



DIRAC testbed

SuperBDIRAC development

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Summary



- DIRAC evaluation
 - Advanced features
- DIRAC for SuperB
- SuperBDIRAC
 - Development
 - Report
 - SBKService
 - Web-portal
 - Severus porting
 - Next steps
 - Goals
- Credits



DIRAC evaluation



- DIRAC: framework to manage and use a distributed computing infrastructure
 - Grid, cloud, Boinc, cluster, local farm, desktop computing
 - User management, grid certificate, VOMS, workload and data management, FTS transfer, 2 File Catalog (LFC and DFC), monitoring, accounting, workflow
 - Pilot job paradigm
 - Largely adopted (not only) in HEP community
 - LHCb, BelleII, BESIII, ILC, CTA, etc.
 - Supported and developed by
 - DIRAC developers team
 - DIRAC community



DIRAC advanced features



- DIRAC File Catalog (DFC)
 - Replica and metadata catalog
- Resource Status System (RSS)
 - Integrated resource monitoring system
 - Permits automatic resource banning
 - Can be interfaced with external monitoring system
- Transformation System
 - Framework to define triggered actions
 - Data process once uploaded on FC
 - Complex workflows (LHCb use case)
 - Etc. etc.



DIRAC for SuperB



- Manage both EGI and OSG sites
- Single administration point – minimize human effort
- FTS transfer successfully tested
- Simulation Production successfully tested
 - Stagein, stageout, Severus wrapper
- Job priority policy defined by VO manager
- Web interface for every user type (physicist, shifter, manager, admin, etc.)
- Possibility to use Cloud Resources (Amazon, OpenStack, occi-compatible cloud (WNodes(?)))



SuperB DIRAC



- Extending DIRAC for SuperB needs
- Interaction between DIRAC and bookkeeping database (SBK5)
 - Load, add and modify
- Severus porting in DIRAC
 - Use DIRAC capabilities where possible to benefit of DIRAC advanced features
 - Stagein, stageout, software selection(?), SBK5 interactions(?)
- Simulation Production
 - Porting WebUI functionalities in DIRAC
 - Site management
 - Session management
 - Job submission
 - Output management
 - In order to benefit of DIRAC advanced features



SuperB DIRAC Development



- `bbrbuild01.cr.cnaf.infn.it`
 - `/opt/dirac/pro/SuperB DIRAC.<developer_name>`
- Guidelines for development
 - http://mailman.fe.infn.it/superbwiki/index.php/Dirac_testbed/SuperB DIRAC#Guidelines_for_SuperB DIRAC_developers
 - 4 active developers on same DIRAC instance
- Code repo on SVN
 - <https://sbrepo.pd.infn.it:8910/WebUi/trunk/DIRAC/SuperB DIRAC/trunk>

