



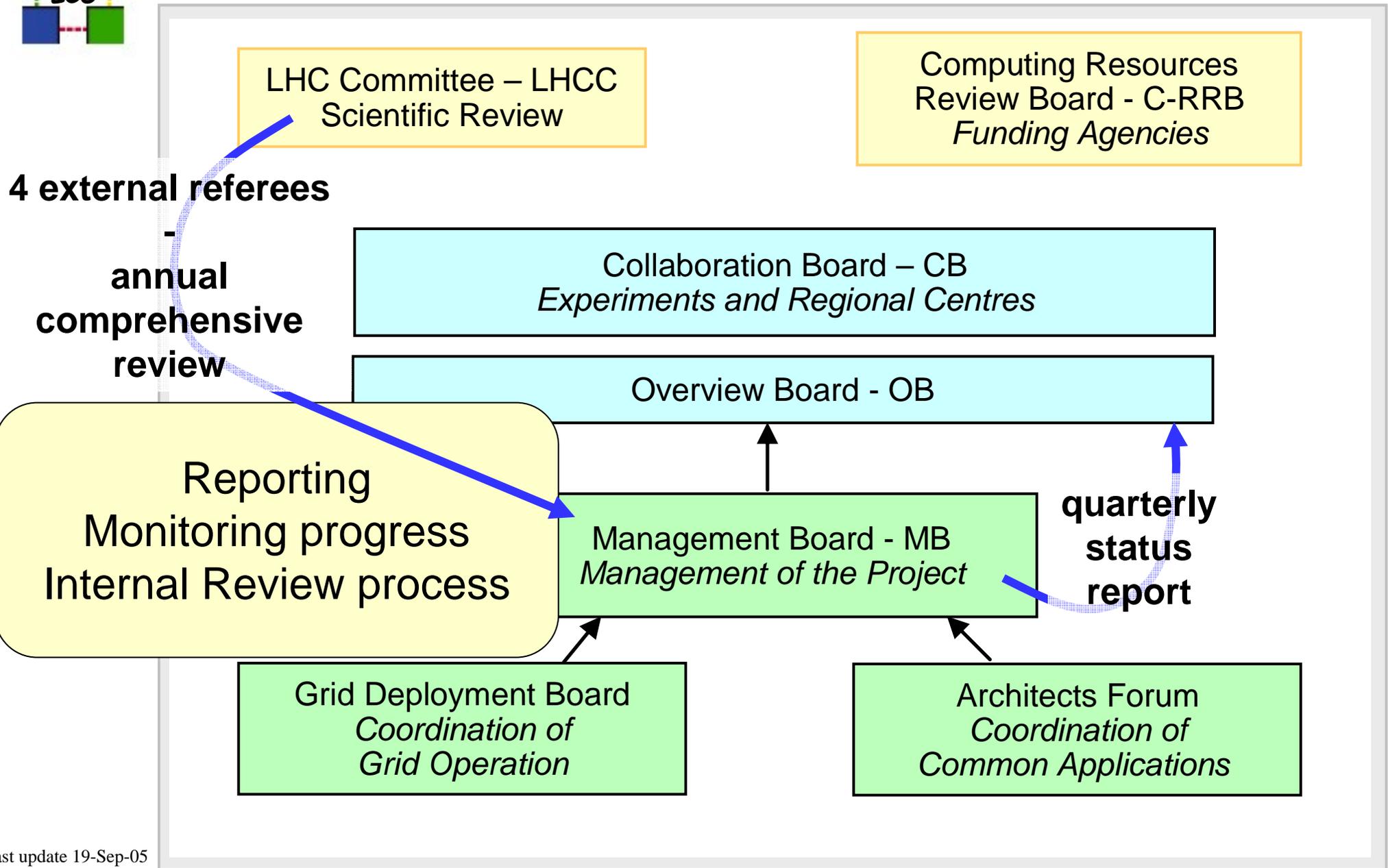
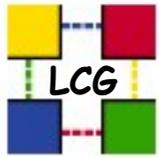
Worldwide LHC Computing Grid Project – LCG

