WLCG Technical Evolution Group: Operations and Tools

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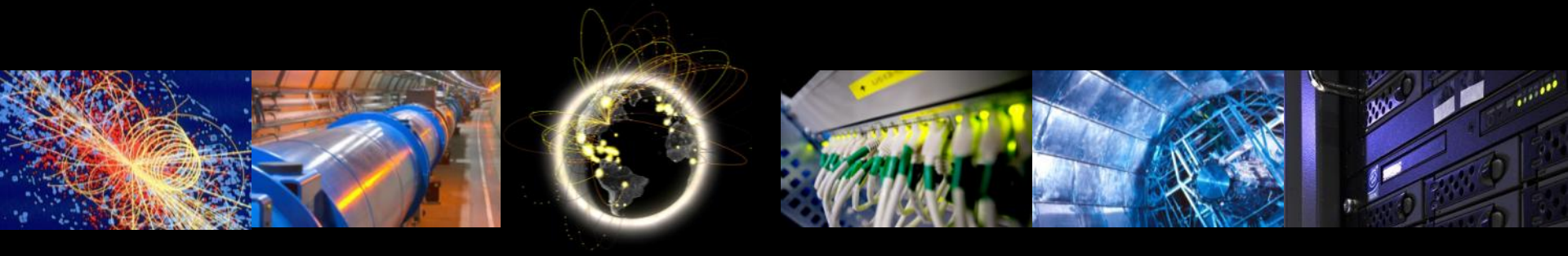
Kick-off meeting, 24th October 2011



WLCG
Worldwide LHC Computing Grid

Mandate

The work should:

- Document a strategy for evolution of the technical implementation of the WLCG distributed computing infrastructure.
- This strategy should provide a clear statement of needs for WLCG, which can also be used to provide input to any external middleware and infrastructure projects.

The work should, in each technical area, take into account the current understanding of:

- Experiment and site needs in the light of experience with real data, operational needs (effort, functionality, security, etc.), and constraints;
- Lessons learned over several years in terms of deployability of software;
- Evolution of technology over the last several years;
- Partnership and capabilities of the various middleware providers.

It should also consider issues of:

- Long term support and sustainability of the solutions;
- Achieving commonalities between experiments where possible;
- Achieving commonalities across all WLCG supporting infrastructures (EGI-related, OSG, NDGF, etc).

- <u>Deliverables</u>
- Assessment of the current situation with middleware, operations, and support structure.
- Strategy document setting out a plan and needs for the next 2-5 years.

Where we will start

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Areas of Work

Large spectrum of topics in charge

1. Monitoring, (SAM, Nagios, etc.), metrics, and analysis of these data
2. Support tools (APEL, GGUS, etc.)
3. Underlying services (ActiveMQ, BDII, etc.)
4. Application software management (e.g. cernvmfs)
5. Operational requirements on middleware
6. Configuration management
7. Deployment management
8. Middleware distribution management
9. WLCG operations (tbd)

In more details…

- Monitoring
  - Monitoring for sites
  - Monitoring for services
  - Monitoring for the experiment activities
  - Metrics and analysis of monitored data
  - Views : alerts for failures vs. collection of useful data
  - Synergies with ongoing Monitoring Task Forces (for 2nd phase, where appropriate)
- Underlying Services
  - Messaging Services
  - Information Services (overlap workload mgt.)
- Support tools
  - Ticketing Tools and their interoperability (eg GGUS, JIRA)
  - Accounting Tools (APEL, CESGA Portal)
  - Request Trackers (EGI RT, Savannah, ..)
  - Infrastructure administration (GOCDB, CIC Portal)

Remember : at this point names are only examples!!!

In more details…

- Application Software Management
  - Cernvmfs
  - sgm
  - svn, git (do we descend to this level?)

