



# First ideas on WLCG Operations Optimization

Maria Alandes, Andrea Sciabà  
IT-SDC

On behalf of the WLCG Operations Coordination team

WLCG Management Board  
16<sup>th</sup> September 2014



# Introduction

- During Ian's talk at the previous MB, Operations costs were identified as an area of improvement
  - Analyse where the main costs are in terms of effort (sites and experiments)
  - Understand where we could potentially reduce costs and how to do it
- These slides present some preliminary ideas on the subject
  - Not a complete list!

# Scope

- It should cover the operational effort spent by sites, to run site services and central services (e.g. at Tier-0/1s)
- It should not cover operational effort in the experiments, apart from aspects very closely correlated to WLCG operations

# Computing

- Different CE implementations in use
  - CREAM, ARC, HTCondor
  - Sometimes sites need to install many instances to scale
- Different batch systems
  - Different features, scalability, level of support
  - Need to interface to the CEs in a standardised way
    - E.g. for parameter passing
- Any opportunities to reduce complexity? Is it desirable?
- Better share knowledge among sites?

# Storage

- Several storage technologies used
  - DPM, dCache, CASTOR, EOS, native xrootd, StoRM, BestMAN, Hadoop, ...
- And reasonably few protocols
  - GridFTP, xroot, HTTP, SRM
  - Each one is good for different use cases
- **Ensure that all protocols are easily usable with all technologies?**

# Clouds

- Still just an emerging technology in WLCG
  - A lot of development going on at several sites on different solutions
  - How WLCG sites could migrate from Grid to Cloud is still an open issue
    - Operational procedures will have to be defined (e.g. deployment campaigns, documentation for site admins, etc.)
- Would it reduce the operational effort?
  - Not obvious if it increases the effort for experiments (VM management, monitoring, etc.)
- Should WLCG favour particular implementations to avoid a proliferation of different solutions?

# Networking

- Difficult to diagnose networking problems
- Difficult to use perfSONAR for network monitoring
  - Clear procedure needed
  - Availability of network monitoring data
- **These issues have been already identified and the Network and Metrics WG is taking care of them**

# Middleware

- After the end of the EMI project
  - There is no central coordinated effort
    - Development
    - Releases
    - Packaging...
  - Long term support is not always clear
- How can we reduce operational costs under these circumstances?
  - Limit the MW stack to components with reasonable maturity and support levels?



# Communication

- Interaction with sites is often very time-consuming and inefficient
  - E.g. often GGUS tickets need to be opened to many sites to follow up on a particular action (upgrades, reconfigurations, etc.)
- **How can we make sites feel more responsible? By providing suitable incentives?**

# Conclusions

- A proper investigation on the operational effort in WLCG requires time and people
  - Some areas have been presented here, but this would require a more detailed analysis
  - Sites, experiments and central service managers should participate and provide input
- What should be the next steps?