

Subject: **EGEE REVIEW – QUESTIONS AND ANSWERS NOTES**

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1. DETAILS

Reviewers:

Karsten Decker – KD

Phil Andrews – PA

Leandros Tassioulas – LT

Satoshi Matsuoka – SM

Jean Pierre Prost – JPP

EU Project Officer: Kyriakos Baxevanidis – KB

EU Administrative Officer: Christophe Kowalski - CK

2. LOGISTIC POINTS FOR THE FUTURE

Organisation and logistics:

Wireless microphones did not work.

Printing the slides for the reviewers was very helpful – I saw at least 3 of them writing details on the handouts.

We should only print the slides for one day at a time since they are often updated based on questions posed by the reviewers to previous speakers.

Minor problems with the wireless mouse attached to the laptop used for the presentations.

At the end of the review we should calculate the total time of the review (using the timing information provided in the notes) and the relative percentage of that time for presentations and questions. This information should be used to guide the organisation of the next review.

Anna did this calculation for us and the time was spent as follows:

64% time spent presenting, 36% spent on Q&A.

We must ALWAYS leave 2 hours for lunch and use it as a time contingency in-case the morning session overruns. The reviewers need more than 1 hour for lunch because some important discussions are held over lunch.

Project points to be followed-up (with initial proposed action in “blue”):

The importance of the EGAAP mini-MOUs is confirmed.

JRA1

Workflow support is seen as being important for future expansion of support for new applications. -> Possibility could be to work with GridLab to port their Triana s/w on top of gLite. Also the future link with myGrid could help with a work-flow facility. Similarly, OMII have commissioned work on a BPEL service that should be available in 2006.

How will JRA1 achieve the quality levels specified in its quality plan? We also have the opportunity to update these metrics as part of DJRA2.2.

Why do we want to replace LCG-2 with gLite – You should not only tell us the differences in features from LCG-2 but also the reasons for the change -> Slides were added by Frederic for an Atlas presentation, addressing these points.

Clarify what are the economic models that are to be supported by the accounting service. -> Better explain DGAS from a user and application point of view.

NA4

The user survey must answer the question – what is the benefit the applications see of joining the grid? -> this is for MNA4.3

Make the requirements the project is working against more public and obvious. -> Need to publicise PTF's work better (which now includes consolidated requirements from most activities and application domains).

JRA4

How can the work of JRA4 have an impact on a production network?

How can we measure the impact of JRA4 networking advances on the applications? (Is this covered by one of the JRA4 deliverables and/or milestones – e.g. MJRA4.3, MJRA4.4?)

-> Following last PEB's discussion on the role of JRA4 and SA1, it would be useful to have written answer from JRA4 management answering the question above.

NA3

Add a way of measuring the number of trainers formed to NA3 survey (MNA3.3) and keep statistics (DNA3.1.3).

The upcoming training and user surveys are confirmed as being important deliverables about how to promote grids and the project and gather material for success stories.

JRA3

Clarify the relationship between the work of JRA3 and the LibertyAlliance.

User Interface Group

Need to pass "success stories" from NA3 training to NA2. -> We need to clarify the process.

NA2

Must produce material for executives and politicians about the benefits and results of EGEE.
-> This should be planned as part of DNA2.4.3.

3. WEDNESDAY, 9TH FEBRUARY 2005 – DAY 1

3.1. WELCOME

Wolfgang von Rueden, Head of IT Department (standing in for Jos Engelen, Chief Scientific Officer) welcomed the reviewers and stated the strategic importance of the project to CERN. He said he believed the project has made good progress and welcomes this occasion of the external review to have an objective assessment of its work.

He noted the international relations aspects of the work of EGEE in forging better scientific links between EU member states and partners in Russia, US and Asia. However, he underlined the importance of ensuring the project does not grow too fast beyond the available resources.

The industrial involvement in EGEE is important as well as the following of the standardisation process.

As a message to the EU, he noted that if the commission considers the project a success the consortium is eager to continue its work beyond the first two years and improve and enlarge the infrastructure.

3.2. STATUS OF THE PROJECT – F. GAGLIARDI

Presentation time: 50 minutes

Q/A time: 25 minutes

PA: would be possible to **see the actual list of packages that will be included in gLite v1.0**. Bob Jones will ensure a slide on this is added to the Middleware re-engineering talk.

KB noted the new template for the review report which he had circulated. The project must ensure that all presentations cover the points in the document. He also presented Christophe Kowalski, administrative Project Officer, attending the review to answer eventual administrative or financial questions on behalf of the EU.

SM sympathized with overwork of the Project Office (PO) but asked **what administrative expertise was required in addition to the current members, in addition to more resources**. Gagliardi answered that it was not so much missing expertise but that there is no spare capacity or overlap to ensure the workload is covered in the event of absences. He underlined that 7% of the budget for Project Management is insufficient to manage this scale of project.

On the technical side, more personnel is needed in testing & verification and this could potentially be outsourced to industry as this sort of expertise is not easily found in research institutes. Gagliardi added that OMII was struggling with the same issue.

Jones noted that the technical coordination spends a large proportion of its time handling the deliverables/milestones rather than inter-activity technical issues.

A discussion on the quality of deliverables/milestones followed. For the future, Gagliardi suggested the following assumption should be made: effective 80% production rate and 20% needed for reviewing/contributing to deliverables/milestones of other activities.

In comparison to DataGrid, the management noted that the heavy reporting load was linked to the reduced timescale (only 2 years) and the expanding number of partners.

SM asked what actions had been taken to address the issues. Gagliardi explained the appointment of a dedicated part-time deputy project director and the internal move of resources in the PO (i.e. from NA5 to NA2, from NA2 to technical coordination – which matches the required profile of people coming from industry).

KD noted that a quick and good start has been made by the project and asked **how the momentum will be kept at this level now the project is past the ramp-up phase.**

Gagliardi answered that turnover was already observed at the activity manager level, as these people are very appealing on the commercial market. So far their replacement has worked successfully but staff retention in a two year project is a problem – many partners have given contracts beyond the project end at a risk to their organizations in case the project is not continued.

Von Rueden noted that getting people to come for just one year is hard so longer contracts have been offered. People at CERN are already applying for jobs on other projects since they don't know what will happen at the end of EGEE. He warned that people should be told six months in advance of the end of the project in order to keep them.

KB responded that the earliest feedback about continuation will be mid-November 2005, and Gagliardi pointed out that if the project continues at a 10% underspend level, it may be possible to have an extension. KB explained that extensions must be requested 6 months in advance of the end of the project, and are not as simple as in FP5 (subject to the results of the review process).

