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Abstract

This report provides an overview of the activities of the EGI-InSPIRE project during May to July 2011 the 5th Project Quarter.



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II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Steven Newhouse	EGI.eu	7/09/2011
Reviewed by	Moderator: Reviewers:	AMB	10/09/2011
Approved by	AMB & PMB		15/09/2011

III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	24/8/2011	First draft for AMB review	Steven Newhouse/EGI.eu
2	7/9/2011	Draft for PMB with resource figures	Steven Newhouse/EGI.eu
3	15/9/2011	Final minor corrections.	Steven Newhouse/EGI.eu

IV. APPLICATION AREA

This document is a formal deliverable for the European Commission, applicable to all members of the EGI-InSPIRE project, beneficiaries and Joint Research Unit members, as well as its collaborating projects.

V. DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the authors. The procedures documented in the EGI-InSPIRE “Document Management Procedure” will be followed: <https://wiki.egi.eu/wiki/Procedures>

VI. TERMINOLOGY

A complete project glossary is provided at the following page: <http://www.egi.eu/about/glossary/>



VII. PROJECT SUMMARY

To support science and innovation, a lasting operational model for e-Science is needed – both for coordinating the infrastructure and for delivering integrated services that cross national borders. The EGI-InSPIRE project will support the transition from a project-based system to a sustainable pan-European e-Infrastructure, by supporting ‘grids’ of high-performance computing (HPC) and high-throughput computing (HTC) resources. EGI-InSPIRE will also be ideally placed to integrate new Distributed Computing Infrastructures (DCIs) such as clouds, supercomputing networks and desktop grids, to benefit user communities within the European Research Area.

EGI-InSPIRE will collect user requirements and provide support for the current and potential new user communities, for example within the ESFRI projects. Additional support will also be given to the current heavy users of the infrastructure, such as high energy physics, computational chemistry and life sciences, as they move their critical services and tools from a centralised support model to one driven by their own individual communities.

The objectives of the project are:

1. The continued operation and expansion of today’s production infrastructure by transitioning to a governance model and operational infrastructure that can be increasingly sustained outside of specific project funding.
2. The continued support of researchers within Europe and their international collaborators that are using the current production infrastructure.
3. The support for current heavy users of the infrastructure in earth science, astronomy and astrophysics, fusion, computational chemistry and materials science technology, life sciences and high energy physics as they move to sustainable support models for their own communities.
4. Interfaces that expand access to new user communities including new potential heavy users of the infrastructure from the ESFRI projects.
5. Mechanisms to integrate existing infrastructure providers in Europe and around the world into the production infrastructure, so as to provide transparent access to all authorised users.
6. Establish processes and procedures to allow the integration of new DCI technologies (e.g. clouds, volunteer desktop grids) and heterogeneous resources (e.g. HTC and HPC) into a seamless production infrastructure as they mature and demonstrate value to the EGI community.

The EGI community is a federation of independent national and community resource providers, whose resources support specific research communities and international collaborators both within Europe and worldwide. EGI.eu, coordinator of EGI-InSPIRE, brings together partner institutions established within the community to provide a set of essential human and technical services that enable secure integrated access to distributed resources on behalf of the community.

The production infrastructure supports Virtual Research Communities (VRCs) – structured international user communities – that are grouped into specific research domains. VRCs are formally represented within EGI at both a technical and strategic level.



VIII. EXECUTIVE SUMMARY

Across the project, the main focus during PQ5 was the preparation for the first EC Review that took place in Amsterdam on the 30th June to 1st July 2011 and the preparation of the program and the logistics around the EGI Technical Forum in Lyon taking place 19-23rd September 2011. PQ5 also saw the first release of UMD 1.0.0 with 29 individual software products from EMI 1.0.0 after the verification of these product's quality and demonstrated capability in staged rollout. However, it was found that more sites need to continue to engage in staged rollout to ensure adequate coverage.

