



Computing Resources Review Board

19th March 2007

Minutes of the 10th Resources Review Board Meeting Held at CERN on 24th October 2006

Present:

Europe:

C. Wulz (bm:bwk, Austria) (*Observer*);
J. Lemonne (FWO, Belgium) ; M. Bertrand (FNRS, Belgium);
J. Niederle (MSMT CR, Czech Rep.), M. Lokajicek, M. Sumbera;
M. Raidal (NICPB, Estonia) (*Observer*);
D.O. Riska (HIP, Finland), T. Tuominiemi;
C. Cavata (CEA/DSM/DAPNIA, France), J. Ernwein;
F. Le Diberder (CNRS/IN2P3, France), F. Malek;
J. Richter (BMBF, Germany), T. Hebbeker; S. Bethke (MPG, Germany) ; K.P Mickel (FZK, Germany);
P. Malzacher (GSI, Germany);
E. N. Gazis (National Technical University of Athens, Greece) (*Observer*);
G. Vesztegombi (KFKI/RMKI, Hungary); K. Galbáts (Nat. Office for Research and Technology);
L. Levinson (Weizman Institute, Israel), E. Rabinovici (Hebrew University Jerusalem) (*Observer*);
U. Dosselli (INFN, Italy), F. Ferroni; F. Ferrini;
F. Linde (NIKHEF, The Netherlands), A. J. Van Rijn;
B. Jacobsen (Norwegian Research Council, Norway);
G. Polok (Ministry of Science & Education, Poland), M. Turala;
G. Barreira (GRICES/FCT/UMIC, Portugal);
L. Puscaragiu (Nat. Authority for Scientific Research, Romania);
A. Petrov; V. Savrin (Federal Agency of Science and Innovation, Russia),
A. Vodopianov (JINR, Dubna), N. Rusakovich;
D. Espriu (MEC, Spain), N. Colino;
A.C. Lagerkvist (Research Council, Sweden);
A. Rubbia (SER/SNF/ETH/CSCS, Switzerland);
G. Zinovjev (National Academy of Sciences of Ukraine);
R. Wade (PPARC, United Kingdom), R. Jones

N. America:

W. Davidson (NSERC, Canada), R. Orr;
M. Pripstein (NSF, U.S.A.), J. Whitmore;
J. O'Fallon (DOE, U.S.A.), T. Ferbel, S. Gonzalez;
H. Gordon; R. Cousins; J. Shank; M. Tuts

Asia:

P. Ji, Y. Peng (MoST/NSFC, China), Y. Zhang, L. Shen;
C. Ananda Bose (DAE, India);
T. Kawamoto (University of Tokyo, Japan);
J-H. Kim (Ministry of Science and Technology, Korea) (*Observer*);
S.C. Lee (Academia Sinica, Taipei), Y.B. Hsiung

Australia:

S. Tovey (AusHEP, Australia)

CERN:

R. Aymar (Director General), J. Engelen (Chairman), C. Jones (Secretary), S. Lettow, A. Naudi,
P. Geeraert, D. Jacobs, E. Tsesselis, W. Von Rueden, J-J. Blaising, J. Salicio Diez, S. Schmeling;

LCG:

L. Robertson, C. Eck;

ALICE:

J. Schukraft, Y. Schutz, F. Carminati;

ATLAS:

P. Jenni, D. Barberis, F. Gianotti;

CMS:

M. Della Negra, L. Taylor, J. Virdee;

LHCb:

T. Nakada, N. Brook.

1. Introduction

J. Engelen, Chief Scientific Officer

J. Engelen welcomed RRB delegates to this 10th meeting of the Computing Resources Review Board. The aim was to gain an understanding of the current status of the project, and to be aware of how the resources were coming together.

2. Approval of the Minutes of the 9th Meeting (CERN-C-RRB-2006-068)

The minutes of the 9th meeting, CERN-C-RRB-2006-068, were **approved** with no corrections. J. Engelen thanked C. Jones for having taken these minutes. There were no matters arising.

3. Status of the LCG Project

L. Robertson, Project Leader

Paper CERN-RRB-2006-074

Presentation CERN-RRB-2006-112

L. Robertson reported on the status of the LCG Project. The details are reported both in his paper and his presentation, which are both referenced above, and are not further abbreviated in these minutes.

