Summary

3rd JRA1 All Hands Meeting

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Testing

- **Distributed TB – 4 sites (CERN, Imperial, NIKHEF, RAL)**
- **On what should JRA1 testing focus?**
  - Verification: does the system do what it is supposed to do?
  - Validation: is what the system is doing correct?
- **Deployment and manage ~60 machines**
  - Takes 1-2 days each time, average 1 new deployment every 2-3 weeks
- **Write functional test suites**
  - CERN test team plus external collaborations
  - Requires understanding of functionality – specifications and documentation is essential (ideally BEFORE component is fully finished code-wise)
- **Regression testing lacks manpower**
- **Run test suites and ad-hoc testing – run manually**
- **Help/support other testing related activities**
  - Time consuming

Functional testing

- **Existing test suites**
  - Fireman catalog (since gLite 1.0)
  - I/O (since gLite 1.0)
  - WMS (since gLite 1.0)
  - R-GMA (since gLite 1.1)
  - FTS (coming with gLite 1.2)
  - VOMS (coming with gLite 1.2)
- **New ones being discussed**
  - LB test suite
  - WMS (API) test suit
  - DAG test suite
  - MPI test suite
  - JDL test suite
- **Improvements needed:**
  - Testbed managed 100% automatically (or externally)
  - Automated environment to run testsuites
  - Security testing is in its infancy

Main testing issues

- **Installation (Imperial)**
  - CE config does not allow more than 2 WMSs
  - Latests QFs caused WMS and CE to fail
  - I/O server interaction with dCache (bug in gsidcap fixed r… …lear whether those are already installed there)
  - Would appreciate more detailed architectural do… …istration guide
  - Have plans for WMS performance and scal… …d related project
- **Components:**
  - MySQL Fireman: cannot write in …
  - FTS: Backend DB has to b… … there is no dedicated index tablespace in DB. Error messages … (bug 8713)
  - gLite-I/O: Bug 604… …eous downloading/retrieving several files via IOserver" still … message
  - R-GMA: … …th slow response, tests hit timeouts
  - R-GM… …ers sometimes fail to catch published tuples
  - SD: na… …ns for "Service Type"
  - WMS: ra… …tion when new schedd is spawned (fixed by now in Condor 6.7.8)
  - WMS: do… …y spawned identical schedds on the CE (not reproducible so fare – also here Condor 6.7.8 should help)
  - WMS: authorization on the CE (Condor 6.7.8 enables gsi)
  - Sites appearing and disappearing from the ISM
  - Jobs are resubmitted even with retryCount=0 (related to DAGs?)
  - VOMS: most tests OK in v1.5; status of some tests the status is unknown
  - VOMS: some installation/configuration problems left (should be fixed for 1.2)

Difficult to test stability, scalability or stress response

Integration

- Continuous and nightly builds on x860
- IA64 builds – Java OutOfMemory issue
- Other platforms (AIX, PPC, …) – generic mechanism for multi-platform buils

- QFs and APT updates announced via glite-announce mailinglist

- Frequent broken nightly builds

- Release management defined and working

- More stability needed – tested and stable tags at least two weeks before release date for integration and testing

- YUM repository in addition to APT would be good

Error Handling

- **Try to agree upon the principles**
- **4 basic error classes presented**
  - Error numbers should be defined by the service
- **Error numbers vs. different exceptions**
  - Would allow to better define what is returned
- **Unique causes are needed**
  - Not ubiquitously available in neither 3rd party components nor our components
- **Start mapping our existing errors to the 4 categories**
  - Will at least lead to a rather comprehensive list of possible errors

Configuration & Instrumentation

- **Current status**
  - Homogeneous configuration (thanks to deployment modules) much appreciated
  - Still deployment modules hide service specific configuration – unnecessary extra layer
  - Common place for logging defined
  - No service instrumentation in place
- **Proposed a common configuration and instrumentation service (also discussed in Padova) – needs to use gLite security infrastructure**
- **Configuration should use a proper schema – needs to be defined**

- **What's the relationship/overlaps with service monitoring**
- **Configuration service should be a central site-wide secure configuration repository – performance concerns?**
- **How many sides will use that? Are there too many layers?**
- **Will this intimately bind together the gLite services?**

- **Should probably prototype with some services**
- **Decoupling of configuration and service mgmt**

