

Service Challenge Technical Day – CERN, September 15

Pre-Workshop Questionnaire

These questions are in the context of understanding how Tier 1 sites will use system and applications monitoring to provide grid services of the required availability levels.

The following text is copied from a draft of the WLCG MoU (the only one I have to hand in MS Word). The current version can be found at <http://lcg.web.cern.ch/LCG/C-RRB/MoU/WLCGMoU.pdf>.

Each Tier1 Centre¹ forms an integral part of the central data handling service of the LHC Experiments. It is thus essential that each such centre undertakes to provide its services on a long-term basis (initially at least 5 years) and to make its best efforts to upgrade its installations steadily in order to keep pace with the expected growth of LHC data volumes and analysis activities.

Tier1 services must be provided with excellent reliability, a high level of availability and rapid responsiveness to problems, since the LHC Experiments depend on them in these respects.

The following services shall be provided by each of the Tier1 Centres in respect of the LHC Experiments that they serve, according to policies agreed with these Experiments. With the exception of items Annex 1.1.i, Annex 1.1.ii, iv and Annex 1.1.x, these services also apply to the CERN analysis facility:

- i. acceptance of an agreed share of raw data from the Tier0 Centre, keeping up with data acquisition;
- ii. acceptance of an agreed share of first-pass reconstructed data from the Tier0 Centre;
- iii. acceptance of processed and simulated data from other centres of the WLCG;
- iv. recording and archival storage of the accepted share of raw data (distributed back-up);
- v. recording and maintenance of processed and simulated data on permanent mass storage;
- vi. provision of managed disk storage providing permanent and temporary data storage for files and databases;
- vii. provision of access to the stored data by other centres of the WLCG and by named AF's as defined in paragraph **Error! Reference source not found.** of this MoU;

¹ The term "Tier1 Centre" includes a distributed Tier1 Centre according to the provisions of this MoU. In terms of services and levels of service a distributed Tier1 Centre shall be indistinguishable from a single-location Tier1 Centre.

- viii. operation of a data-intensive analysis facility;
 - ix. provision of other services according to agreed Experiment requirements;
 - x. ensure high-capacity network bandwidth and services for data exchange with the Tier0 Centre, as part of an overall plan agreed amongst the Experiments, Tier1 and Tier0 Centres;
 - xi. ensure network bandwidth and services for data exchange with Tier1 and Tier2 Centres, as part of an overall plan agreed amongst the Experiments, Tier1 and Tier2 Centres;
 - xii. administration of databases required by Experiments at Tier1 Centres.
- All storage and computational services shall be “grid enabled” according to standards agreed between the LHC Experiments and the regional centres.

The following parameters define the minimum levels of service:

<i>Service</i>	<i>Maximum delay in responding to operational problems</i>			<i>Average availability^{Error!} Bookmark not defined. measured on an annual basis</i>	
	Service interruption	Degradation of the capacity of the service by more than 50%	Degradation of the capacity of the service by more than 20%	During accelerator operation	At all other times
Acceptance of data from the Tier-0 Centre during accelerator operation	12 hours	12 hours	24 hours	99%	n/a
Networking service to the Tier-0 Centre during accelerator operation	12 hours	24 hours	48 hours	98%	n/a
Data-intensive analysis services, including networking to Tier-0, Tier-1 Centres outwith accelerator operation	24 hours	48 hours	48 hours	n/a	98%
All other services ^{Error!} Bookmark not defined. – prime service hours ²	2 hour	2 hour	4 hours	98%	98%
All other services ^{Error!} Bookmark not defined. – outwith prime service hours	24 hours	48 hours	48 hours	97%	97%

1. Do you feel that you have a full understanding of the functionality and behaviour of the MoU services that you are required to provide?

² Prime service hours for Tier1 Centres: 08:00-18:00 in the time zone of the Tier1 Centre, during the working week of the centre, except public holidays and other scheduled centre closures.

2. How does your site monitor the correct functioning of its LCG servers, both for the base system (machine+O/S), middleware and applications?
3. How does your site signal a failure in the correct functioning of its LCG servers, both for the system and applications?
4. How is such a signal treated during
 - i. normal working hours
 - ii. weekday overnight
 - iii. weekend day
 - iv. weekend overnight
4. What are the most common failures, both for the base system, middleware and applications?
5. How much manpower is dedicated to maintaining the monitoring?
6. How much manpower is dedicated to fixing failures?