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- Configuration Management
  - Config of app s/w (cmt, scram, waf, cmake etc) (what is 'grid' here?)
  - Config of grid middleware & site infra (yaim, cfengine, puppet)
- Deployment Management
  - rpm, tarballs, packman, apt, torrent, …
  - LHCb application area use case

In more details…

- Operational requirements on middleware
  - What are they? (eg. Age-old requirements on error messages and logging)
  - Process of collection and transmission from EGI to EMI
  - How is this organized for WLCG
- Middleware deployment
  - EMI, OSG, ARC, UNICORE, ..
  - Process for distribution at sites and for hot fixes
- Middleware distribution management
  - UMD
  - EPEL
  - To what extent is this “operations”?

WLCG Operations

- New item
- To be defined
- Possible examples:
  - Procedures for downtime announcements
  - Ops meeting vs. Broadcasts
  - SIRs
  - Coordination of e.g. database interventions
- Focus should be on making this less heavy by improvements in middleware

Organization

- First week: each member provides baseline info from perspective of her/his expertise:
  - What things work well?
  - What things require most effort (where could we reduce manpower)
  - What are the three biggest problems
  - Concise, couple pages at most should be sufficient
- Rest of time to 1st deliverable: Vertical subgroups per Areas of Work
  - Sub-group editors
    - Experiments representative
    - Sites representative
  - Please volunteer now
    - Need to have agreed sub-editors by the end of this meeting!
  - Chairs will ensure balance between groups
- Horizontal: infrastructure representatives
  - Rob Quick: OSG
  - Tiziana Ferrari: EGI
- Rotational secretary for minutes and actions

Suggested subgroups

- Monitoring and metrics collection
- Support tools, underlying services, WLCG ops
- Oper. Requirements mw.
- App sw management, deployment, config
- Mw dist management, deployment, config

Timeline

- Oct 24th: Kick-off meeting
- Nov 28th F2F: Deliverable on assessment of current situation completed (5 weeks)
  - Weekly check points
  - Presentation at GDB (14th Dec)
- 12-13th December: Workshop on Future Strategy
  - At CERN, prior to the GDB
- Jan 23rd F2F: Deliverable on medium to long term strategy
- Feb 7th: TEG reports (10 more weeks, including Xmas break)
  - Plan and needs for the next 2-5 years

Suggestions for the F2F location welcome

Deliverable 1 – Assessment of Current Situation

- Questions to answer
  1. What is in use currently and works well
     1. In the context of WLCG, OSG, EGI, ..
  2. Top 3 problems
  3. What takes the most effort from experiments, sites, infrastructure providers
  4. What are the operational procedures and how they work
  5. What are the strengths and weaknesses
  6. Are there areas which are not covered
  7. What is irrelevant (provided but not used)
  8. ?