He summarized the current status as follows:

Grids were now operational and heavily used, with ~200 sites involved between EGEE and OSG. Grid operations centres were becoming mature with more than 60 000 LCG jobs per day and long periods with more than 15 000 simultaneous jobs. The Core Tier-0 and Tier-1 services were progressing well. Data recording and Tier-0 testing at CERN was on target. The data distribution from CERN to Tier-1s was within 80% of the 2008 requirements. Many Tier-2s were actively involved in the test programmes during 2006.

The focus was now on commissioning the service, supporting the experiments' system tests and integrating experiment and service operations. There was a steep road ahead to ramp up the capacity over the next year and some substantial challenges to achieve the targets for reliability and performance.

Discussion

J. Engelen thanked L. Robertson for his presentation. In inviting questions he requested delegates to take into account in addition the LHCC Deliberations, which had been provided in a paper (CERN-RRB-2006-097) by the scientific secretary of the LHCC, E. Tsismelis.

M. Pripstein was impressed by the progress that had been made but felt there were many challenges ahead. The LCG had grown dramatically, but still had to increase by a factor of five on the time scale of 2008. He asked whether there was a fallback position if bottlenecks were to occur. L. Robertson replied that the technology used could be broken down into components, such as the resource brokers, and one could increase the numbers of these components, within limits, as required, such that there was some flexibility in the system. He felt that the real issue was the reliability. He felt one had to expect that some sites would be less reliable than others, and there would be some degradation of performance. It was hoped that this would be nearer 10% or 20% rather than 80% or 90%.

S. Bethke asked what would happen if the EGEE funding were to stop. L. Robertson replied that there would be a big manpower demand coming from a number of important sites in Europe, one of which would be CERN. Much of the coordination and operational activity in Europe was staffed by people who were paid through EGEE. There would be a big problem for Funding Agencies supporting major computer centres in Europe, and probably for smaller computer centres as well. Half of the EGEE budget went into the operation, and whilst other sciences were served as well, particle physics was completely dependent on this.

J. Engelen reported that the recent EGEE conference in Geneva had a very positive outcome and he asked W. von Rüden, who was preparing the next step for EGEE, to report on the status. W. von Rüden had been in Brussels the day before and he noted that the prospects for a next round of the project were very good. The call would come out in January 2007, with a closing in April/May and an answer was expected in September 2007. This was less tight than for the last call. He believed that those responsible in the EU considered a further round of funding to be very probable. It was now a question of the quality of the proposal that they were preparing together, and work on this had started with regular workshops. The project might not be constructed in exactly the same way as for the earlier rounds of EGEE, and they were still considering which would be the best strategy.

It was also important to look beyond this proposal which would be again for just two years up to March 2010. They were considering a preparation project, starting towards the end of 2007 and lasting around 18 months, for a European GRID Infrastructure (EGI), which would be organized in a manner similar to that of the research networks with national structures and a common organization for dealing with the European issues. The call for this preparation project would also come in January 2007 so both calls would have to be prepared at the same time. If all went to plan there would be an overlap of one year between the end of the preparation project and the end of EGEE III such that they could build up this long term infrastructure and move things over from one project into the next.

[Note: It turned out after the RRB meeting that the call related to the submission of the third phase of EGEE has moved to autumn 2007, but the call for the EGI design project is still as announced, closing on 2 May 2007]

There was an important message to the Funding Agencies around the table which was that the Commission did not today foresee to invest a lot of money in the long term infrastructure. There might be some initial funding to get this started, but the majority of the funding would have to come from the national agencies. It was important that each country built up its own part and helped to build a common European infrastructure.

J. Engelen asked L. Robertson, as the project manager, to comment on how satisfied he was with the communication with the Tier-1 centres and the experiments. L. Robertson replied that in Phase 2 they had a management board which included the Tier-1 sites, and this brought in mainly the people responsible for the service as well as the experiments. This had improved considerably the communication at the planning and management level. The plan now included the Tier-1 centres. Many of these centres, especially those whose objectives were to provide services to a community broader than just particle physics, had to be brought into this grid collaboration such that they understood the requirements of the service. In general he considered that things were not critical at present but this was an area where they had to keep working.