Wormser said the ramp-up of the infrastructure has worked and noted the next challenge will be the ramp-up of the applications and user communities.

KD: what is the **assessment of EGEE by the LHC experiments?**

Gagliardi explained that LHC is a very demanding environment. It is difficult to get a complete answer out of the experiments since they are so large and opinions differ. The relationship is both a strength and a weakness. gLite should improve the assessment but it is unlikely that a single solution can be accepted by each experiment due to their scope and political realities.

3.3. QUALITY ASSURANCE – G. ZAQUINE

Presentation time: 15 minutes

Q/A time: 5 minutes

PA: **how is the quality of external packages assessed?**

Hemmer answered that all software goes through certification and validation testbeds. Laure also noted that only stable packages from well-established projects are selected.

PA: what is the **normal delay between the release of a new version of a package and its inclusion in gLite?**

Laure: a new version is only included if it fixes some bugs which affect EGEE or additional functionality we need. Such packages are tested in the C&T testbed and the step takes about two weeks.

KD said that it was good to present QA early in the agenda.

KD asked Zaquine, who was QA manager in the EDG project, **what differences he perceived in QA for EGEE?**

Zaquine: Everyone on EGEE is more concerned with quality, and the novelty in EGEE is the addition of metrics to monitor project progress.

JPP noted that the **interpretation of metrics** is not straightforward. And asked whether more precision should be required.

Zaquine: a deliverable in the second year will be the occasion to refine these metrics based on the experience gathered to date.

3.4. STATUS OF PRODUCTION SERVICE – I. BIRD

Presentation time: 43 minutes

Q/A time: 20 minutes

PA: **how do quotas and allocations work now?**

Bird: no grid-wide quotas are available at present. Typically this is handled at a site or national level (linked to funding source). New applications have to detail what they want and what resources they are bringing with them, after which a negotiation process starts to arrive at the level they require.

This is not a “free lunch” infrastructure. A small proportion of the resources are provided for new applications but this is not sustainable in the long-term since the project does not fund resources itself.

-> We need to continue with the policy work started in the PMB, compared to the numbers coming from the accounting and seek links to the eIRG.

PA: asked if a central server would be available to control this?

Bird: not sure what such a service would look like yet but certainly some centralized server will probably be required.

JPP: **do applications come with restrictions on the topology?**

Bird: applications require certain packages (e.g. MPI). Biomed need database access and workflows with security implications.

JPP did not understand why JRA4 is working on BAR if there are no restrictions in topology from a networking point of view.

Jones: Some biomedical applications will have restrictions on which RCs they need to use in order to access data that cannot be moved off-site for IP reasons.

SM said that it seemed a majority of resource usage is still the LHC experiments, and asked whether **LHC is providing sufficient generality in the operations.**

Bird noted there are no obvious differences in operations between the different applications.

SM: how does a VO become officially accepted?

Bird answered there are two aspects: the EGAAP (see next talk) for new applications; or a group comes with an application and some resources to be connected to the grid, thus making use of the operational aspects of the project, but they must comply to procedures etc.

JPP: what percentage of resources is available at sites for other application domains?

Bird answered many sites support various applications & VOs.

Jones noted that the PMB has started addressing this point at a policy level to understand how federations/nations are prepared to distribute their resources across the different application domains.

JPP: what percentage of sites have accounting capability? (as this is needed by the PM14 deliverable). Bird estimated roughly 50%, though this changes all the time. JPP also enquired about the **percentage of unreliable sites**, which Bird reckoned to be about 25% (also changes)

SM: how will three non-pilot disciplines join from the operational point of view (i.e. bring resources, make use of existing resources etc.)?

Bird: initially they do not need to bring resources but it must be addressed in the long-term. The first goal is to demonstrate that we can use and account for a shared infrastructure for all these different application domains. Sites are continuing to provide resources for a variety of application domains.

-> [This discussion is linked to the point of clarifying WHY users and application developers join EGEE.](#)

KD: what are the plans to port to Solaris?

Bird said there is no obvious demand for Solaris from sites but there is some interest for Mac OS. There are no large clusters running Windows in these communities.

KD: what is the installation effort required in terms of time and skills?

Bird: an experienced system administrator who follows correctly the instructions takes about 1 day.

Shultz noted that getting certificates takes some time before installation. There are some examples of sites installed in one day, however, normally a site is able join and appear on the Production Service within days, including certification.

-> We should measure installation time as a new metrics (DJRA2.2) and compare it to LCG-2.

3.5. APPLICATION ASSESSMENT OF THE PRODUCTION SERVICE – V. BRETON

Presentation time: 44 minutes

Q/A time: 20 minutes

KD: acknowledged good enthusiasm from the presenter.

KD: The virtuous cycle has been effective in reaching **new communities, but how will their expectations be managed in the future?**

Breton: team-work is the key to provide the support and services required. Having one contact in the project who deals with the VO and acts as the interface for the project will be very important. A support group exists for HEP in LCG and we now have a team of 5 for Bio. No such team exists yet for generic applications and we are trying to set-up this structure with Roberto Barbera.

-> Need to clarify what they can expect and need to provide via the MoUs.

KD went on, adding that he thought the process will surely work and can be managed, but asked how their **need of additional services deployed on the infrastructure would be dealt with.**

Breton cited the example of Computational Chemistry (GEMS) which needs access to a licensed software server which is not available with LCG-2. Alternative solutions need to be found and this has been done on GILDA. Such requests become requirements to be addressed in the future by the project. We must remain honest and not oversell the features of the infrastructure.

Wormser added that the intention is to write mini-MOUs to clearly state the needs and what can be provided between the user community and EGEE. Gagliardi noted that this was part of the virtuous cycle in which EGAAP is involved. He also added the EGAAP is careful in selecting applications that also bring something to EGEE.

KD thought that the **project may be going too fast and may not be able to fulfil the expectations of new user communities.**

Gagliardi responded that it is a continuous, cyclic process in which requirements grow based on previous experience. Applications can seek additional support, working with other EU proposal coordinators that want to make use of the infrastructure.

KD: perhaps EGEE can act as a project incubator in this sense. The project is talking to well organized communities (i.e. capable of completing a detailed questionnaire) but not all user groups are like this.

Gagliardi noted that the project is learning to deal with technically aware groups via the contacts made in project such as DILIGENT.

