <https://sb-serv04.cr.cnaf.infn.it:8443/DIRAC/>
- **Production WebUI**
 - https://bbr-serv09.cr.cnaf.infn.it:8443/~webui_sbk5/
- **SuperB resources (google Doc)**
 - <https://docs.google.com/spreadsheet/ccc?key=0AsjxRpEZ2zEIIdHU2cjh4YTdrajdYdlNmajdBVGZWLWc#gid=0>
- **SuperB Production Shifter Guide wiki page**
 - http://mailman.fe.infn.it/superbwiki/index.php/Distributed_Computing/Production_Shift_Guide

WebUI workflow