Two new NGIs became operational during PQ5 (Finland and Ireland) and the Italian ROC was decommissioned. A new suspension policy for under-performing sites is now in force which will increase the target availability of resources in EGI from a minimum of 50% to 70%. The overall availability/reliability of the new smaller NGIs remains a concern with seven sites suspended in June. Effort in PQ6 will be diverted to trying to further support these sites. The Security Service Challenge 5 was run at an unprecedented scale - 40 resource centres were involved. This security exercise demonstrated increasing automation in communication and information handling for security issues with support now being integrated into the main operations environment.

Globus was successfully integrated into SAM and GOCDB, and UNICORE into GOCDB, however neither Globus nor UNICORE have been integrated into the accounting infrastructure and this remains a focus for PY2. A new ActiveMQ STOMP consumer in pre-production for external testing will be relevant to all the accounting systems who publish directly into the APEL database. The central operational tools have all now migrated into the egi.eu domain and their failover configuration improved. Documentation previously held in the GOC Wiki dating from the EGEE projects is being reviewed, revised where needed and migrated into the EGI Wiki. The Resource Centre Operational Level Agreement (OLA) v. 1.0. was finalized and approved and the Resource Provider OLA is being drafted.

The next phase of development within the user community technical services, the Application Database, Training Marketplace & VO Services have been prepared and endorsed by the UCB.

EGI's Quality Criteria underwent a major review as planned and were published at the end of PQ5. This new revision improves the coverage of EGI Capabilities and their associated quality criteria. The necessary infrastructure for the software provisioning process demonstrated its design and implementation throughout the UMD 1.0.0 verification efforts which used a test-bed of virtual machines. Some minor issues were found with these processes, but resolved to enable verification of the release to continue. Second-line support of UMD provided by the DMSU is working its way steadily into better integration and interaction with first-line support and third-line (the external technology providers). Interaction with the operations community in EGI is also steadily improved, and a knowledge base is in its early inception phase for the DMSU members to rely on for even more efficient and qualified software service support in EGI.

During PQ5 five MoUs in total were signed with collaboration and support projects as well as a second VRC – Life Sciences. The policy team will be organising its 2nd policy workshop as well as a two-session workshop on business models and sustainability. The SPG produced new security policies and revised an old one.



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1. OPERATIONS

1.1. Summary

Two new NGIs became operational during PQ5: Finland and Ireland. UK started the Resource Centre creation process in order to be able to decommission the EGEE-III UKI ROC. The Italian ROC was decommissioned during the quarter.

The overall availability/reliability of the new smaller NGIs has been fluctuating, with a peak of Resource Centres that were suspended in June (7), this trend will be assessed during PQ6 to define a specific support activity for the affected NGIs.

Security accomplished a number of relevant milestones. The operational tools that support operational security activities are being successfully consolidated: the ticketing system for incident response (RTIR) is now in production, and a prototype of the security dashboard integrated into the operations dashboard is not available for testing. The Security Service Challenge 5 was run at an unprecedented scale (40 RCs involved), this required increasing automation in communication and information handling; the results are being processed. The rate of incidents handed and of advisories issued is constant.

The service provisioning procedure has been improved, and the partners contributing to Staged Rollout successfully participated allowing the inclusion of 29 products into the first release of UMD. However participation needs to be extended and the level of commitment of the current partners needs to be reassessed.

Integration activities are progressing well: Globus was successfully integrated into SAM and GOCDB, and UNICORE into GOCDB. Neither Globus nor UNICORE are ready for being integrated into the accounting infrastructure and a TCB task force to focus on the integration of accounting was defined to facilitate this for Globus and UNICORE into the central APEL repository. The first site hosting Globus services was configured in July (NGI_DE), and a few sites have been populated with UNICORE services now that the UNICORE end-points can be registered in GOCDB. A new ActiveMQ STOMP consumer in pre-production for external testing; it is relevant to all the accounting systems who publish directly into the APEL database.

The SAM deployments have been consolidating with multiple new versions of the Operations Portal being released and deployed, and the failover configuration of the central tools being improved. A manual for the definition of the incident handling process for central tools was approved. The registration of central tools is being rearranged in GOCDB. The gridops.org domain inherited from the EGEE series of projects has been decommissioned to be replaced by the egi.eu domain.

