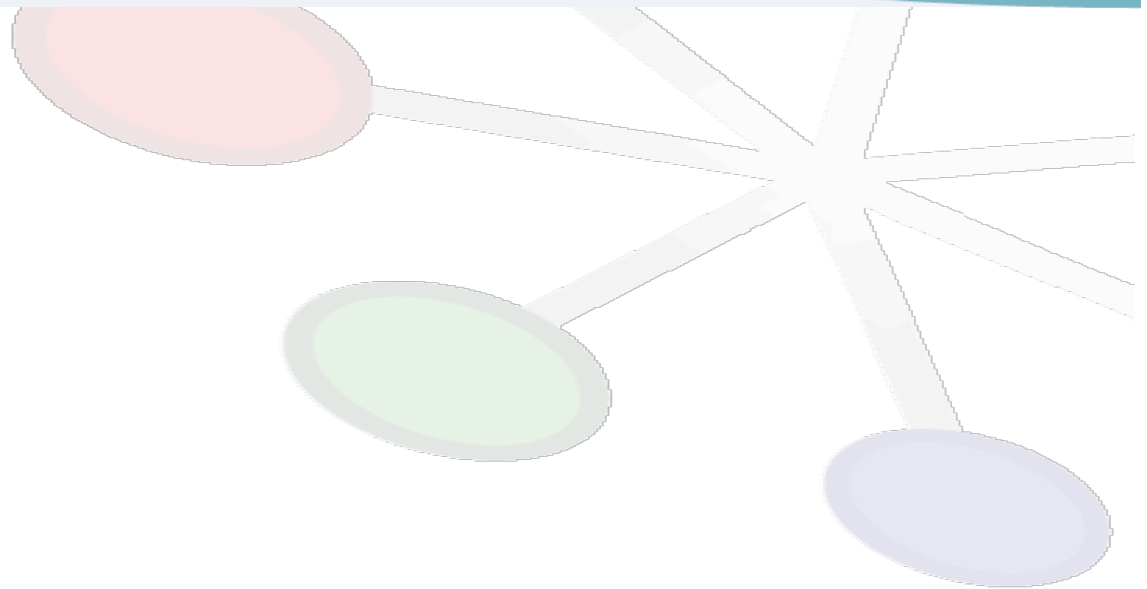


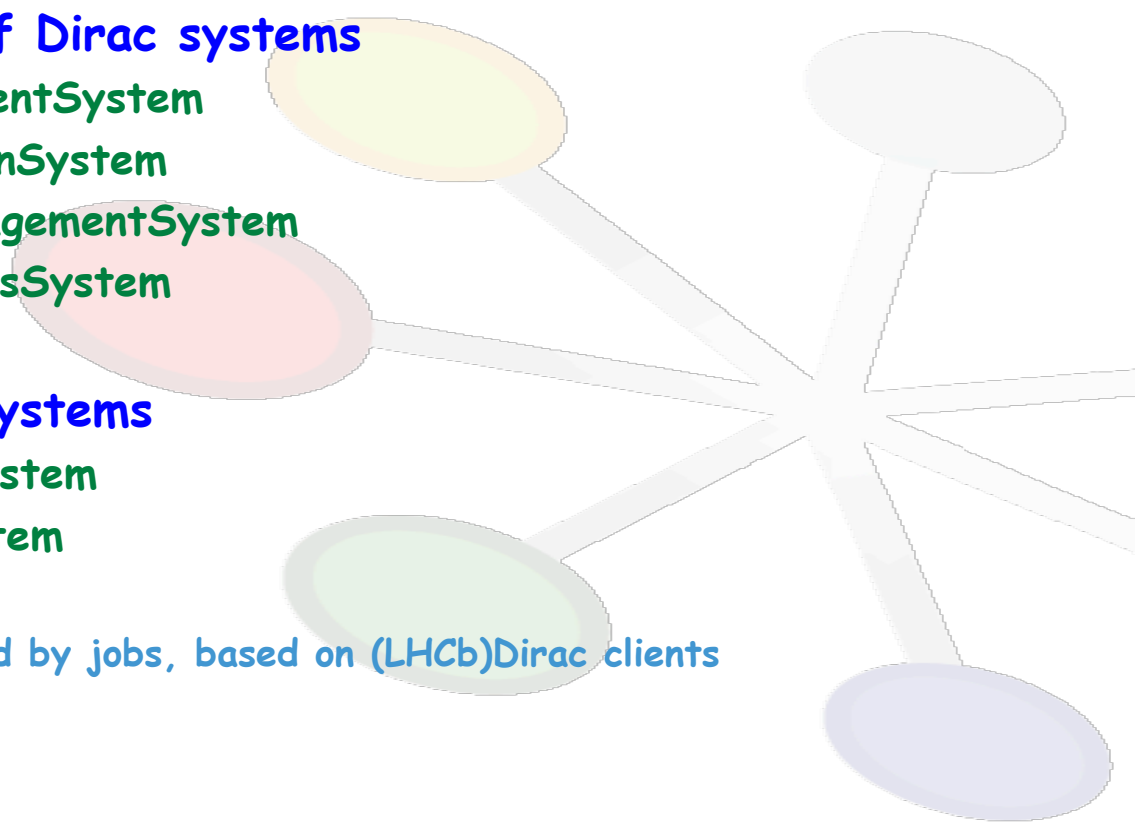


LHCbDirac and Dirac



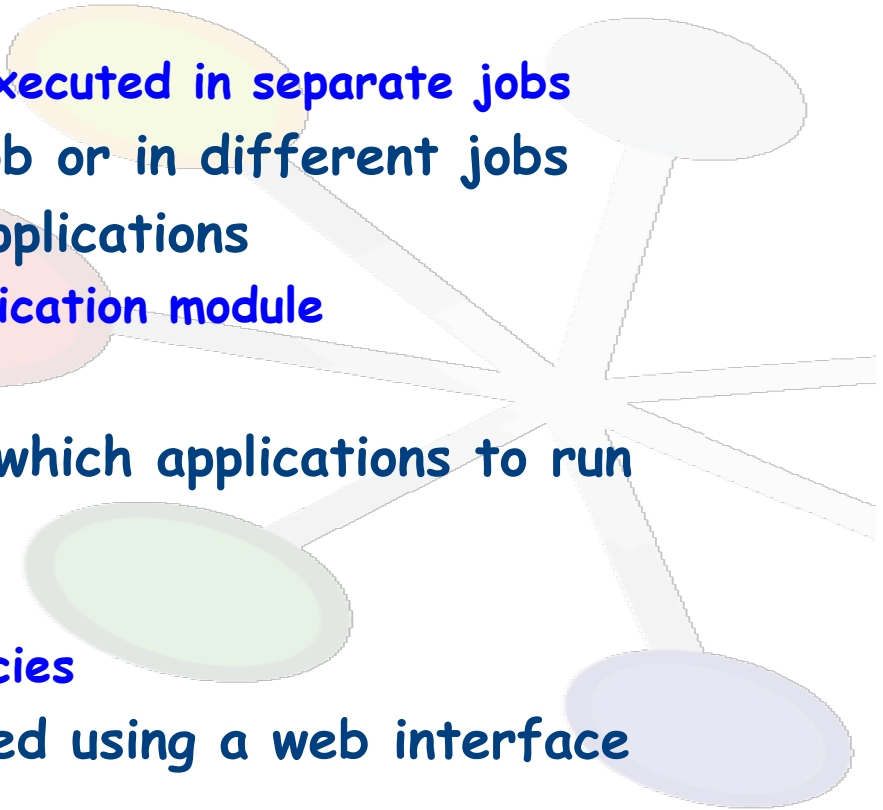


- Dirac and LHCbDirac were split formally in 2010
 - Almost complete now
- LHCbDirac contains extensions to Dirac
 - Specialisation of Dirac systems
 - ☆ DataManagementSystem
 - ☆ TransformationSystem
 - ☆ WorkloadManagementSystem
 - ☆ ResourceStatusSystem
 - ☆ Interfaces
 - LHCb specific systems
 - ☆ BookkeepingSystem
 - ☆ ProductionSystem
 - ☆ Workflow
 - * Modules used by jobs, based on (LHCb)Dirac clients





- Jobs implement a *workflow*
 - A workflow is a succession of connected *steps*
 - ☆ Steps consist of serially executed *modules*
- Steps are atomic entities
 - Their modules cannot be executed in separate jobs
- Steps can run in a single job or in different jobs
- Most jobs execute Gaudi applications
 - Executed by the `gaudiApplication` module
- Application experts define which applications to run
 - Application version
 - Configuration (job options)
 - Input and output data policies
- Application steps are defined using a web interface





Step manager

Info System Jobs Production Data View Web

Filter

Application:

Gauss
Boole
Brunel
DaVinci
...