Breton added that the existing applications will be reviewed at the next EGAAP meeting.

KD: the project should consider a **requirements catalogue**. Von Rueden noted that we are looking for feedback from the review about how open and welcoming we should be to new communities and applications, and welcomed guidance on this matter.

SM: what is the size of GILDA and who is contributing resources to it?

Barbera and Breton answered that GILDA has 14 sites including resources from new application groups.

SM found this relatively small compared to the production service and asked what the **advantage of joining GILDA** was.

Barbera explained that the GRACE EU FP5 project has provided 2 sites (1 more coming). Astro-physics (PLANCK) has 3 sites now and 2 more next week. Applications and sites tend to migrate from GILDA to the production service as they gain more experience.

KD noted that many application communities are jumping into grid projects because they expect to get access to significant resources.

SM: what incentive do these applications see to justify their interest in the grids (beyond more computing resources)?

Mazzucato noted that it is in sharing resources that peaks and troughs can be handled. This is a cultural aspect which needs to be achieved.

SM noted that any benefits should be made clear beyond the access to resources applications have found in joining EGEE.

Breton answered this would be covered in the user survey

Geddes: The NGS explicitly attracts applications by offering extra resources. Most application groups do not care about the grid and they want access to resources according to some centrally funded plan. Jones returned to Bird's comment on another advantage in his talk for MAGIC – they bring their own resources and find a well defined operational mechanism for linking them together.

KB: what is the interest in using GILDA for other projects?

Barbera mentioned the EGEODE demo which would be held the following day for further reasons of using grid. GILDA has 2 commercial sites included.

Saguez said that experimenting with GILDA has been very useful and interesting for companies, who are looking forward to gLite.

KD noted that support is a crucial issue. If the application groups become more diverse perhaps the approach must be different.

Breton: there is already diversity in the needs between HEP and Bio. For Bio we need a chain of people at each step to hide the grid from medical practitioners.

Bird noted that there are two types of user support: GGUS and VO support. Clearly, application communities must provide their own support beyond what we can offer.

JPP: which questions would be asked as part of the user survey?

Breton: there will be questions about the process but the plan is not yet finalised. Some experience has been gained with the training questionnaires. Satisfaction criteria are not yet established.

JPP added that a question on what advantages were seen from using their infrastructure compared to not using the grid should be included.

KD: what is the scale of satisfaction in the biomed community?

Montagnat said more than 50% for the partners involved. Users limiting their needs to batch submission were happy, while other requiring more advanced feature (e.g. MPI, interactivity) were less happy.

JPP: how are resources partitioned for the data challenges?

Bird said that no partitioning had been performed – Not all sites run all VOs. Each site has different questions for each VO with their own priorities (nothing is centralized)

SM: are data challenges using complex work-flows?

Breton: CMS has rather complex work-flows but are batch based.

Bird: each experiment discovered services using the RB and running 2 phases of jobs (the first phase generated data which was used in the second phase). Each experiment is different.

Breton: most of the applications (HEP, Bio) make use of both job and data management.

Barbera: CMS used DAGs with basic workflows

SM: A winning argument for the Grid compared with classic batch systems for applications is the support for complex workflows between different sites.

-> Hence we need to port/interface (not develop) popular workflow system to gLite.

Thursday, 10h February 2005 – day 2

3.6. NETWORKING –K. KAVOUSSANAKIS

Presentation time: 20 minutes

Q/A time: 15 minutes

PA: Looking to book a level of network capacity between sites – **which application will take advantage of bandwidth allocation?**

Kavoussanakis: LHC will require massive data transfer in the future. Multi-media & Visualization applications are also expected to need such resources.

PA noted this would probably require **co-scheduling of nodes across different sites** but this is not part of the EGEE resource scheduling approach.

Kavoussanakis asked to defer answering on co-scheduling until Frederic Hemmer's talk on middleware re-engineering.

JPP asked whether JRA1 was a member of TNLC. Kavoussanakis answered that not, but underlined there was a lot of interaction on deliverables and software development process.

JPP: **when will NPM will be deployed?**

Kavoussanakis noted this depends on the results of the prototype. A staged approach is being followed.

JPP: **who is responsible for implementation of the interface between NPM and local network monitoring tools?**

Kavoussanakis: For EDG WP7 tool, JRA4 will produce an instrumented version of this tool and ask JRA1 to deploy it

JPP: So you are **only interfacing with one set of tools?**

Kavoussanakis answered that two will be interfaced to show the framework is general enough.

LT: **How is network performance a bottleneck for applications?**

Kavoussanakis: This is a proof of principle, however some applications are anticipated to benefit.

LK asked whether there existed a way of measuring **how the work will improve the performance of applications.**

Bird: The LHC service challenges will test file transfers with NPM and the results will be measured.

SM: **how much will GEANT let the project control dynamic bandwidth for this production network?**

Karayannis: This is more a question for GEANT. In GEANT they will set-up a dedicated network testbed for this type of work.

SM: But **can this be controlled from the middleware?**

Kavoussanakis: JRA4 knows we will never be allowed to configure a router.

Karayannis continued, noting that GEANT Bandwidth-on-demand is also working on this area. But GEANT is a hierarchical network with some complexity.

SM: Technically it is possible but since EGEE is about production, **how will this activity have impact on providing real bandwidth control?**

Kostas: Still do not expect EGEE will be able to programmatically configure a router. DANTE said it is out of the question at least for EGEE phase 1.

Karayannis said we should remember that GEANT is over-provisioned.

SM made a comment on the situation in Japan: reserve fixed bandwidth on a link and try to discover ways of changing allocations by using additional hardware assistance sitting next to the router.

-> Need to state that overall the applications will not profit from the work of JRA4 during the current phase of the project, but maybe in the future.

3.7. USER TRAINING AND INDUCTION – M. ATKINSON / D. FERGUSON

Presentation time: 33 minutes

Q/A time: 30 minutes

JPP: Is it known **how many trainers have been trained?**

Ferguson answered that there are no specific statistics for trainers, but estimated less than 100 (more than 50). He is not sure how many of them are contributing directly to EGEE courses.

-> New metrics for NA4

JPP: are there **specific courses for training trainers?**

Ferguson answered that there are and one was recently held in Athens and there have been two more trainer events in Catania and Edinburgh.

JPP: what **incentives are offered to people to become trainers?**

Atkinson said the material was offered and NA3 tries to stay in touch with them regularly. All educational services are slow and difficult to measure.