- **Service registration: service type and name proposed**

Security

- **Isolation – Sandboxing**
  - Virtualization (cf. VM talk) or assigning of local credentials
  - Do as little as possible with ‘root’ privileges
  - Workspace Service (GT4): account lifetime mgmt, quota, clean-up.
  - Need integration of WSS/LCMAPS/fork/suexec and work on these components
- **Local Authorization – PDPs**
  - VOMS-ACL, proxy lifetime, and limited proxy check needed
- **Job Repository**
  - Provides auditing information and maps grid job to batch system’s job
- **Vulnerability group**
  - Newly formed – MWSCG members should be part of the vulnerability group

Security II

- **Encrypted Data Storage**
  - Initially a combination of openssl and data mgmt tools
  - Key splitting added in second phase
  - Splitting files could be an alternative – not sure it's secure enough
- **Delegation**
  - Gridsite for C/C++ and Delegation-java available
  - Service interfaces and delegation interfaces needs to be merged
  - Non WS or Web interfaces need offline delegation service
  - Common delegation interface between OSG, globus, EGEE, … ongoing
- **DM Security**
  - User proxy containing also data service authorization allows VO based access control preserving site security/audibility
  - How is the data service authorization put into the user proxy
- **G-PBox**
  - Policy system working under many administrative domains
  - Policy boxes are defined by VO admins and propagated to sites

Sandbox management

- **WMproxy provides web interface to WMS**
  - Runs as fastCGI script in an Apache+GridSite container
  - Introduces parametric jobs and job collections
  - Introduces the concept of shared sandboxes
  - Input/output sandboxes can be stored on gridFTP and https
    - Should add standard gLite SEs
  - Still requires outbound connectivity from WNs for storing output
    - Couldn't gLite-I/O be used for that?
  - Fetching input data from SEs requires FPS and gLite-I/O

- **How to combine computational and job submission jobs in a common job (DAG)?**
  - Via the data scheduler?
  - Via the WMS submitting and monitor FPS jobs?
  - Via condor/stork?
  - 2 major usecases:
    - make input file available (pinning, moving)
    - Reserve space for output file (and maybe move it)
  - Stage-in and stage-out could be turned into FTS commands – pinning is currently not supported in FTS
  - Is DAG really the answer?
  - What's the sequence/relationship of data transfer and matchmaking?

- **FTS & LB**
  - Job transfer jobs (FTS) have similar states than computational jobs
  - Could be logged into the LB
  - States will not change much anymore
  - State machine in FTS – should that move into the LB?

LB & Job statistics

- **Data collected at LB**
  - Currently job statistics require direct access to LB DB
- **Short term:**
  - Regular LB dumps processed by custom utility into XML format that is digested by statistics tool
    - Development of conversion utility needs to start
- **Long term:**
  - Job provenance service should provide this information

Advanced Reservation

- **New storage space reservation agreement service**
  - Requires SRM v2.1 (e.g. StoRM), in particular srmReserveSpace()
  - SRM v2.1 not widely supported yet
  - More functionality needed:
    - Status queries, cancel, updates, etc.
  - Agreement monitoring through LB
  - Lifetime management (updates, renewal etc.) needed

Virtual Workspaces

- **Dynamic creation of execution environment on remote resources**
  - Grids offer wide variety of different resources – but specific environments are needed
  - A virtual workspace provides such a specific environment
    - Virtual machines could be used for that – Xen is a open source VM implementation
  - Xen shows good performance, needs kernel modifications (but soon supported by many Linux distributions)
- **Could be used for head node (CE) sandbox**
  - Quota enforcement, possibility to migrate
- **Application environment on WNs**