The Resource Centre Operational Level Agreement (OLA) v. 1.0 was finalized and approved based on the comments received from the OMB in April and May, and the Resource Provider OLA is being drafted. The current OPS availability profile was discussed and approved for extensions (inclusion of CREAM together with ARC-CE and lcg-CE). The profile will be reviewed after the decommissioning of lcg-CE. In collaboration with WLCG, the replacement of GridView with the Availability Calculation Engine (ACE) was approved.

The GOCDB structure of the EGI.eu/NGI operational tools is being revised in preparation to the calculation of EGI.eu-specific availability/reliability reports (this work is on-going). From May 2011 a new suspension policy for under-performing sites was introduced which increases the limit of the availability from 50% to 70%.



In order to support the monitoring of uncertified gLite-based sites by any NGI an infrastructure consisting of one WMS, LB and a top-level BDII has been put in place. A webpage¹ for NGI managers to add the needed uncertified sites was created. Sites can only be switched to CERTIFIED status once the all the production services pass the SAM tests. Production top-BDII, WMS and LB service instances cannot be used as they only keep information about already certified sites and service instances.

The set of operational documentation (procedures, manuals, best practices and how-tos) is being finalized and most of the relevant material from GOCWIKI from EGEE-III was migrated to the EGI wiki and is being revised. The GOCWIKI decommissioning date is set for the 30th September 2011.

1.2. Main achievements

1.2.1. Security

The mandate and composition of the EGI Computer Security Incident Response Team (EGI CSIRT) is now clearly defined in the approved Term of Reference².

The tools for the support of operational security are being enhanced.

- The setup of the new ticketing system for incident response (RTIR) was completed and the helpdesk is now in production.
- The development of security dashboard is making good progress. An early prototype has been made available to EGI CSIRT and more requirements – for example the related support processes in case of security alarms – are now being gathered.

EGI CSIRT handled one multiple-site security incident and issued one security advisory during the quarter. In addition, the security incident handling procedure is being updated³.

A cross EGI security service challenge (SSC5) was completed and the results are being gathered. SSC5 is unprecedented in terms of scale: 40 EGI Resource Centres participated including large and medium-size sites.

Three new vulnerabilities were reported to SVG during PQ5, of which one resulted in an advisory issued by CSIRT requesting mitigating actions. SVG issued two advisories, including 2 due to 'Low' risk issues being addressed in the UMD release. In addition, the EGI Software vulnerability issue handling process has been updated after the first years' experience. Regular SVG monthly meetings are now being held.

1.2.2. Service Deployment and Integration

29 individual products underwent the staged rollout process in preparation for the UMD 1.0.0 products were rejected in the software provisioning workflow (either during verification or staged rollout). These products were processed in parallel by the relevant early adopter teams.

During this the first large-scale use of the staged rollout process for a whole middleware release, various issues have been encountered and will be addressed in PQ6. In particular:

- A procedure for when a given product release is superseded by a newer release.

¹ <https://cert-devel.grid.auth.gr/>

² <https://documents.egi.eu/document/385>

³ <https://documents.egi.eu/document/47>



- A procedure for resolving conflicting staged rollout reports for the same product, e.g. when a product has issues depending on the local configuration of the system.

The refined process for software provisioning is described in MS409⁴.

Interoperability

The first Resource Centre with Globus services was brought into the production infrastructure and a new task force⁵ established to deal with some of the issues around this integration. Issues to be discussed in the task force concern the capability of Globus services to be integrated into the EGI accounting infrastructure and the Globus probes now integrated into SAM Release 11.

During PQ5 the works of the UNICORE integration task force continued focusing on the problem of the registration of UNICORE service end points in GOCDB. With the support of JRA1, GOCDB was extended to accept all RFC 3986 characters can now be entered into the URL field. The first UNICORE services have been added to GOCDB. UNICORE SAM Nagios will be integrated into the SAM release starting with Update 13.