Mazzucato added that which universities use EGEE material should also be measured. ([how can we get this information?](#))

JPP: how are courses scheduled and organised?

Atkinson: NA3 collects information from the communities about needs via questionnaires. Within NA3 itself the information is exchanged between the partners but there is no 5 year plan since things change very quickly. Being members of the EGEE PEB we learn about strategic directions. Curricula and schedules are constantly reviewed to avoid clashes and take into account the evaluation forms. We know we have demand that is well above our capacity.

JPP: are there statistics of how many people fail to get a place on a course?

Atkinson: registration through NESC gathers these statistics. Putting up "course full" deters people from applying, and demand certainly exceeds capacity to provide.

KD very much liked the training concept and implementation, but did not understand how this relates to material for "success stories" by NA2.

Atkinson/Ferguson: Statistics are kept and passed-on. There is a lot of interaction between NA2 and 3 who are kept up to date with what is happening.

Jones also noted the plan to produce press releases for new applications being ported to GILDA.

KD also underlined that more should be done to use the material to provide success stories to non-technical people.

Gagliardi: NA2 are also a member of the PEB and gather information about newsworthy material. Jones said that information sifting was key to extracting the important information for dissemination. There is a vast amount available.

KD noted that it is important to communicate to decision makers and funders.

KD noted that expectations are exceeded and asked what the budget situation is for EGEE.

Atkinson: At UEDIN we have 3 FTE and there are the other partners in NA3. We exploit the synergy with other educational work such as that of NeSC. We see EGEE as interconnecting national programmes at all levels, technology, resources, applications and training, and this should eventually mirror GEANT and NRENs.

KD warned against running out of steam, but Atkinson reassured him that things were under control.

JPP: Among attendees, are statistics kept on which belong to EGEE already, will become part of the project in the future, etc.?

Atkinson responded that record is kept on people and what they are working on but we are not discriminatory about offering places to people outside the project.

PA: The software environment is changing, therefore how is material kept up to date?

Atkinson: this will be a major issue with gLite; we are planning for this in the 2nd year with the introduction of the middleware. It is difficult to judge relative size of demand

Ferguson: Russian partners have produced a presentation comparing LCG-2 and gLite.

CK: Is a fee charged for courses?

Ferguson: we pay for local support but EGEE provide the trainers for free. He underlined the courses are not run for profit.

JPP: Coming back to incentives for trainers, could a fee help?

Atkinson: we have been approached by some professional companies who would like to re-use our material.

Gagliardi: Atkinson mentioned EGEE involvement in GGF school – it is a good event where we look for sponsoring to reduce costs. This could run out of steam because presenters are the best experts and do it for free so an influx of money could help to keep them interested and fund participation by students that do not have the means to pay the reasonable fee. It could be spin-off as a separately funded project.

KB: Is there any feedback from courses used at universities?

Atkinson: we know of some usage but there is no formal method. We have to make it easy and light-weight to encourage acceptance so we simply ask people to tell us about their usage of the material. Good example recently in France for an engineering course.

JPP: is this information logged?

Atkinson: web logs are kept of when material is downloaded.

Ferguson: EGEE trainers have also directly supported university courses.

3.8. APPLICATION DEMOS

Introduction (Marc-Elian Begin)

Presentation time: 3 minutes

3.8.1. GEMS – A. Lagana / O. Gervasi

Presentation time: 15 minutes

Demo completed successfully on the GILDA testbed

Q/A time: 10 minutes

KD: What is the scheduling of the workflow steps – is each step is a parallel distributed job? Are the jobs geographically distributed?

Lagana: Some steps are parallel and some sequential, but all distributed over grid. This is the scheme and even though each component exists, not all aspects have been implemented on the grid.

Mazzucato: What is interesting is the scheme to compensate contributors to the resources provided.

JPP: What is the frequency of jobs per day in production usage?

Lagana: No clear numbers yet but the trend is positive.

JPP: Have you already been interfacing with JRA1 for your needs on work-flow issues?

Gervasi: Yes for software licensing and storage requirements.

Barbera: Between EGEE and EU GridLab project an interface is being implemented between Triana work-flow editor and EGEE middleware. DAGs are supported in gLite.

SM: How are specific services and packages on WNs published?

Laure: Sites publish information into the information service which is picked-up by the RB if requested by the job in its JDL. In future, a more generic version of service discovery is being developed. Another area is the installation of application software in sites available now with LCG-2 and a more advanced version is being developed for gLite.

JPP: Are packages pre-installed at sites?

Bird: people run jobs that perform the installation and verify it works then publish the information in the information service. In future the operations groups would like to take over the verification of installation step.

For packages that need root access, this requires the intervention of the local system manager.

3.8.2. gPTM3D – C. Germain-Renaud / R. Texier

Presentation time: 19 minutes

Q/A time: 5 minutes

LT: Is this used for intervention as well?

Germain-Renaud: Not just for simulation but also for pre-installation (i.e. offline). The simulated image result is projected on the body of the patient.

LT: Scanners have the simulation part inside. Is it intended to delegate this to the grid?

Germain-Renaud: Yes that is the goal but we need to have the data distributed for collaboration. This is future work.

LT: No additional functionality is added so are you reducing cost with the grid?

Germain-Renaud: It is also a question of algorithms which are not currently supported by the scanner/simulator.

JPP: how long before the intervention must the jobs be scheduled and how is it scheduled ?

An interactive response time is needed. We don't have dedicated nodes, just need to be sure that we have sufficient nodes that have the correct environment.

PA: was there advance reservation ?

Germain-Renaud. No.

JPP: the application scheduling of tasks can result in answers coming back in any order. How do you manage this? Network bandwidth might influence this.

Each task is tagged and in any case answers do in general come back

JPP: The computations can be done in any order, does the front-end order the visualization?

Texier: The results flow-back in more or less the correct order due to the application scheduler.

Germain-Renaud: A second testbed is being set up to investigate the network QoS.

3.8.3. EGEODE – D. Thomas / G. Youinou

Presentation time: 20 minutes

Q/A time: 12 minutes

KD: What resources do you have now and will external resources be included?

Thomas: Internal usage is not shared. For the research part we are using external resources and EGEODE is a way of building a strong research community. We work on algorithmic research.

KD: So you take a small fraction of your internal resources and use this in the EGEE grid as a way of encouraging research?

Thomas: Yes, all academic partners also contribute resources.

JPP: Are those resources open to other VOs as well?

Thomas: Yes but priority is on EGEODE work.

SM: You have a large internal resource set with 25 sites and how do you manage that?