J. Engelen thanked L. Robertson for his report.

4. LHCC Deliberations

Paper CERN-RRB-2006-097

E. Tsesmelis, LHCC Scientific Secretary

Delegates had no further comments to make and the RRB took note of the report of E. Tsemelis.

5. Status of Common Project Accounts

Paper CERN-RRB-2006-080

P. Geeraert, Head, CERN Finance Dept.

P. Geeraert noted that he would be brief. The funding was split between team accounts and CERN budgets. On the team accounts there was a carry forward from Phase 1 amounting to 845 kCHF. Team accounts had been set up for several Funding Agencies: Germany, Italy, Israel and India. Contributions were expected from these Funding Agencies up to 2010 amounting to 8.280 MCHF and so far they had received 2.335 MCHF. Expenditure on these accounts amounted to 1.5 MCHF

leaving a balance of nearly 0.8 MCHF. Taking into account the expected commitments of this year there could be a shortfall of around 0.5 MCHF.

On the CERN budget they had spent so far 12 MCHF on personnel and 11.6 MCHF on materials. By the end of the year they expected this would grow to 17 MCHF for personnel and 23.3 MCHF for materials.

The in-kind contributions for personnel from countries which had not set up team accounts amounted to some 0.7 MCHF.

There being no comments on these numbers, the RRB **took note** of this financial report. J. Engelen thanked P. Geeraert for his report.

6. Status of Resources and Financial Plan C. Eck, Resources Coordinator

Paper CERN- RRB-2006-075

Presentation CERN- RRB-2006-113

C. Eck began by noting that the details of this presentation could be found in the written report (CERN-RRB-2006-075), in the WLCG MoU (CERN-C-RRB-2005-001/Rev.), and on the LCG planning web pages: <http://lcg.web.cern.ch/LCG/planning/planning.html>, under Current WLCG MoU Documents.

6.1 Signatures of the WLCG MoU

C. Eck reviewed the status of signatures of the WLCG MoU. They were expecting 20 signatures to be collected from Member States for 7 Tier-1 and 22 Tier-2 centres/federations. These were distributed over ~80 sites. Currently 7 of these signatures were still missing, including the signatures for two Tier-1s.

For the non-Member States, they expected 13 signatures to be collected, covering 4 Tier-1 and 19 Tier-2 centres/federations, distributed over ~45 sites. Currently 3 of these signatures were still missing.

Altogether ~85% of the pledged resources were now covered by MoU signatures. C. Eck showed the detailed status.

Discussion of the status of MoU signatures

J. Engelen asked at this stage whether there were any comment on this slide showing the signatories of the MoU.

D.O. Riska regretted that Finland had not yet been able to sign this MoU, but they were unable to do so before they could guarantee the resources. It was hoped that with luck this could take place in April 2007.

J. Niederle noted that the Czech Republic would be able to sign the MoU when financial resources for the GRID were confirmed. They had applied for the appropriate financial means to the grant agencies and they expected the result somewhere around March 2007.

M. Turala noted that Poland had resources which were pledged and which were used by LCG. The document was in the process of evaluation by various commissions of the Ministry. In principle the response was positive and he hoped for a signature by the end of the year.

D. Espriu noted that Spain was committed to this project and their Tier-1 was performing well. In discussions with their GRID community it was decided that their contribution to the project should be in the range of 5 to 6% of the total. This total had been changing with time. They were waiting for this situation to settle down, but he expected the signature soon.

B. Jacobsen noted that as far as he knew none of the three NorduGrid countries had yet signed. There had been discussion whether there could be one signature for all countries or separate signatures, which was the current thinking. For Norway the resources should be secured for the short term future and he hoped they could proceed soon to signature.

A. Rubbia noted that Switzerland was committed to this project and had asked for funding for the period 2008-2011 and hopefully by the middle of 2007 they would be able to go forward.

S. Tovey noted that Australia had received its funding agreement during the previous week so the signature would probably be before the end of the year.

A. Petrov pointed out that the delay in the Russian signing related to the time-consuming procedure necessary for the approval. They expected the decision from the administration to be made at the end of 2006. They hoped to sign the MoU early in 2007. They were fully committed to this project and they contributed to the project according to the plan.