1.2.3. Helpdesk & Support Activities

1.2.3.1. EGI Helpdesk

GGUS-FAQs: During PQ5 a big step towards permanently keeping up to date the documentation about the SU connected to GGUS was taken. All GGUS-FAQs about SU were migrated from PDF documents stored at the GGUS server to the central EGI wiki⁶ and are now fully searchable. After the migration the FAQ entries were checked by the SU, the respective contact persons are now able to update the FAQs themselves with their EGI SSO accounts. The migration is complete and for 97% of the SU the FAQ pages were updated. During this time:

- Decommissioned SU: OCC, NPM, DUS, RAG, VO Management, dCache Experts
- New SU: Operations, SAGA, EMI Release Management, SAM/Nagios EGI Support

Additionally the VO “Fusion” was integrated in GGUS.

32 NGIs are present in GGUS at the moment. The decommissioning of ROC SUs is on-going (it is almost finished – with the exception of those outside European). There are still a significant number of NGIs not yet integrated in GGUS, which means that they haven't concluded the NGI creation process.

In order to stay up-to-date with the underlying workflow system, the GGUS Remedy AR system was upgraded from 7.1 to 7.5. The Technology Helpdesk is well established. In PQ5 around 250 tickets have been processed through it. Via the established interface to the EGI-RT system the first EMI-1 release was announced to EGI via the Technology Helpdesk.

The GGUS report generator currently does not produce all statistics and reports needed. Requirements were collected and reviewed⁷. Various development options are currently being evaluated as described in MS707⁸.

⁴ <https://documents.egi.eu/document/478>.

⁵ https://wiki.egi.eu/wiki/Globus_integration_task_force.

⁶ <https://wiki.egi.eu/wiki/GGUS:FAQ>

⁷ <https://rt.egi.eu/guest/Ticket/Display.html?id=976>, <https://rt.egi.eu/guest/Ticket/Display.html?id=1505>, <https://rt.egi.eu/guest/Ticket/Display.html?id=932>

⁸ <https://documents.egi.eu/document/523>



Details on technical developments can be found in the GGUS release notes⁹.

1.2.3.2. Grid Oversight

Two issues of the ROD team's newsletters were released in May and June¹⁰. A change to the COD escalation procedure was discussed and approved at the OMB for the streamlining of the overall process¹¹. A set of tutorial videos was prepared¹² and their publication on the EGI training market place is being discussed.

As to the follow-up of underperforming sites, COD investigated the issue of the high rate of UNKNOWN monitoring results for some NGIs this is quite high, which could undermine the meaningfulness of the availability/reliability reports. This work is on-going.

COD also contributed to the definition of a testing mechanism for the automated follow-up of underperforming sites. This work is on-going.

1.2.3.3. First-level support (TPM)

The day-by-day first-level support activities of EGI.eu have been running regularly.

1.2.3.4. Network Support

Further testing of HINTS¹³ has been carried out both in France and in Italy; probes were installed in various sites across Italy and France (Bologna, Roma, Toulouse and Paris). HINTS is the tool for the execution of on-demand tests and measurements to facilitate troubleshooting network problems. A development server has been set up in Paris and a production one is located in Rome. The test of the system has started and feedback was provided to the developers.

The involvement of EGI in IPv6 activities was discussed, in particular in collaboration with the IPv6 HEPiX working group.

Collaboration with GEANT3 PERT (Performance Response Team) is being investigated.

1.2.4. Infrastructure Services

1.2.4.1. Operational tools

Two new versions of Operations portal were deployed in PQ5: 2.6.1 (May) and 2.6.2 (June). At the end of PQ5 there were four NGI instances deployed by NGI_BY, NGI_CZ, NGI_GRNET and NGI_IBERGRID. Broadcasts and VO ID cards are part of Operations portal, while the decommissioning of the old CIC portal (cic.egi.eu) was postponed and is currently planned for September 2011.