Thomas: The sites are not really connected as one virtual site and moving projects between sites is difficult.

SM: Could you adopt EGEE internally?

Thomas: The first step is to understand if grid technology is the next step for us depending on whether it is secure, robust and mature enough. A new project is starting inside the company now to try and use EGEE internally between 3 sites. If this is successful then we could adopt some elements of EGEE technology internally.

SM: Is commercial support an issue?

Thomas: Yes the long-term support of the EGEE technology is an issue.

Gagliardi/Mazucato: Another model for doing this could be foreseen in the future.

-> This is an issue that needs to be addressed for the future and post EGEE

JPP: This is a good example of on-going technology transfer.

Gagliardi: SM has a good point and long-term support for industrial usage is key to industrial acceptance.

SM: Various models exist

KB: The next call (opening in May – infrastructure grids) has the possibility for exploring the commercial relevance of grid technologies. Also another call for maintaining industrial strength software (similar to OMII).

JPP: What size of result is produced by the compilation server?.

Thomas: we can get down to 100MB.

Final summary slide by Meb.

JPP: An additional point is the need for an economic model to reward resource providers and implementing a cost model.

3.9. MIDDLEWARE RE-ENGINEERING – F.HEMMER

Presentation time: 38 minutes

US contribution (Miron)

Presentation time: 10 minutes

Combined Q/A time: 30 minutes

PA: When will the EGEE code be ready and what is its status now?

Hemmer: Release is planned for end of March. All software is now integrated into a combined build and some modules have been already passed to SA1 for testing.

PA: Specifically when did the work start on the EGEE modules?

Livny: We did not start from zero, much of the software has been active in other projects.

PA: But you have not known since very long which modules you will actually release. What is the link between ACLs and user ids for data management tools?

Kunszt: Mapping is managed via VOMS in one of two ways where unix accounts are managed by the local manager or grid catalog of accounts. The discussion is on-going.

Livny: One point taken from AliEn is the separation between access control in a VO and the access control of data sitting at a site. There are still policy issues but it is part of an evolving process. The separation between the site and VO access is an important goal.

PA: How will you achieve 1 defect per 10 lines of code given in the quality plan? How can you track this on 500k SLOC?

Di Meglio: This is a recommendation from software engineering standards in the quality plan.

Atkinson: We can live with higher error rates because a lot of the code is not used frequently. Initial improvements concern the most commonly used code.

No clear answer given.

JJP: When will the post-release 1 gLite services be available?

Hemmer: the team is working on a strict short-term goal of only working for release 1 up to end of March. A milestone at PM15 defines the content of release 2.

Jones: plans for post-release 1 depend on the feedback we will receive from user groups and operations people.

JPP: is 3 months long enough to obtain this feedback?

Jones: intermediate releases mitigate this so that further feedback has an opportunity to be taken into account.

JJP: At what rate will you produce releases and what resources will be available to the users?

Livny: Don't forget co-existence of gLite with LCG-2 will permit a managed transition.

Jones: regular intermediate releases are planned through to the end of the project.

Bird: The pre-production service will run gLite in parallel to LCG-2. As components are identified as being robust enough for the production service we will move them across to the production usage.

Hemmer: For the LCG service challenges the plan is to use gLite from May onwards

SM: EGEE is production focused, why do people want gLite so urgently?

Livny: When did you replace your digital camera?

SM: You should not only tell us the differences in features from LCG-2 but also the reasons for the change.

Bird: performance issues were seen in the LCG data challenges issues last year. Also, people know a change is coming and want to get over it as soon as possible. We also want to move to a code base that has a more long-term future. A real goal is to fix the problems we know of in LCG-2. Some LCG-2 problems are not easy to fix within LCG-2 (consistent error handling, logging etc.) but are foreseen with gLite.

SM: Comparing to Globus GT2 to GT4, it is a more fundamental change while in Condor continuous service is with incremental changes. gLite is taking the more Condor-like approach and the reasons for making this choice should be made more clear.

LT: You mentioned provision for accounting, how will this service evolve in the long-term?

Prelz: The DGAS component is basically ready and we are looking to economic models along the lines of charging for portable phones. We have no proof yet this theory is applicable.

Livny: The resource allocation is not flat because we have to take into account VO-level.

LT: What about scheduling of tasks to different sites, is this closely linked to accounting models as well?

Delfino: We are trying to define the grid equivalent of the kilowatt/hour.

Livny: This is not a question for the site but more at the VO level.

Jones: we first need to define the grid equivalent of the kilowatt/hour and understand if we can gather the information necessary to measure this. We are getting initial experience with this with the simple SA1 accounting through R-GMA. We will then know better how to take DGAS forward.

JJP: You will need to build in network costing etc. in to these models and determine prioritisation.

3.10. SECURITY – A. EDLUND

Presentation time: 20 minutes

Q/A time: 25 minutes

JJP: Please give an example of conflicting requirements?

Edlund: External connectivity of worker nodes and pseudonymity

JJP: Are the requirements good enough?

Edlund: requirements came through NA4 (including biomed), so the end users have been consulted through NA4.

LT: Of the top 3 achievements, what do you consider to be innovations compared to just adoption of existing techniques?

Edlund: the only completely new development is the DCS which is being developed in Amsterdam. The rest is to adoption/modification of existing work from other sources.

Groep: many ideas existed before but were not largely deployed or fully implemented. We are really adding the deployment/production angle.

SM: What about user identity management compared to work by groups such as LibertyAlliance?

Groep: EUGridPMA is the framework for authentication and as a result we issue credentials that need to be renewed annually.

These identities need a binding to the individual which are provided by the VO so that you satisfy the AUP. The VO can leverage a national identity binding. This provides a secure, traceable link back to the individual.

SM: Is there a real government involvement? In Japan everyone has PKI based smart card issued by the government and can be used for other services as well (by law) – what is the situation in Europe?

Groep: Nothing at the European level but at national level – e.g. Finland has eSecurity measures built into the passports. EGEE as a project does not fund CAs.

Delfino: EUGridPMA representatives are appointed by the national governments. In Europe the national level primes and so it must work bottom-up. This is independent of individual project such as EGEE.

John: EUGridPMA covers only for eScience not like in Japan.

Delfino: Some European nations, by law, are not allowed to exchange such information.

DK: To What extent have social related security issues been investigated by the project?

Malcolm: we recognise such effects are important, but they have not been addressed yet. The national centre in the UK for e-social science is looking into this.

Geddes: Still 50% of queries are related to certificate management.

