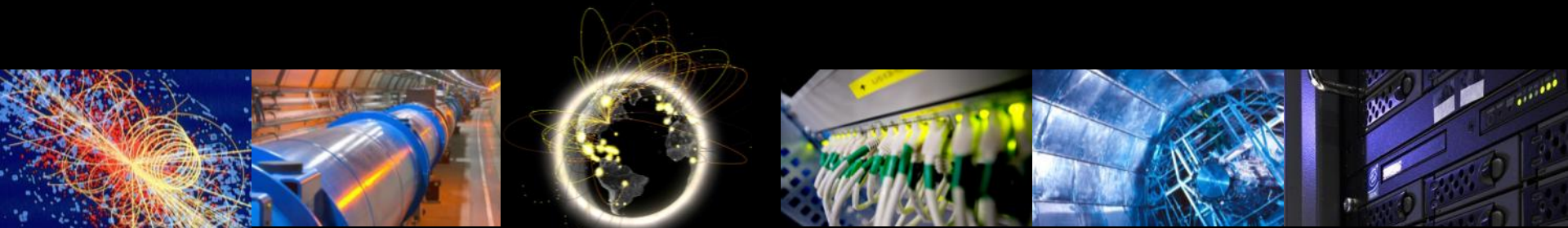# Report from the WLCG Operations and Tools TEG

Maria Girone / CERN & Jeff Templon / NIKHEF

WLCG Workshop, 19th May 2012

WLCG
Worldwide LHC Computing Grid

Global Recommendations

#	Title	Area	Timeline
R1	WLCG Service Coordination	Operations	From 2012
R2	WLCG Service Commissioning	Operations	From 2012
R3	WLCG Availability Monitoring	Monitoring	2012
R4	WLCG Site Monitoring	Monitoring	2012
R5	WLCG Network Monitoring	Monitoring	LS1
R6	Software deployment	S/W	2012/LS1
R7	Information System (WM TEG)	Underlying Services	2012/LS1
R8	Middleware Services	M/W	2012/LS1
R9	Middleware Deployment	M/W	2012/LS1

IN PROGRESS

Long-Term Recommendations: Operations

- **R1: WLCG Service Coordination**: improve the computing service(s) provided by the sites
  - Establish a coordination team with contributions from experiments, sites, and projects.   Persistent effort.
    - Monitors and directs service commissioning effort
  - Address specific Tier-2 communication needs
    - Dedicated service coordination meetings
  - Evolve to "Computing as a Service at Tier-2s"
    - less experiment-specific services and interactions
    - organize with EGI, NDGF and OSG common site administrator training

- **R2: WLCG Service Commissioning**: establish a core team of experts (from sites and experiments) to validate, commission and troubleshoot services
  - Attach to working group areas, created dynamically as needed

Computing as a Service

- Would like to arrive at a point where
  - A small number of well-defined common services would be needed per site;
  - Installing, configuring and upgrading these would be "trivial"
  - All services would comply to standards, e.g. for error messages, monitoring;
  - Services would be resilient to glitches and highly available;
  - In case of load (or unexpected "user behavior") they would react gracefully;
  - **In case of problems**, diagnosis and remedy should be straight-forward and rapid.
- A point where sites provide a defined service and experiments use it
  - Increased expectations on the stability and quality of the service, but lower expectations on the need for customization and interaction

WLCG

Worldwide LHC Computing Grid

Short-Term (and in progress) Recommendations

- **R3: WLCG Availability Monitoring**: streamline availability calculation and visualization
  - Converge on one system for availability calculation and for visualization
  - Review/add critical tests for VO availability calculation to better match site usability
    - expose usability also in regular reports (monthly, MB).
- **R4: WLCG Site Monitoring**: deploy a common multi-VO tool to be used by sites to locally display the site performance
  - Site and experiments should agree on a few common metrics between experiments, relevant from a site perspective
- **R5: WLCG Network Monitoring**: deploy a WLCG-wide and experiment independent monitoring system for network connectivity

- **R6: Software deployment**
  - Adopt CVMFS for use as shared software area at all WLCG sites (Tier-1 and Tier-2)
  - Deploy a robust and redundant infrastructure for CVMFS
    - Complete the deployment and test the implemented resilience
  - Now in production for ATLAS and LHCb, in deployment for CMS

Worldwide LHC Computing Grid

Medium Term Recommendations

- R7: Information System (consistent with the recommendations of the GDB from June 2011)
  - Short term:
    - improve the Information System via full deployment of the cached BDII and a strengthening of information validation (for instance via nagios probes)
  - Long term:
    - split the information into optimized tools focused to provide structural data (static), meta data, and state data (transient)
    - During refactoring the information elements in the BDII should be reviewed and unnecessary elements dropped

WLCG
Worldwide LHC Computing Grid

Medium Term Recommendations

- R8: Review **site (middleware) services**
  - Refactor existing middleware configurations to establish consistent procedures and remove unnecessary complexity
  - Assess services on scalability, load balancing and high availability aspects
  - Assess clients on retry and fail-over behaviors
  - Team of experts to prioritize open bugs and RFEs
  - Improve documentation based on input from service administrators and users
- **R9: Middleware Distribution, Configuration, and Deployment**
  - Middleware configuration should be improved and should not be bound to a particular configuration management tool
  - Endorse middleware distribution via EPEL repository for additions to the RHEL/SL operating system family
    - Opportunity to optimize release process
  - Encourage sites and experiments to actively participate in the commissioning and validation of middleware components and services
  - Maintain compatible middleware clients in the Application Area repository. Establish a compatible UI/WN release in rpm and tar format
  - Possibility to produce targeted updates which fix individual problems on request

Worldwide LHC Computing Grid

Conclusions and Outlook

- Current TEG membership appropriate for guiding the implementation of the work plan

- We recommend forming
  - A coordination team with contributions from experiments, sites, and projects. Persistent effort.
    - Monitors and directs service commissioning effort
    - Attached to working group areas, created dynamically as needed
      - Such as for Monitoring, Middleware, Information System

Computing as a Service

- Cloud is the ultimate Computing as a Service (Caas)
  - Interfaces and expectations are clearly defined
  - Services are built up and torn down by the users as needed
    - This requires that installing, configuring and upgrading is trivial and can be done dynamically
  - Increased expectations on the stability and quality of the service, but lower expectations on the need for customization and interaction
    - Will change the level of communication between sites and users.
- Our current expectations and services need to evolve toward CaaS principles