Phase 2 High Level Planning

GDB – 12 October 2005

Les Robertson – LCG Project Leader







Phase 2 Reporting & Planning

- Alberto Aimar takes over from Jürgen Knobloch as LCG Planning Officer
 - Small working group set up by PEB to prepare a proposal for reporting, monitoring and internal reviewing to be presented to the new Management Board during November
 - Must include regional centre reporting
 - Members-
 - Alberto Aimar (chair)
 - Dario Barberis
 - Lothar Bauerdick
 - Dominique Boutigny
- Give them your input
- Progress will be reported at the November GDB



Planning for Phase 2

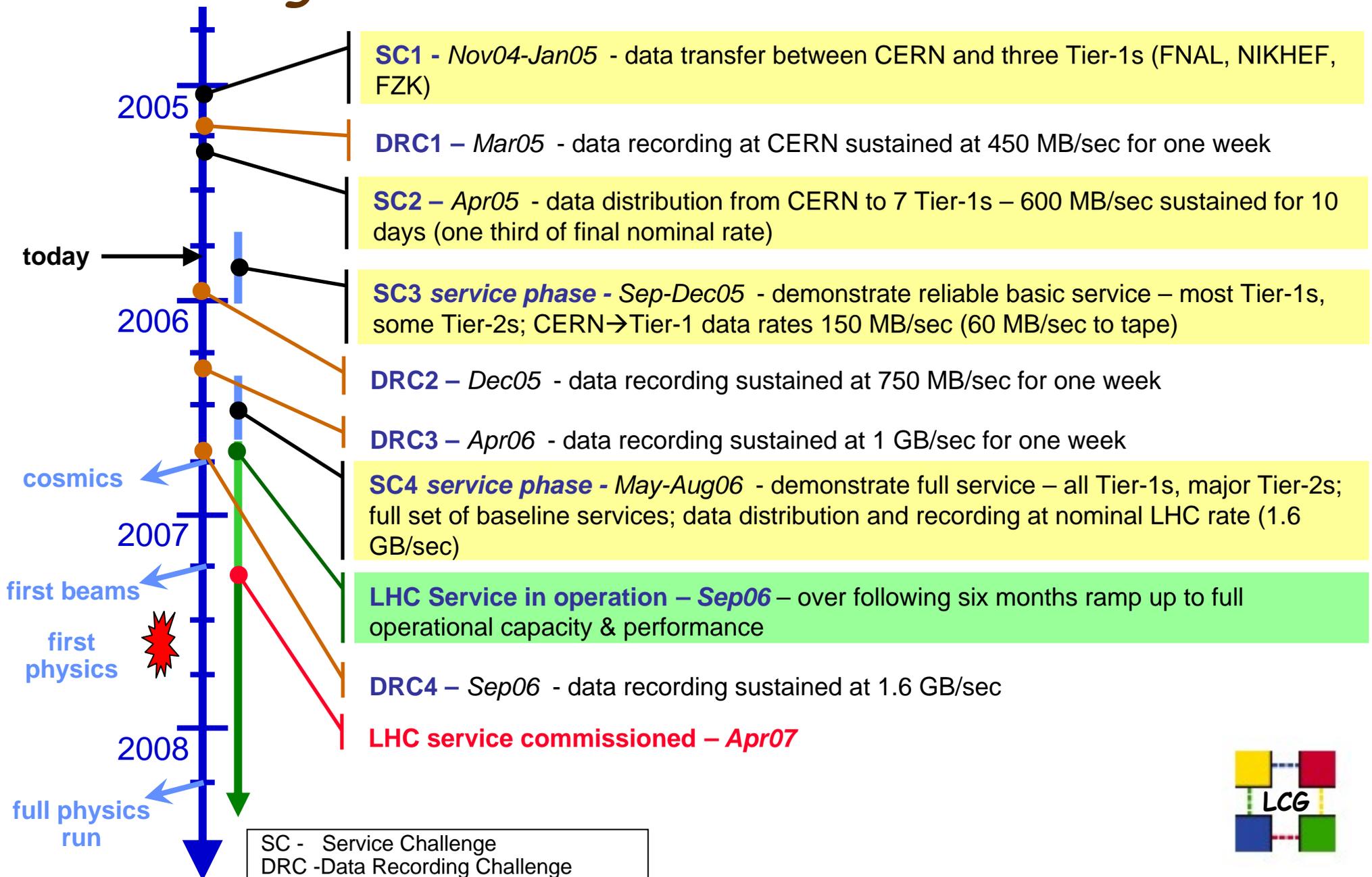
Phase 2: service commissioning, initial operation - 2006-08