Two new versions of SAM were deployed in this quarter: SAM Update 11 (June) and Update12 (July). An additional minor release (Update 11.2) was deployed on the 4th of July due to the IGTF CA release. SAM/Nagios deployment of NGI instances is on-going. The recently established NGI in Ireland NGI (NGI_IE) has become operational and has decided to use the SAM service from NGI_UK. A new NGI instance was deployed in Finland after validation (08/06/2011). The SAM

⁹ <https://gus.fzk.de/pages/owl.php>

¹⁰ https://wiki.egi.eu/wiki/Grid_operations_oversight/ROD#Newsletter

¹¹ <https://www.egi.eu/indico/conferenceDisplay.py?confId=433>

¹² https://wiki.egi.eu/wiki/Grid_operations_oversight/ROD#Video_tutorials

¹³ <https://grid-4.dir.garr.it/>

instance in Armenia is being reinstalled due to hardware problems; this has adversely affected the availability statistics of NGI_AM in July.

This is the summary of the SAM deployment¹⁴ at the end of PQ5:

- 25 NGI instances covering 35 EGI partners,
- 3 ROC instances covering 4 EGI partners (Russia, Asia Pacific, UK-Ireland)
- 1 project instances covering 1 EGI partners which is used for the monitoring of central EGI.eu tool instances,
- 3 external ROC instances covering the following Resource Providers: Canada, IGALC and LA.

The internal ROCs for Russia and Asia-Pacific will remain federated, however the UKI ROC will be decommissioned in the medium term after completion of the UK NGI registration which is currently in progress. The high availability of the central EGI.eu tools is being improved.

- GOCDB: a dynamic load balancing DNS setup is provided for the address goc.egi.eu. The secondary instance in at the Fraunhofer Institute (DE) is still being deployed.
- SAM: SAM-Update13 will provide the option to install a secondary instance, we expect this feature to be deployed based on depending on NGI size and resources, but the HA of SAM is critical for the collection of reliable availability statistics. Due to other development priorities this feature was delayed from Update 11 to 13.
- Operations Portal, Accounting Portal and Metrics Portal: services are deployed on virtualization platforms, and backups are performed regularly, and recovery in case of failure can be performed quickly.

A new manual providing instructions on how to manage incidents on central tools was approved by the OMB¹⁵.

1.2.4.2. Accounting

Repository

A new ActiveMQ STOMP consumer in pre-production for external testing; it is relevant to all the accounting systems who publish directly into the APEL database.

The integration of the accounting information into the central repository from Globus and UNICORE Resource Centres (Integration task forces) is on-going.

After the decommissioning of the R-GMA central infrastructure a large flow of jobs from sites catching up and republishing – sometime in error – overloaded the service which resulted in lots of sites failing to publish for a few days.

The regular optimisation of the consumer database has greatly increased its capacity.

Sites having problems publishing were supported.

Portal

No new updates of the accounting portal were released during this quarter. The service ran smoothly. The main operational problem was bad data from a site causing the UserDN data to be unavailable¹⁶.

¹⁴ https://wiki.egi.eu/wiki/SAM_Instances

¹⁵ <https://wiki.egi.eu/wiki/MAN04>

¹⁶ https://ggus.eu/ws/ticket_info.php?ticket=71738



More VOs can now be selected from the CUSTOM view. The new Accounting Portal Roadmap is now available¹⁷.

1.2.4.3. Availability/Reliability

The Resource Centre Operational Level Agreement v. 1.0¹⁸ was finalized and approved based on the comments received from the OMB in April and May. The current OPS availability profile was discussed and approved for extensions (inclusion of CREAM together with ARC-CE and lcg-CE). The profile will be reviewed after the decommissioning of lcg-CE. In collaboration with WLCG, the replacement of GridView with the Availability Calculation Engine (ACE) was approved.

The GOCDB structure of the EGI.eu/NGI operational tools is being revised in preparation to the calculation of EGI.eu-specific availability/reliability reports (this work is on-going).

From May 2011 a new suspension policy for under-performing sites was introduced which increases the limit of the availability from 50% to 70%.