Visible:

Y
N

Usable:

Yes
Not ready
Obsolete

Processing pass:

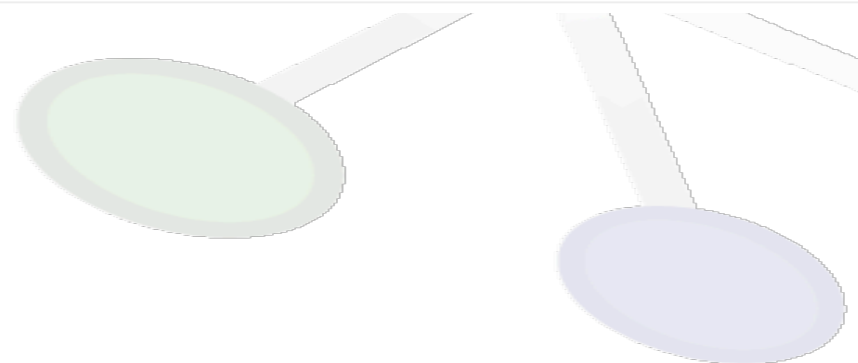
Registered after:

YYYY.MM.DD

Apply Reset

Registered Steps

Id	Name	Processing pass	Application	Version	Visible	Usable
12879	Reco08-For-Minimum-Bias-MD Options: \$APPCONFIGOPTS/Brunel/DataType-2010.py;\$APPCONFIGOPTS/Brunel/MC-WithTruth.py;\$APPCONFIGOPTS/Brunel/earlyData.py;\$APPCONFIGOPTS/Brunel/WithVeloTrackAndLoosePV.py DDDB: head-20101206 Condition DB: sim-20101210-vc-md100 Extra: AppConfig.v3r96;SQLDDDB.v5r44	Reco08-MINBIAS	Brunel	v37r8p5	Yes	Yes
12878	Reco08-For-Minimum-Bias-MU Options: \$APPCONFIGOPTS/Brunel/DataType-2010.py;\$APPCONFIGOPTS/Brunel/MC-WithTruth.py;\$APPCONFIGOPTS/Brunel/earlyData.py;\$APPCONFIGOPTS/Brunel/WithVeloTrackAndLoosePV.py DDDB: head-20101206 Condition DB: sim-20101210-vc-mu100 Extra: AppConfig.v3r96;SQLDDDB.v5r44	Reco08-MINBIAS	Brunel	v37r8p5	Yes	Yes
12718	Reco08-14-nb-For-Minimum-Bias Options: \$APPCONFIGOPTS/Brunel/earlyData.py;\$APPCONFIGOPTS/Brunel/DataType-2010.py;\$APPCONFIGOPTS/Brunel/WithVeloTrackAndLoosePV.py DDDB: head-20101026 Condition DB: head-20101112 Extra: AppConfig.v3r98;SQLDDDB.v5r43	Reco08-MINBIAS-FIRST-14-I	Brunel	v37r8p4	Yes	Yes
12558	Reco09-EXPRESS Options: \$APPCONFIGOPTS/Brunel/DataType-2011.py;\$APPCONFIGOPTS/Brunel/MonitorExpress.py DDDB: head-20110302 Condition DB: head-20110407 Extra: AppConfig.v3r95	Reco09	Brunel	v39r0p3	Yes	Yes
12519	FULL - Reco09 - CondDB20110407 Options: \$APPCONFIGOPTS/Brunel/DataType-2011.py DDDB: head-20110302 Condition DB: head-20110407 Extra: AppConfig.v3r94	Reco09	Brunel	v39r0p3	Yes	Yes
12458	Reco09 - EXPRESS	Reco09	Brunel	v39r0p3	Yes	Yes
12358	FULL - Reco09	Reco09	Brunel	v39r0p3	Yes	Yes
11319	Reco08	Reco08	Brunel	v37r8p5	Yes	Yes
11280	Reco08	Reco08	Brunel	v37r8p5	Yes	Yes