KD: Security aspects should be covered by training work.

KD: Are there statistics on what it takes to compromise the EGEE infrastructure? Will it be more difficult than previous computing environments in 2006?

Groep: this depends on the popularity of your infrastructure. The testing aspects currently on-going will certainly help but we can't give figures now.

Gagliardi: Running on a more secure network infrastructure will certainly help.

SM: This is what is done in Japan.

KD: Could offer prizes to security hackers for compromising the infrastructure.

Gagliardi: we have Russia and soon will have Taiwan and Brazil which host many of the best security hackers.

KD: What security will be in place next year and how far away is it from commercial requirements?

Edlund: it depends on which industry, biomed is currently a major driving force for the project.

Thomas (CGG): We will see in the future.

KB: Are the industrial partners involved in the gathering of requirements?

Thomas: We only are only lightly involved.

Edlund: from my industrial experience, it is not such technical reasons that limit sharing of resources and data.

JJP: What is the scope of the credential store?

Groep: it is not hosted with VO management. Better to be hosted locally or within a ROC or CIC which is a well managed environment.

3.11. APPLICATION ASSESSMENT OF GLITE – M. LAMANNA

Presentation time: 24 minutes

Q/A time: 2 minutes

KD: You have the requirements organised but I can't see there is any quantitative assessment.

Lamanna: For Biomed they are happy because they can see their requirements are coming through now.

3.12. GLITE CERTIFICATION, DEPLOYMENT AND OPERATION – M. SCHULZ, H. CORDIER

Presentation time: 40 minutes

Q/A time: 16 minutes

SM: It seems gLite deployment implies a strict process for sites but users are normally conservative and all your sites need to be kept in sync.

Schulz: If there is no enforcement of upgrades; we had sites that never upgraded over the first 9 months hence we now have this 3 months imposed update mode. Monthly releases don't need to be followed.

For users you are quite right they don't want to have any changes unless they have stimulated the change themselves. Via the data challenges the LHC users changed the view of their requirements as they saw changes being deployed and hence the idea behind the pre-production service – they get the chance to see the changes up-front.

Phasing out old versions is necessary and the relocation of client libraries means users can choose which interface they will use and ease migration.

SM: phasing works for client libraries, but not core services

Schulz: yes, it works even for core services. The transition to gLite will also need phasing of core services and let the applications choose which core to use (for a while).

SM: What about running multiple versions of core daemons?

Schulz: we plan to deploy both LCG-2 and gLite on the same fabric (co-existence) explicitly for this and it is being tested. Migration of applications will be gradual.

JJP: adding more CICs will help 24/7 support but what about weekends and spreading workload using time zones?

Cordier: it is only core grid services that need this support not all sites.

Schulz: Migrating all the monitoring tools to R-GMA is a step to automating alarms. Work that started in Taipei is setting up an alarm based system that can send emails or SMS messages to lighten this load.

Gordon: the time distribution of CICs currently reflects the distribution of sites (i.e. more CICs in Europe and more sites all on the same time zone).

JJP: When will you have true 24/7 support?

Schulz: it is not clear if EGEE needs 24/7 support for all elements in the infrastructure is not feasible but we can make some for of infrastructure available 24/7

Bird: middleware must deal with sites that die automatically (i.e. at the RB level) to help here

PA: Is there a common policy on support for RCs?

Schulz: No it is different for each site and we have no influence on their allocation of manpower/resources. The project is working toward defining SLAs in this area.

Gordon: The h/w reliability is not the most significant factor here

JJP: Upgrade policy at RC, can it be partial (i.e. only half their resources are upgraded at one time)?

Schulz: Yes. this is the situation with RH7 to SLC3 platform for some larger sites using multiple gatekeepers to allow step-wise upgrades It makes sense for small RCs to agree an approach with their ROC.

Delfino: A small site is reluctant to upgrade too often because of this need to split their resources. They prefer the big-bang approach.

JJP: So small sites tend to concentrate on one VO?

Schulz: Small sites tend to be active in one experiment/application.

4. FRIDAY, 11H FEBRUARY 2005 – DAY 3

4.1. DISSEMINATION AND OUTREACH, J. BARNETT

Presentation time: 15 minutes

Q/A time: 20 minutes

JPP: Why are so many NA2 partners in the Russian federation?

Fab: The further you are away from the centre of the project the more resources are required to do dissemination. Also the Russians were very proactive in this area.

Slava: Dissemination is important for Russians due to the size of the country and also to work with the different governmental ministries.

AP: What does the data on search engines mean?

Barnett: columns represent the key words entered into the search engines and the number of hits found.

KD: There was a plan to change the project name?

Fab: Not the name but the meaning of the acronym. The emphasis on Europe in the acronym has been changed since we have non-European partners.

KD: You are addressing different communities (users, politicians, industry, executives etc.); how is this taken into account by the language used – it seems the material is too lengthy. What is the mission statement for EGEE (15 seconds for executives)?

Barnett: This is the one reason why we are working on a new glossy brochure and PR material aimed at decision makers.

Gagliardi: The EGEE postcards can carry this mission statement.

SM: What do you do at the key events?

Barnett: Ensure dissemination material is available. Roberto often does a demo. Sometimes Gagliardi or the others from the project management makes a presentation.

SM: Have you budgeted for a booth at SuperComputing?

Gagliardi: we are teaming-up with our US colleagues. The exact format of the presence is not yet determined but the cost is prohibitive.

SC is intended for US projects to present to their funding agencies but EGEE is EU funded.

Also timing is an issue since it often clashes IST in Europe.

Atkinson was at SC last year for UK eScience and EGEE.

SM: What about the German event (ISC 2005 conference in Heidelberg <http://www.supercomp.de/>)?

Kunze: We can probably organize EGEE presence through the German partners.

Gagliardi: This shows once again that we are using the federal structure of EGEE so the regional partners participate in such important events on behalf of the project.

-> We need to plan key events for Dissemination.

NA2 to follow up on the above.

JPP: Do you have any video material?

Gagliardi: You will see a draft of an introductory video at the end of this review. Also some training material will be produced in video format.

Barbera: In Italy we have already created a dissemination video and animation on how grids work. We plan to make it more general and translate it into several languages. On the GILDA website there are 6 or 7 tutorials which people can download and teach themselves how to use GILDA testbed and GENIUS portal.

4.2. POLICY AND INTERNATIONAL COOPERATION, M. HEIKKURINEN

Presentation time: 17 minutes

Q/A time: 5 minutes

JPP: There must be similar discussions/reflections in other regions outside Europe so do you work with such groups?