The OLA task force was extended to start working on the Resource Provider OLA; the first draft was released for discussion.

1.2.4.4. Core services

In order to support the monitoring of uncertified gLite-based sites by any NGI an infrastructure consisting of one WMS, LB and a top-level BDII has been put in place. A webpage¹⁹ for NGI managers to add the needed uncertified sites was created. Sites can only be switched to CERTIFIED status once the all the production services pass the SAM tests. Production top-BDII, WMS and LB service instances cannot be used as they only keep information about already certified sites and service instances. The EGI Catch-All CA is currently serving 5 countries which do not have a national accredited Certification Authority (Albania, Azerbaijan, Bosnia and Herzegovina, Georgia and Senegal).

1.2.4.5. Documentation

A deadline was set for closing the GOCWIKI (end of September 2011). The transfer of material to the EGI wiki is almost completed. The Best practices²⁰ manual is now complete and fully operational. A new best practice on the management of the top-BDII in failover configuration was approved. All sections except the ROD part are in excellent shape and are awaiting OMB approval for release.

1.2.5. Tool Maintenance and Development

Operations Portal

During PQ5 development work was performed on the following components of the Operations Portal:

- Security dashboard: Its goal is to detect and inform sites about security incidents and vulnerabilities. As part of TSA1.2 it was proposed that an adapted display and workflow to open tickets against sites in the Operations Dashboard would be used. The XML (CSV,...) format of the reports for Nagios and Pakiti was defined and implemented and then made available in the Dashboard. The mechanism to pass this information to the Dashboard was also defined and implemented. An ACL model based on GOC DB and EGI SSO was made to restrict access to just

¹⁷ <https://documents.egi.eu/document/517>

¹⁸ <https://documents.egi.eu/document/31>

¹⁹ <https://cert-devel.grid.auth.gr/>

²⁰ https://wiki.egi.eu/wiki/Operations_Best_Practices

the relevant EGI CSIRT and operations staff. A first prototype has been delivered in July and this version is currently being evaluated by the EGI CSIRT.

- SAM PI integration: The reliability and availability percentage are now displayed in the dashboard and the results of the metrics for the Ops VO exposed in the SAM PI are visible in the VO alarms view of the dashboard.
- Decommission of the CIC Portal: The last remaining feature (the User tracking) has been migrated in the Operations Portal, but some people are still using the old xml feed for the VO information. Consequently the decommissioning will finally take place in PQ6.
- New Central View for the Dashboard: The COD View has evolved from a site view to a NGI view with sites grouped by ROCs/NGIs and COD creating tickets for NGIs/RODs, a dedicated box lists tickets per NGI. A notepad is available for each NGI/ROC COD. The Ticket creation will allow new templates and the COD will be able to edit the mail content before it is sent.
- Regional Package: The generation of the package and the related documentation is now done automatically. The synchronization has been improved to authorize special characters in the messages. The broadcast module has been added in the regional version.

During PQ5 the Operations Portal product team was also responsible for editing milestones MS705 and provided input for MS707 and MS414.

GOADB

Details about the GOADB developments are now available in the project wiki²¹. During PQ5 effort was spent on the following topics:

- Design and documentation for a Regional-Publishing GOADB, and for Data Scoping in the central GOADB. See <https://wiki.egi.eu/wiki/GOADB/Release4/Regionalisation>
- Design and documentation for Virtual Sites²²
- Refactored backend PROM database code to enable transaction demarcation in higher level business operations (required to implement scoping). See [1] and <https://rt.egi.eu/rt/Ticket/Display.html?id=943>.
- Integration of phpUnit/dbUnit test frameworks and test practices.
- Design and partial roll-out of a new MVC architecture for GOADB that uses page/action controllers and view templates.
- Moved Site, User and Endpoint manipulation to new MVC architecture ready to support scoping. See <https://rt.egi.eu/rt/Ticket/Display.html?id=943>
- Fixed a few long term bugs with regard to adding and editing sites and users.
- Increased front end responsiveness using db connection pooling.
- Cleaned old roles. See <https://rt.egi.eu/rt/Ticket/Display.html?id=931>
- Added new Goadb_Endpoint_Location entity to record service endpoint URLs²³. Required for supporting UNICORE services and also allows multiple service endpoint locations to be linked per SE if this becomes a future requirement. See <https://rt.egi.eu/rt/Ticket/Display.html?id=975>.
- Add a "my site" link in the main menu. See <https://rt.egi.eu/rt/Ticket/Display.html?id=1091>
- Record Certification Status changes in new audit/history table with accompanying PI queries. See <https://rt.egi.eu/rt/Ticket/Display.html?id=939>
- Allow authorised operators to suspend sites at central level. See <https://rt.egi.eu/rt/Ticket/Display.html?id=1094>