J. Engelen thanked the delegates for these responses.

6.2 Additional Tier-2 Centres

C. Eck continued his presentation with a slide of the additional Tier-2 centres. He noted that two rather large Tier-2 centres that were not on this slide had recently signed the papers in the US to join the ATLAS Tier-2 centres, namely SLAC and Michigan State. They would be added to the table. Brazil and Estonia were planning to sign the MoU by the end of the year. The message from the slide was that WLCG would continue to grow and could use any additional capacity available.

6.3 Phase 2 planning

C. Eck turned to the funding and planned expenditure for Phase 2 of the LCG project at CERN. Based on the revised requirement figures from the experiments, the overall materials balance had improved massively since the April 2006 C-RRB, changing from -14 MCHF to -3.1 MCHF. The remaining shortfall was judged to be manageable. It should be noted that the LCG personnel planning at CERN assumed that a successor project to EGEE II would deliver 14 FTE to Grid Deployment.

He showed in detail the materials expenditure for the Tier-0 and CAF at CERN. He emphasized the major investment needed for infrastructure on top of CPU, disk and tape capacities for the experiments. The basic infrastructure cost up to the end of 2008 was foreseen to amount to 19.2 MCHF out of a total of 70.9 MCHF.

The budget proposal for LCG Phase 2 at CERN was essentially balanced and the RRB would be asked to approve the 2007 budget.

C. Eck showed the status of the accounting for the resources used, comparing the installed capacity, the capacity promised in the MoU, and the usage. Clearly high continuous usage of these resources could not be expected before serious data taking at the LHC. Current usage was related to the data challenges.

C. Eck showed revised computing capacities based on the latest information on the start-up of the LHC, which produced new estimates for the data taking time in 2007 and 2008. Based on these figures the experiments had revised their requirements for computing capacity in 2007-2010, taking into account the latest information on event sizes, trigger rates and program performance. The tables on the next slides compared the total of the new requirements with the sum of the current pledges.

The message given by these tables was clear. At the last RRB the total of the pledges did not cover the total requirements of the experiments. Currently this shortfall had been largely eliminated and one had the chance to fund the computing required for the full exploitation of the potential of the LHC machine and detectors. Nonetheless one should not forget that one was looking here at global balances. A lot of work was still required to fit the detailed requirements of all the experiments and sites to the global picture. Furthermore one should remember that a major part of the site investments was in infrastructure required to handle peak loads. The experiments, funding agencies and sites had now to start intensive discussions with the view to arrive at a detailed balance of all requirements and pledges before the RRB of April 2007.

J. Engelen thanks C. Eck for his presentation and for the large effort to make the planning picture as good a representation of reality as possible. Everyone agreed that this showed no major missing resources in the short term. For the experiments a balancing was still required. Nonetheless in overall terms everything was evolving in the right direction.

Discussion

R. Wade thanked C. Eck for the report and for the good news that the gap for Phase 2 funding at CERN seemed to have closed. Would it be possible to explain in a few words what exactly had changed? C. Eck replied that the requirements of the experiments had decreased. J. Engelen added that some of this had come through a better knowledge of the schedule and, in addition, the experiments had redone their homework. The residual problem at the level of 20% was considered manageable.

U. Dosselli also thanked C. Eck for the very clear information. He had a question about the MoU, where the only pledges were for 2006, and the other numbers were plans to be pledged. Was there a procedure that would annually revise those pledges?

C. Eck replied that normally at the Autumn RRB one would be in the position to transform the planned pledges for the following year into pledges. However the new requirements from the experiments were quite recent and a lot of discussion was required in order to make a more complete fit. They were delaying the establishment of firm pledges for 2007 until the RRB of April 2007. J. Engelen confirmed that Funding Agencies would be asked in the future to confirm their pledges.

D. Espriu asked to which extent these new figures had the blessing of the CERN Management. J. Engelen confirmed that this was so, but it was inevitable that there was a certain error probably not more than 20%.

J. Engelen asked the RRB for the approval of the 2007 budget as presented and this was **agreed**.

7. Summary, Future Activities & A. O. B. J. Engelen

J. Engelen noted that project status and the resources status were such that, as compared to previous presentations, one could see the large positive derivative that was required. He believed the project was on a good track but would need the continued support of the Funding Agencies.

<p>The next RRB meetings in 2007 will take place at CERN on Monday 23rd, Tuesday 24th and Wednesday 25th April 2007</p>

There being no questions and no further business, the Chairman thanked the participants and closed the meeting.

C. Jones
March 2007