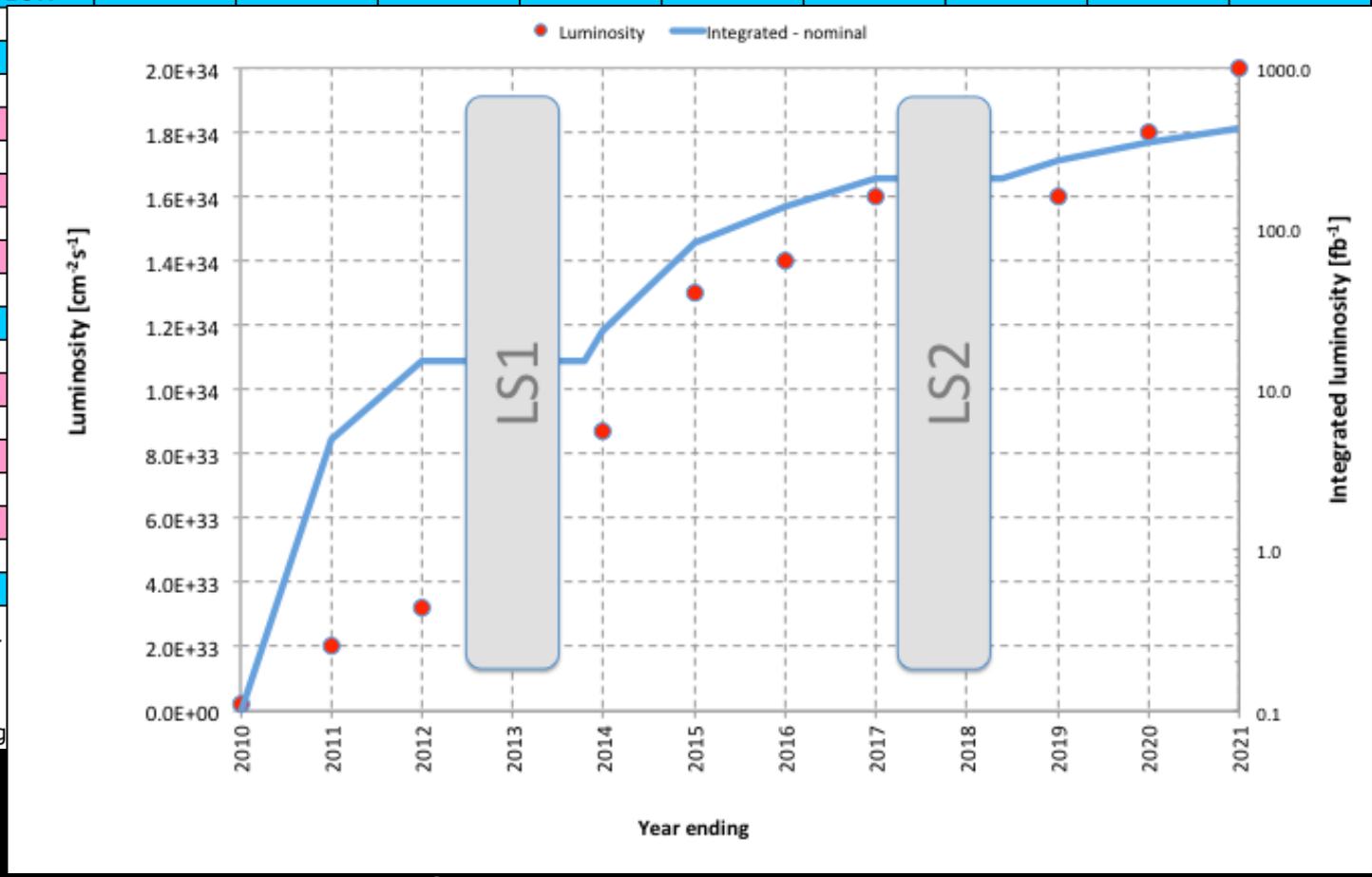
Deliverable 2 – Medium to Long Term Strategy

- Building on the current situation and keeping in mind
  - weaknesses and gaps identified
  - sustainability and scalability of solutions
  - commonalities across experiments and supporting infrastructures
  - commercial solutions
  - evolution as required by the other TEGs
  - Upgrade path (major changes limited by LHC schedule, and even so analysis never stops!)
- At the December Workshop
  - discussions on initial ideas and directions
- F2F meeting: January 23rd
  - finalize the document

LHC Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
2011		1	2	3	4	5	6	7	8	9	IONS	
2012			1	2	3	4	5	6	7	8	IONS	
2013	LS1 - SPLICE CONSOLIDATION											
2014												
2015	1	2										
2016		1										
2017		1										
2018	LS2											
2019		1										
2020		1										
2021		1										
2022	HL-LHC upgrade											

Technical stop or
Proton physics
Ion Physics
Recommissioning



Links

- Egroup list: wlcg-teg-operations@cern.ch
- Twiki: https://twiki.cern.ch/twiki/bin/view/LCG/WLCGTEGOperations
- Agenda pages: https://indico.cern.ch/categoryDisplay.py?categId=3770