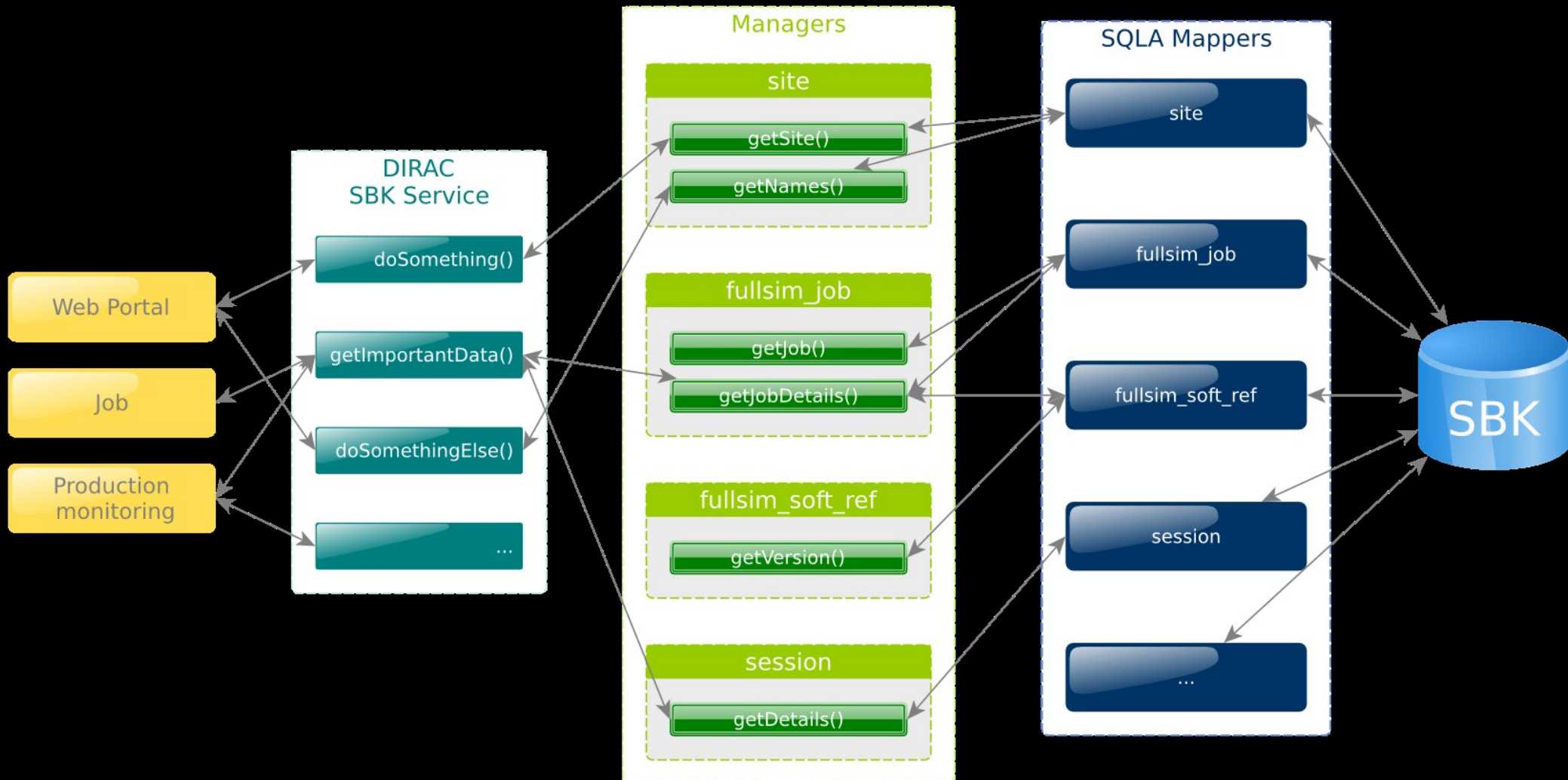


SuperBDIRAC report



- Latest version: SuperBDIRAC v0-pre3
 - Rely on latest production-ready DIRAC release
- SimulationProductionSystem
 - for Simulation Production
 - SBKService running
- TestingSystem
 - free to use for experiments
 - Dummy Service SimpleMessage
 - Dummy Agent SimplestAgent
 - Dummy Web page Testing Menu

- DIRAC interface to SBK5 via SQLAlchemy





SuperBDIRAC - SBKService



- Read and write queries on SBK5
- Object Relational Mapping (ORM) paradigm
- Permits actions on SBK5 via DIRAC service
- Just ready for DB backend changes
 - Thanks to SQLAlchemy adoption



Webportal - Sites Overview



Site Overview

site	Grid Flavor	Banned	Target Site	WorkerNode OS	Architecture	Threshold Prepared	Threshold Running	Threshold Failed	Bunch Dimension	FastSim enabled	FastSim supported	FullSim enabled	FullSim supported
<u>CIT-HEP</u>	<u>OSG</u>	True	<u>No</u>	<u>SL-5.3</u>	<u>x86_64</u>	<u>20</u>	<u>300</u>	<u>10</u>	<u>100</u>	<u>True</u>	<u>True</u>	<u>False</u>	<u>False</u>
<u>INFN-T1</u>	<u>EGI</u>	False	<u>Yes</u>	<u>SL-5.3</u>	<u>x86_64</u>	<u>200</u>	<u>1200</u>	<u>10</u>	<u>300</u>	<u>True</u>	<u>True</u>	<u>True</u>	<u>True</u>
<u>CYFRONET-LCG2</u>	<u>EGI</u>	False	<u>No</u>	<u>SL-5.3</u>	<u>x86_64</u>	<u>50</u>	<u>700</u>	<u>5</u>	<u>50</u>	<u>True</u>	<u>True</u>	<u>True</u>	<u>True</u>

Visible for normal users

All underlined data editable by “managers”



Severus and DIRAC



- Severus launched as DIRAC job
 - SBK5 updated
 - Submission visible from WebUI
 - Stagein and stageout performed by Severus (lcg commands)
 - Jobs running up to 80.000 events



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



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



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



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_sb5/
- **SuperB resources (google Doc)**
 - <https://docs.google.com/spreadsheetsccc?key=0AsjxRpEZ2zEIdHU2cjh4YTdrajdYdlNmajdBVGZWLWc#gid=0>
- **SuperB Production Shifter Guide wiki page**
 - http://mailman.fe.infn.it/superbwiki/index.php/Distributed_Computing/Production_Shift_Guide