Production requests

Info System Jobs Production Data View Web

Filter Registered Production Requests

Type: Reconstruction, Simulation, Stripping, Stripping (Moore)

State: Accepted, Active, BK OK, Cancelled

Author: aborgia, acsmith, adinolfi, akozlins

Request ID(s): Comma separated IDs

Apply Reset

Id	Type	State	Priority	Name	Sim/Run conditions	Proc. pass	Event type	Events requested
3388	Stripping	Accepted	1a	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
3387	Stripping	Accepted	1a	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
3324	Stripping	Accepted	1a	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
3198	Stripping	Accepted	1b	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
3191	Stripping	Accepted	2b	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
3160	Stripping	Accepted	2b	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
2842	Stripping	Accepted	2b	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
2716	Stripping	Accepted	2b	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
2656	Stripping	Accepted	2b	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	
2654	Stripping	Accepted	2b	Stripping13 - Validation - Forth Attempt	Beam3500GeV-VeloClosed-MagUp	Stripping13	0000000	

Request 3191

ID: 3191

Name: Stripping13 - Validation - Forth Attempt

Type: Stripping

State: Accepted

Priority: 2b

Author: santinel

Event type: 90000000 Full stream

Number of events: -1

Configuration: LHCb version: Collision11

Conditions: Beam3500GeV-VeloClosed-MagDown type: Run

Processing pass: Real Data/Reco09

Input file type: SDST

DQ flag: ALL

Input production: 0

Processing Pass: Stripping13

Step 1 Stripping13-Stripping - For Validation - Third Attempt (no track)(12638/Stripping13) : DaVinci-v28r2p2

Options: \$APPCONFIGOPTS/DaVinci/DV-Stripping13-Stripping-NoTrack.py

DDDB: head-20110302 Condition DB: head-20110407

Extra: AppConfig.v3r97

Visible: Y Usable:Yes

Input file types: SDST(Y) Output file types: BHADRON.DST(Y),CALIBRATION.DST(Y),CHARM.MDST(Y),CHARMCOMPLETEEVENT.DST(Y),CHARMCONTROL.DST(Y),DIELECTRON.DST(Y),DIMUON.DST(Y),EW.DST(Y),

Step 2 Stripping13-Merging - For Validation - Third Attempt (no track)(12639/Merging) : DaVinci-v28r2p2

Options: \$APPCONFIGOPTS/Merging/DV-Stripping13-Merging.py

DDDB: head-20110302 Condition DB: head-20110407

Extra: AppConfig.v3r97

Visible: N Usable:Yes

Input file types: BHADRON.DST(Y),CALIBRATION.DST(Y),CHARM.MDST(Y),CHARMCOMPLETEEVENT.DST(Y),CHARMCONTROL.DST(Y),DIELECTRON.DST(Y),DIMUON.DST(Y),EW.DST(Y),

Output file types: BHADRON.DST(Y),CALIBRATION.DST(Y),CHARM.MDST(Y),CHARMCOMPLETEEVENT.DST(Y),CHARMCONTROL.DST(Y),DIELECTRON.DST(Y),DIMUON.DST(Y),EW.DST(Y),

Inform also:

Comments

Third attempt with errant stripping line removed in patch.

Comment by santinel on Apr 14, 2011:

orth attempt with new AppConfigv3r97 with no track





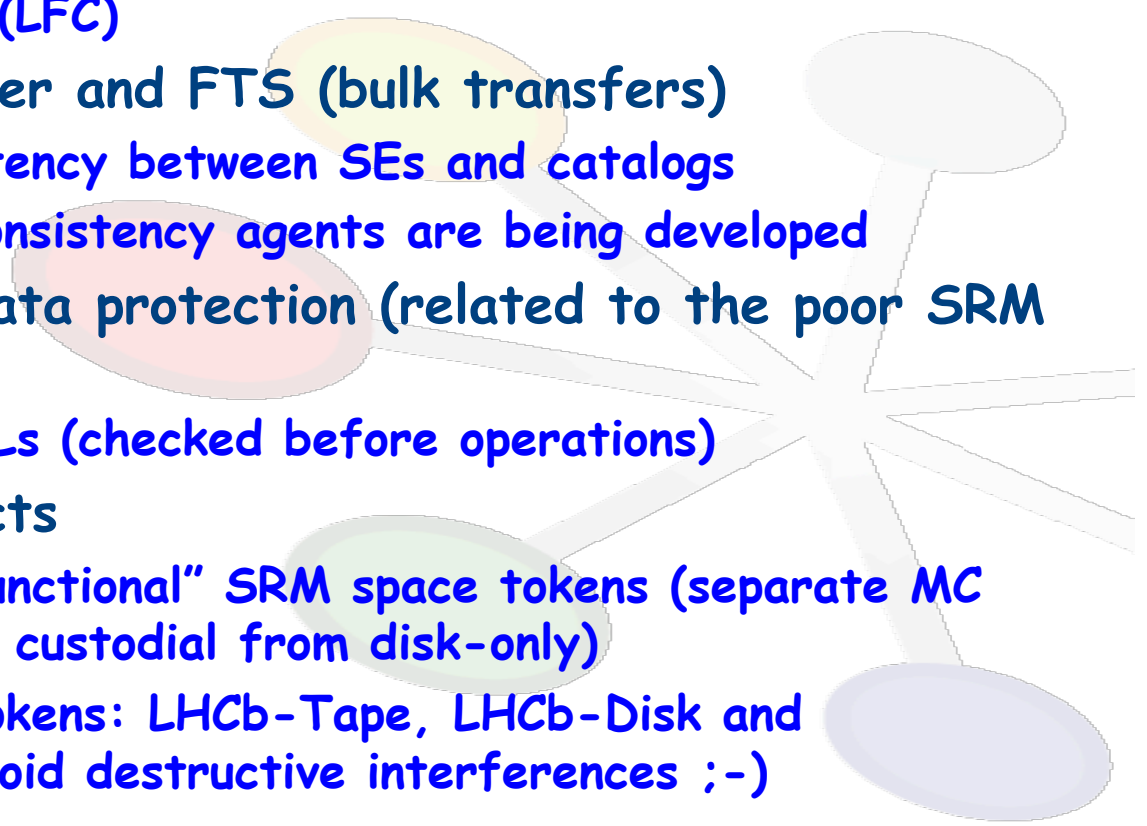
Production Management

- Productions are created from requests + input dataset (queries to the LHCb bookkeeping catalog)
- Other transformations (replication, removal) can be created directly from a script
 - Probably could/should also go through transformation requests?
- Monitoring progress: web portal page + accounting

ID	Type	Group	Name	Files	Processed (%)	Files Processed	Submitted	Waiting	Running	Done	Completed	Failed	Stalled	Plugin
Request: 3388														
10581	DataStripping	Stripping12d	STRIPPING_Request3388_Stri	2606	100.0 (+91.6)	2606 (+2386)	373 (+51)	0 (-169)	0 (-39)	268 (+246)	2 (+2)	103 (+30)	0	ByRun
Request: 3387														
10570	DataStripping	Stripping12d	STRIPPING_Request3387_Stri	1210	100.0	1210	124	0	0	124	0	0	0	ByRun
Request: 3253														
10199	DataStripping	Stripping13	STRIPPING_Request3253_Stri	9599 (+545)	99.6 (+1.4)	9565 (+673)	15097 (+618)	2 (-26)	1 (-104)	9553 (+673)	5	5524 (+74)	0	ByRun
Request: 3230														
10246	DataStripping	Stripping13	STRIPPING_Request3230_Stri	4591	99.7 (+6.2)	4578 (+285)	4760 (+58)	0 (-105)	1 (-186)	4558 (+286)	10 (-1)	178 (+64)	0	ByRun
10174	DataStripping	Stripping13	STRIPPING_Request3230_Stri	3767	100.0 (+0.2)	3766 (+6)	5764	0	0 (-8)	3752 (+8)	10	1996	0	ByRun
Request: 3229														
10270	DataReconstrui	Reco08-MINBI	FULL_Request3229_Reco08-M	6064	99.8	6050	6077	0	0	6050	0	13	0	AtomicRun
Request: 3228														
10269	DataReconstrui	Reco08-MINBI	FULL_Request3228_Reco08-M	4008	99.7	3996	4052	0	0	3994	0	45	0	AtomicRun
Request: 3200														
10149	DataReconstrui	Reco09	FULL_Request3200_Reco09_9	10774	99.8	10755	12502 (+2)	0	1	10724	12	1747 (+2)	0	AtomicRun
Request: 3150														
10238	DataReconstrui	Reco09	FULL_Request3150_Reco09_9	6413	98.3	6304 (+1)	8229 (+3)	0	2 (-2)	6290 (+1)	1	1845 (+3)	0	AtomicRun
10128	DataReconstrui	Reco09	FULL_Request3150_Reco09_9	151	100.0	151	160	0	0	150	1	9	0	AtomicRun
10058	DataReconstrui	Reco09	FULL_Request3150_Reco09_9	1177	100.0	1177	1245	0	0	1141	35	69	0	AtomicRun