- Technical Design Report - 20 June 2005
 - Review by LHCC of the LCG and experiment Computing TDRs on 7-8 October

www.cern.ch/lcg → Technical Design Report



High Level Service Milestones - from TDR





- Throughput rates are measured by the FTS service
- Availability and job reliability rates are measured using standard system test jobs and experiment-provided packaged application jobs, run using the **Site Functional Test (SFT) framework**.
- Targets for response time and availability are specified in Annex 3 of the WLCG MoU. These may be unrealistic and may be inappropriate as measures of the quality of the service. **The metrics will evolve and improved measures and targets will be agreed by the Grid Deployment Board.**
- In the case of **sites that do not provide 24 hour operational coverage** prior to 2007 the calculation of availability will take this into account - e.g. in the case of a failure outside of a period of coverage the "clock" could be stopped until the beginning of the next period of coverage.
- The baseline services are documented in version 1 of the [Baseline Services Group Report](#). A supplement to this is scheduled to be produced before the end of November 2005.
- The new reporting procedure, to be introduced when the WLCG Phase2 management organization is in place, is likely to include a **standardized report for each Tier-1 site and Tier-2 site/federation, reviewed monthly by the GDB.**



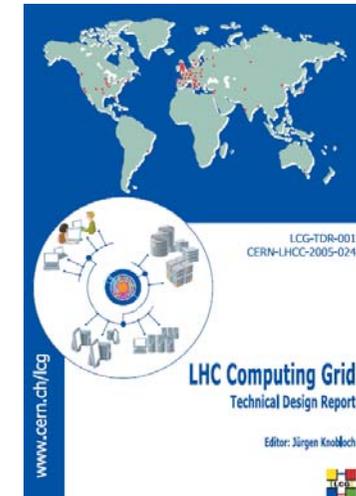
Planning for Phase 2

Phase 2: service commissioning, initial operation - 2006-08

- **Technical Design Report - 20 June 2005**
 - Review of the LCG and experiment Computing TDRs on 7-8 October

- **Phase 2 planning**
 - Applications Area plan
 - Phase 2 Service challenge schedule
 - Service Challenge 4 (March-September 2006) plan being elaborated
 - CERN fabric
 - acquisition plan completed
 - CASTOR 2 testing & migration plan

- Detailed service plan for next 18 months (→ service commissioned)
 - Regional centre milestones
 - Service level metrics
 - DAQ - Tier-0 - Tier-1 testing



www.cern.ch/lcg → Project Planning



Building the Phase 2 Plan

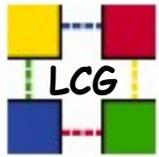
- Developing a set of high level milestones

- Current DRAFT attached to the agenda
- Maintained on the LCG Planning page

www.cern.ch/lcg → Project Planning → Milestones
→ DRAFT - New Milestones - PHASE 2 (08 October 2005)