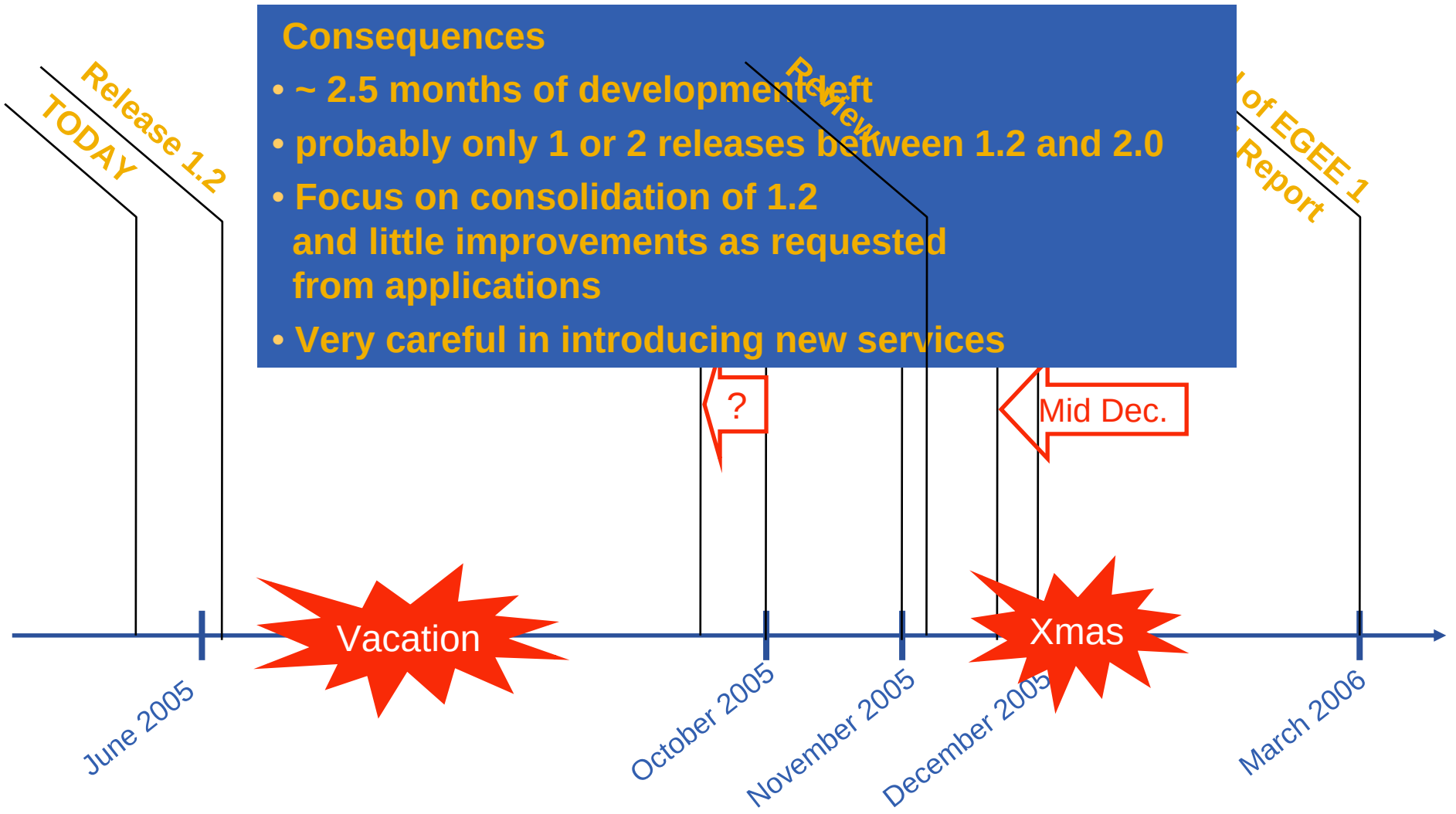
Remaining issues from previous meetings

DM Open issues from 1st meeting

- **Local space management (on WN)**
  - Could ‘tactical’ SE help?
- **Is metadata handled by the job?**
- **Output data merging – who does that?**

Roadmap up to the end of EGEE-1

Timelines


Consequences
• ~ 2.5 months of development left
• probably only 1 or 2 releases between 1.2 and 2.0
• Focus on consolidation of 1.2 and little improvements as requested from applications
• Very careful in introducing new services
Release 1.2
TODAY
Review
of EGEE 1
Report
?
Mid Dec.
Vacation
Xmas
June 2005
October 2005
November 2005
December 2005
March 2006

A Word on Release 1.2

- **SA1 wants to put out asap the following components:**
  - VOMS
  - CE & WMS & LB
  - R-GMA
  - FTS
- **SA1 needs to have them end of July**
  - i.e. our Release 1.2 (early July!)
- **Integration and Testing focuses on these components**
- **Some of the most serious bugs need to be resolved urgently!**
  - BUT NO OTHER CHANGES OR ADDITIONS!

Workplan

- **A workplan has been defined as part of DJRA1.4:**
  - https://edms.cern.ch/document/573493/
- **Lists mostly consolidation efforts plus a few new things**
  - Work looking ahead of Release 2 is not mentioned!
- **Priorities are driven by applications and deployment**
- **Tagging in CVS is not equal to releasing!**
  - Time for integration and testing is needed! (2 weeks at minimum)
- **We must focus on Release 2 and the deployed components of gLite**
  - This doesn't rule out spending spare cycles on continue prototyping work for future improvements.