- **Catalogs:**
 - **Bookkeeping catalog (LHCbDirac):** query dataset from provenance information
 - **Replica catalog (LFC)**
- **Use replicaManager and FTS (bulk transfers)**
 - **Maintain consistency between SEs and catalogs**
 - **Nevertheless consistency agents are being developed**
- **Still very little data protection (related to the poor SRM capabilities)**
 - **Rely on LFC ACLs (checked before operations)**
- **Operational aspects**
 - **Moving from "functional" SRM space tokens (separate MC from real data, custodial from disk-only)**
 - **Keep 3 space tokens: LHCb-Tape, LHCb-Disk and LHCb_USER (avoid destructive interferences ;-)**





DIRAC features: shopping list



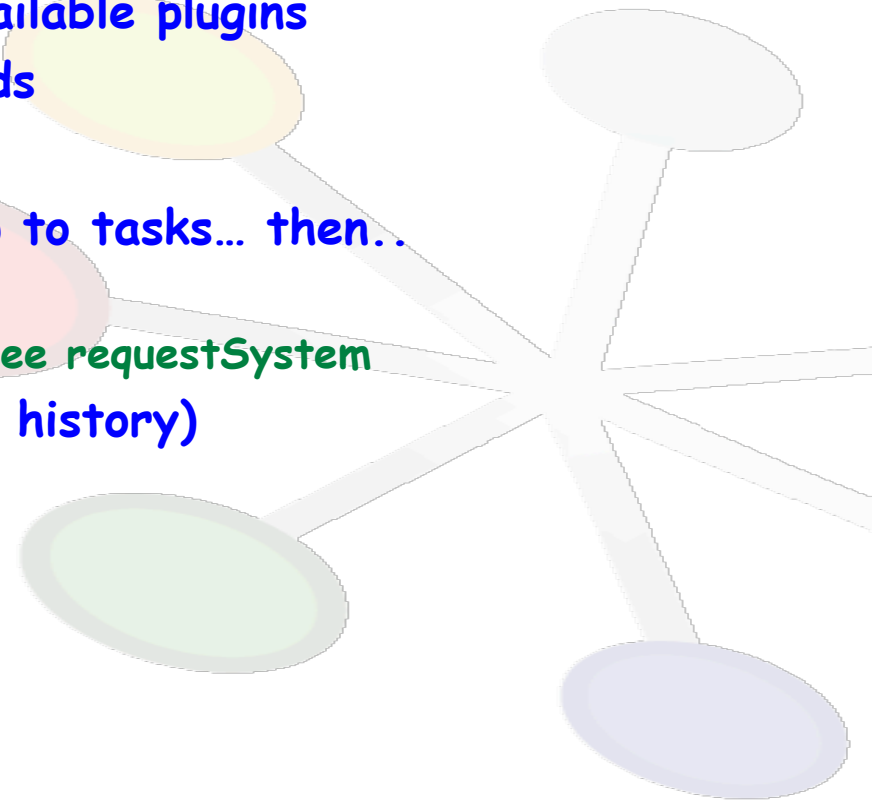


- Core, framework
 - Use MySQL transactions?
- WMS
 - Would like to move to CREAM direct submission
 - ☆ Prepare CS, commission and tune parameters
 - Prepare CERNVM integration for cloud / opportunistic resource usage (LHCbDirac).
- DMS
 - Some development ongoing mainly on LHCb impulse
 - ☆ Catalog / SE consistency checks
 - ☆ Historical SE usage
 - ☆ FTS better monitoring, participate in new FTS user requirements (early tester?)
- Accounting, web portal
 - Many pending Savannah tasks (most LHCb-related however)
 - Move to a single portal framework (currently 3!)
 - ☆ What about letting the user chose?
 - Urgent: user profile, presenter layout sharing