Heikkurinen: Europe is specific because it is very heterogeneous.

Karayannis: The focus of eIRG is European and was not defined by EGEE. It does take input from Asia and US.

Gagliardi: eIRG was born before EGEE was approved and we have the mandate to support it. But it does interact with groups in other regions.

JPP: The mapping from the eIRG white paper to EGEE document is a very good idea.

Karayannis: Contributions from US and Asia are included in the eIRG white paper.

4.3. RUSSIAN CONTRIBUTION, V. ILYIN

Presentation time: 15 minutes

Q/A time: 2 minutes

DK: Which mathematical institute is involved?

Slava: The Keldish institute is contributing more in computer science

DK: You are contributing to several activities – which is the most significant?

Slava: the creation of infrastructure and dissemination are currently the most important.

Training and applications will come soon. This is a very good experience for Russia.

4.4. PLANS FOR THE NEXT PERIOD, B. JONES

PA: Is there a date at which committed to have removed LCG2?

Jones: no date for removal. First put out on pre-production service. Put components out in a step wise manner. It depends on how they perform and is difficult to anticipate.

Expect a date before end 2 years? yes

PA: are there plans to freeze LCG2?

Jones: as modules are replaced, work will stop on these. Urgent bug fixes will need fixing.

PA: do you have enough people to support 2 parallel systems?

Jones: Support in terms of infra or MW?

PA: MW

Jones: partners supporting LCG2 will support gLite. A shift in manpower is possible.

Gagliardi: we are not forced to go on a big bang. gLite is coexistent with LCG2, so we can do it incrementally.

JPP: **does it make sense to associate some success criteria (no, sites, apps) to gLite deployment?** It seems to him that in terms of JRA activities, gLite is a big component. Makes sense to associate success criteria to assess success.

Gagliardi: No gLite deployment is possible before SA1 decide it is production quality. This is a feasible suggestion.

Jones: milestones are foreseen in the plan: at PM14 20 sites will be running on pre-production service. At PM15 the application migration report will provide further input.

JPP: **For new applications, what is the strategy going to be? Rather have them work with gLite depending on stability, or leave choice to use LCG2?**

Gagliardi: This was covered in previous talks. New applications can still benefit a lot from going out on LCG 2. There is an issue, but in 6 months' time there will be a tendency for applications to wait and see. Throughout the review, we have seen that the project has expanded to 6 application domains, more than foreseen. If applications prefer to wait, this is not necessarily such a big disaster.

Breton: as NA4, we are going to propose to PEB that there is no new call for the EGAAP's next meeting in April so that we don't officially host new applications before November 05. This would give time to go with existing applications already deployed on LCG2 and help them work and produce scientific results. Review status of applications and dialog with them.

The next EGAAP call will be beginning of November.

Bird: In terms of maintaining LCG2 and introducing gLite, certain things will have to continue, others will stop. The goal would be to replace the current component in LCG2 and replace them. But no such steps will be taken until stability is guaranteed.

JPP comment: Bear in mind interoperability between components. Incremental replacement works as long as interoperability is there.

-> **Once we have more experience with gLite on the Pre-Production Service, we need to plan migration.**

SM: **Security. Are there already procedures in terms of massive security breaches?**

There are some serious experiences known of in global IP. It could be that EGEE is lucky because the number of nodes is still quite small. There are preventive measures, but are there procedures?

Bird: incidence response plan in place, working together with OSG. We have requirements, on traceability, contacts, etc. on all sites, even external to EGEE. Communication channels exist.

The idea is to say this site walks through all processes to ensure all logs are in place etc. And do this in a hierarchical way.

Other things are going on, the security group is trying to go through each site and ensure a reasonable set of security monitors is in place.

SM comment: if Japanese universities are subject to compromise, it has to be reported. There is ministry level incident response. Constant watch, the machines are taken off the network if problematic. Specific procedures are in place.

Bird: each country has to follow its own policy. SA1 tries to bridge the GAP between them and inform other sites of issues within a given site.

Von Rueden: CERN, security officer reports directly to Wvr. There are various search teams, discussed at the level of the different HEP experiments.

SM: it must be demonstrated what is already available beyond the standard.

LT: Summarising the plans for next period. can you comment on the balance between development and testing?

Jones: Over next period, work in JRA1 and 3, more emphasis and more effort on gLite towards gradual deployment. Testing in sub-clusters will take place at the level of unit testing and so on. Small testing groups are in place for integration testing etc. We are working with different partners in JRA1 to put in place testing. Certification and verification has been done with LCG2 up till now, concentrating on gLite now.

LT: Your intention to increase your contribution to testing is not expressed in your presentations.

PA: It is clear enough that there are many sites now. How heavy is the process to add/lose a site?

Bird: the actual installation is in a day. The other things take the time. Certificates in place, configuration correct, etc. Each site has peculiarities.

Lesson learned with LCG2.

PA: If a site is lost, what happens to its users?

Bird: there are no examples of sites being lost. This depends on the applications, to which community it belongs.

JPP: in some activities there is a need for more manpower. He Hasn't seen many activities who need LESS manpower. How are you going to reorganize things so that budget can be met? Could you see the need for potentially use more of the budget for transition period for more testing, etc. and less towards the end (flexibility of budget)?

Jones: the activities say they need more manpower because they are successful.

Russian partners are not part of JRA1 but have expertise in middleware as they have done evaluation before. What they are doing is interesting so this manpower will be used for testing eg. GT4.

Issues are more to do with application support. It is difficult to see what to do there in terms of migration. In terms of middleware, we have talked about moving more of existing manpower to testing but it's really the user support area which is the problem.

Gagliardi: there are budget constraints despite the flexibility afforded by FP6. On the other hand, we can take advantage of fact that majority of partners are AC. These provide additional resources. Try to push those partners to add more additional cost where needed.

GILDA development support has very little money out of EGEE, most comes out of Italy federation. On applications, the hope is because of success and visibility, it is not a problem to get resources outside.

There is worry about introduction of gLite as flexibility is more limited. We need more developers but now it is more a consolidation phase (testing, integration, release), so other areas become more predominant where expertise is required and movement of resources is not so obvious.

There has been managerial review of major stakeholders in gLite. A plan has been agreed between all, stakeholders can do more refocusing as a result.

The flexibility is not infinite.