- Target is to complete the plan by the end of the year

→ Agreement on the service milestones at the November GDB



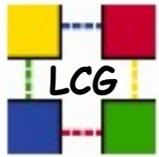
SC3	1 Sept 05	<p>Service Challenge 3: <i>start of stable service phase, including at least 9 Tier-1 and 10 Tier-2 sites.</i></p> <p><i>Criteria for successful completion of SC3:</i></p> <p>By end of service phase (end December 2005)</p> <ol style="list-style-type: none">1) 5 Tier-1s and 5 Tier-2s must have achieved the following targets:<ol style="list-style-type: none">(a) appropriate baseline services operational(b) availability better than 80% of the levels specified in Annex 3 of the WLCG MoU (adjusted for sites that do not provide a 24 hour service)2) Success rate of standard application test jobs greater than 80% (excluding failures due to the applications environment and non-availability of sites)3) Performance and throughput tests complete: CERN-disk → network → Tier-1-disk and tape. Goal is to maintain for one week an average aggregate throughput of 1 GB/s from disk at CERN to disk at the Tier-1s; each Tier-1 capable of accepting 150 MB/sec to disk and 60 MB/sec to tape. All Tier-1 sites must participate. At least 5 Tier-1s must satisfy individual site throughput goals.
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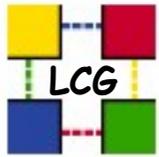
SC4	31 May 06	<p>Service Challenge 4: Start of stable service phase, including all Tier-1s and 40 Tier-2 sites.</p> <p>The service must be able to support the full computing model of each experiment, including simulation and end-user batch analysis at Tier-2 sites.</p> <p>Criteria for successful completion of SC4:</p> <p>By end of service phase (end September 2006)</p> <ol style="list-style-type: none">1) 8 Tier-1s and 20 Tier-2s must have demonstrated availability better than 90% of the levels specified in Annex 3 of the WLCG MoU [adjusted for sites that do not provide a 24 hour service]2) Success rate of standard application test jobs greater than 90% (excluding failures due to the applications environment and non-availability of sites)3) Performance and throughput tests complete: Performance goal for each Tier-1 is the nominal data rate that the centre must sustain during LHC operation: CERN-disk → network → Tier-1-tape. Throughput test goal is to maintain for one week an average throughput of 1.6 GB/s from disk at CERN to tape at the Tier-1 sites. All Tier-1 sites must participate.
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ISa	30 Sept 06	<p>Initial LHC Service in operation: Capable of handling the full nominal data rate between CERN and Tier-1s. The service will be used for extended testing of the computing systems of the four experiments, for simulation and for processing of cosmic-ray data.</p> <p>During the following six months each site will build up to the full throughput needed for LHC operation, which is twice the nominal data rate.</p> <p>24 hour operational coverage is required at all Tier-1 centres from January 2007.</p>
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ISb	2 Apr 07	<p>LHC Service Commissioned: A series of performance, throughput and reliability tests completed to show readiness to operate continuously at the target data rate and at twice this data rate for sustained periods.</p> <p>Criteria for success:</p> <ol style="list-style-type: none">1) All (11) Tier-1s and 30 Tier-2s must have demonstrated availability better than the levels specified in Annex 3 of the WLCG MoU [24 hour coverage]2) Success rate of standard application test jobs greater than 95% (excluding failures due to the applications environment and non-availability of sites)
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	30 Nov 05	<p>Decision on policy for interoperability between EGEE and OSG</p> <p>Cross job submission (including common information publishing schema) has been demonstrated. To proceed further we need to</p> <ul style="list-style-type: none">-- understand if this is a requirement of ATLAS and CMS, and-- we need to have a policy decision from OSG sites participating in WLCG<ul style="list-style-type: none">→ US-ATLAS and US-CMS computing projects <p>Cross operations monitoring principles have been discussed at the Abingdon joint operations workshop (Sep 05).</p> <ul style="list-style-type: none">-- to proceed further we need a policy decision by OSG.
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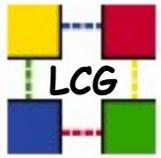


31 Dec 05

Testing Plan for the end-to-end **DAQ – Tier-0 – Tier-1** system

1. testing plan with milestones to demonstrate full data path from DAQ to Tier-0, recording on tape, reconstruction, distribution to Tier-1s, recording on tape at Tier-1s
2. **by end July 2006** – at least 2 experiments each with at least **3** Tier-1s (Level 1 milestone), 200 MB/sec aggregate throughput (*should* include the conditions database)
3. **by end Feb 2007** – all Tier-1s, full functionality and nominal data rates (see Figure 3). By this time the *conditions database must be included*

- Coordination by Bernd Panzer
- Related milestone for the plan to test the DAQ-Tier-0 connection
- Has initiated discussions with online of all experiments



Proposals - Actions - Timescale

- End of October - agree measurement process and initial targets in SC4 Coordination Meeting
- End of November - measurement system in place
 - Based on SFT
 - Basic system tests - grid deployment
 - Applications tests - experiments
- SC4 Coordination - refine targets - ongoing process
- Feedback on the draft milestones
 - Now!
 - By email for the end of the month
 - With a view to approving these at the November meeting