Transformation System

- Mainly developed within LHCb
 - Most functionality in TransformationPlugin
- Review some implementation features
 - Necessary definition of available plugins
 - `__checkPluginXXXX` methods
- Monitoring
 - OK from transformation up to tasks... then..
 - ☆ For jobs from tasks: OK
 - ☆ For requests from tasks: see requestSystem
 - Needed: file -> task (with history)





- Should be (probably) reviewed and anyway fixed
- Agents processing Requests
 - Requests should never be left in "Assigned" status
 - ☆ "Stateful" agents (request set to "Assigned")
 - Most probably enough to protect at the agent level (try:- Except)
 - Implement graceful shutdown of agent
- Fix racing (?) problems
 - At least suspicion of it ;-)
 - Requests get "Done" without all sub-requests being "Done"
- Request monitoring
 - Only functional interface currently available
 - Implement client access to all information
 - ☆ Files list
 - ☆ Select requests by type, status
 - ☆ Take action on requests (e.g. change status)
 - ☆ For example: RequestCLI (see later about CLIs)?



- Mixture of support scripts, functional scripts (just implementing Interface API), scripts for users, scripts for experts... no real convention...
- Review of scripts and names necessary :-)
 - What about remove-lfn / files / lfn-replica / replicas??
 - Not only true for Dirac but also for LHCbDirac !!!
- For experts:
 - Rely more on CLI shells (e.g. TransformationCLI) ?
 - Merge scripts functionalities and use switches instead
- Need to review (LHCb) service authorizations
 - Currently users can do almost everything, included stopping / cleaning productions ☹
- Framework for sharing switches between scripts
 - Being developed in LHCb
- Automatic and complete documentation
 - --help, web documentation



- LHCb wants to use its packaging and distribution tools
- Need to make DIRAC release method and LHCbDirac release more compatible
 - LHCb view : LHCbDirac depends on Dirac
 - Dirac view : Dirac uses extensions from LHCb (includes unfortunately also Web packages)
 - ☆ Split web from the rest for distribution?
- Bug fixes in Dirac:
 - What should be the procedure? What when GIT is used? Who can commit? Who decides to include in a release? Private DIRAC patch releases?
- LHCb would like to use its own pilots
 - Derived from Dirac pilots
 - Uses LHCb environment definition, use LHCbDirac installation (either on shared area or better on CVMFS)
 - Possibility to add LHCb specific checks / features
 - Use LHCb versioning system



Testing and certification

- Lack of unit tests (not easy with such a complex set of services, agents and scripts)
 - Guidelines would be useful for developing tests
 - May require changes in interfaces, or more modularity in implementation (e.g. separate data preparation from functionality: allows "fake" preparation)
 - Dummy client implementation to services
- Certification OK, but comes a bit late
 - Dirac certification (before being officially released to "customers")
 - LHCb willing to loan infrastructure, no problem to use LHCbDirac as playground, but should not interfere (in particular in code repository)
- Temporary import of Dirac systems for tests or quick bugfixes: is it realistic? Should be strictly temporary.
 - LHCb wants to get rid completely of hotfixes
 - Requires agility in Dirac fixes
 - Regression should be avoided by all means!



- Synergy between LHCbDirac and Dirac is very good, but nature and construction 😊
- Communication should remain good and LHCb needs taken onboard
 - Those can be temporarily included in LHCbDirac and exported if of general usage
- LHCb would like to see a fully independent release and deployment infrastructure
 - To start with: LHCb pilots
- Cleaner set of scripts
- Full debugging functionality in scripts and/or CLIs
 - There should be no need at all to access MySQL database, a fortiori to modify DB contents "by hand"
 - Access to all information should be systematic
 - ☆ Query table structure
 - ☆ Get content (dictionaries) using queries (dictionary): this exists for some DBs, but not enforced by the framework



○ Documentation

□ Documentation

○ Documentation

□ Documentation

☆ Documentation

□ Documentation

■ DOCUMENTATION

○ Documentation

❄ Documentation

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☆ Documentation

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