JPP: **Do you see some factors about limiting the addition of new sites to the project, similar to the addition of applications?**

Bird: It depends what level of resources they can operate. Not entirely obvious.

PA: Security. **Grid is almost uniquely vulnerable to attack. If a node is compromised, it has no idea that it's compromised but other nodes see this, can a central organisation shut down a single site?**

Bird: it can be taken out of the infrastructure and reported, taken out of systems.

PA: **Could you force it to be separate from rest of Grid?**

Bird: Yes.

Gagliardi: Some of the emergency intervention could be delegated. It would be good to push back a problem node to the NRENs who can enforce shutting down as they have local authorities in countries, which we don't.

PA: **we need the ability to remove access from any site in short period.**

Jones: infrastructure to get to all security contacts on site.

4.5. CONCLUDING REMARKS, F. GAGLIARDI

SM: **what I see as an important characteristic in EGEE is that it is Infrastructure implementation oriented. At some point it has to be protocol standard oriented. If this does not happen things will be stuck in a single software stack. That transition needs to happen some time. Do you plan for the future?**

Gagliardi: clearly following standards is critical. There is no obvious solution. We try to take a pragmatic approach. We basically keep tracking standards. We are involved in GGF, contribute as much as we can. Over time, unless we obey standards, there is little chance to be able to maintain sustainable long terms infrastructure.

No magic solution other than investing in and contributing to standards.

Ask for low latency, MPI support, high throughput, etc. There is no single story.

SM: **In future there should be some stronger involvement in leading standards.**

Completion of EGEE will lead to established communities, and will put it in a position of having to push standards on to them as we are committed. Somebody has to do it.

Livny emphasized that it's a two way street. Listen and watch what is working and what satisfies the community. This generates a lot of understanding of what works in reality.

Encourages standard bodies to take a role before standards are defined. The resources are limited and we cannot drive too much when we have to deliver.

EGEE is in a favourable position as a conduit to be a testing ground. Adopters of the future.

4.6. REVIEWERS FEEDBACK AND FINAL REMARKS

Karsten Decker acted as the spokesperson for the EU nominated group of independent reviewers.

KD started by thanking everyone involved in this extended review of the EGEE project on behalf of the group of independent reviewers.

Appraisal of work performed

EGEE has made a very good and a very quick start. The reviewers fully understand how challenging this is and compares the task to that of starting a medium sized company within 9 months. The reviewers found this very impressive.

Starting from LCG-2 gave a rapid application start-up and we believe the planned migration to gLite v1.0 given the identified short-comings of LCG-2 is very favourable.

We explicitly mention the good management of the project that has found synergy in the disparate groups. This project is like a supertanker that needs to be steered well in advance. The quality of the deliverables produced is very high.

There has been good penetration to scientific communities. Excellent training has been performed with very impressive results implemented in a good fashion. New user communities have been engaged and committed. The project has completed a detailed and precise write-up of the in-depth technical operational needs of a structure this size. A level of application diversity has been shown.

The reviewers are concerned about the gLite migration plan. In particular existing users may not migrate from LCG-2 to gLite until a definite end-of-life of LCG-2 is announced. The need of a grid infrastructure in all application areas has not been established. They believe some applications did not demonstrate the scientific advantage of the grid.

The project needs to keep the current users happy and manage their expectations. Dissemination is working well but can the project fulfill all the expectations and avoid bad press.

The long-term planning for the communications infrastructure is not very clear

Preliminary findings and recommendations

People make the difference – the project must make its best effort to keep the current personnel. This is the combined responsibility of the management and partners.

The industry forum is a good idea but needs a stronger engagement and commitment.

The March deadline for gLite deployment is very ambitious. They understand the deadline is for the pre-production service but movement to the production service must also be foreseen subsequently.

Testing and integration is crucial and is necessary to limit the load on the operations and support groups.

Testing is not a lesser-task and all partners should be more engaged in this activity.

The migration should be made more application focused. The applications that will be the first to use gLite should be clearly identified and offered additional help with this process.

gLite is a good idea and should not be sold as the only software stack but rather a way of collecting experiences and consider it as stepping stone to long-term sustainable infrastructure based on true standards.

gLite should continue to have a strong participation in standards bodies.

Dissemination is good but could be better targeted for non-technical communities (politicians, executives etc.).

Quality is an important issue so EGEE can help the grid community to introduce quality control in external software packages.

Concluding remarks

Minor revisions will have to be made to DNA1.3.1 (periodic report). All other deliverables are accepted.

We want you to continue to implement all the recommendations that will appear in the final review report and we are committed to following your project.

We believe it is important to have an intermediate review but appreciate it represents a load for the project and propose to schedule this at the end of November/Early December based on PM18 deliverables but focused on specific points (but all PM18 deliverables must be available). Further information about the subjects for the intermediate review will be provided in the reviewers report.

The clear intent of the reviewers is not to increase the burden on the shoulders of the project but to support its work.

The quality of the deliverables is excellent but they could be more concise and hence the reviewers share the project's interest in this area.

A new deliverable should be provided on concertation across grid project (more details will be provided later).

Concluding remarks – Kyriakos Baxevanidis

Kyriakos said DNA1.3.1 needs to be modified slightly concerning contractual aspects (i.e. minor terminology change - project requested the contract amendment not the EU, TERENA were not requested but offered to help organize the Den Haag events.)

A formal written report will be received by the project management shortly and there will be a contract amendment based on the plans for the next period and an updated Technical Annex elaborating in more details the plans for the next 15 months including plans for extension of the project.

The EU will follow the recommendations from the reviewers on the next review to have it focused on specific subjects. The reporting period will be 15 months but there will be an intermediate focused review without a management report (associated with cost claims) which is delayed to the end of the project. The request for this change of reporting period must come from the project itself to be engaged.

In terms of the review, the session was too long and the balance between presentations and Q/A will need to be redressed.

The provisional date is end Nov/early Dec with closing of the virtual reporting period at the end of September.

The project management should suggest possible dates.

Concerning resources for further support of user communities, he reminded that additional calls from the EU are open specifically for this purpose and the project should take advantage of this possibility.

The project's inputs for plans for the future roadmap of grid infrastructure to the EU are very welcome and necessary to structure the future.

Thanks to CERN management for hosting the review and the project management for its organization.

Wolfgang Von Rueden

Thanked the reviewers for their positive feedback. We appreciate all the points, good and bad, since it is very useful to the project itself.

The members of EGEE have started well and there remains a lot of work to do. Here at CERN we can see how much closer together the EGEE and LCG projects have become during this first period.