²¹ <https://wiki.egi.eu/wiki/GOADB/Release4/Development>

²² <https://wiki.egi.eu/w/images/f/fe/VirtualSitesDesign.pdf>

²³ <https://wiki.egi.eu/w/images/4/46/GoadbGlue2UnicoreV2.pdf>



- Show when a site entered the current production status. See https://wiki.egi.eu/wiki/GOCDB/PI/get_cert_status_date
- Daily user and operational support, documentation, wiki upkeep.
- Participation in Regionalisation and UNICORE integration task forces and contributed to EGI documents.

SAM

In PQ5 the SAM PT has established and maintained the central services for EGI and performed three major releases. SAM Update-10 was released in April and contained support for the glExec tests. An improved version of Availability Computation Engine (ACE) has been put into production from 1st of June to compute and generate availability reports, taking over the functionality previously provided by GridView. SAM Update-11 has been released on May 18th and contains integration of the Globus probes, support for uncertified sites running CREAM-CE. A plan for decommissioning of the old SAM infrastructure was written and actions were taken to identify and migrate remaining systems to the SAM/Nagios. On July 7th, SAM Update-12 has been released containing the first full implementation of the gridmap interface in MyEGI as well as improvements of the web service API. In addition, reorganization of the meta-packages was performed and improvements in sending Nagios notification to the dashboard were implemented.

Accounting Portal

The following areas were covered during the quarter:

- More VOs can be selected from the Custom view.
- Implementation of an XML interface to obtain data from the Custom View (ver RT #1802). This interface was requested by NA3 to obtain data for the VO Dashboard. It provides a permanent link to any custom query represented in XML data. Currently awaiting feedback from NA3 on this feature
- Change of the CIC interface from Oracle to XML, and of global VO classification.
- Changed efficiency factor for Tier2 report from 0.60 to 0.67 starting from April 2011.
- More user-friendly message to users without certificate.

Accounting Repository

A test service for the new STOMP/Python publisher/consumer was implemented in PQ5. Discussions with a variety of stakeholders including those who currently publish by direct database insert were started. Some have tested publishing data from their service.

Metrics Portal

Development continued in PQ5 on the Metrics Portal with the incorporation of GGUS, BDII, Availability metrics, SQL median support, refactorization and connector enhancements. The development portal was cloned to the production one. New automatic metrics, which retrieve values directly from data sources were implemented. This metrics can be then manually overridden or validated.

1.3. Issues and Mitigation

1.3.1. Issue 1: Participation to SR activities

During the preparation of UMD 1.0.0 only a subset of sites identified for being responsible of Early Adoption actually participated to Staged Rollout.

Mitigation. The list of participants needs to be reviewed after an assessment of the real readiness and commitment of partners to this activity.

1.3.2. Issue 2: Integration of middleware stacks into the EGI Information Discovery System

Currently all middleware stacks provide different implementations of the sites Information Discovery System capability. This implies that sites that are willing to deploy different middleware flavours are obliged to deploy as many site Information Discovery services as the number of middleware stacks deployed. Similarly, a middleware solution that allows the integration at the top-level Information Discovery System of sites deploying different middleware stacks is not available.

Mitigation. During the EGI Technical Forum a session will be held to discuss this issue. However, it is foreseen that technical implementations providing a solution to the problem will only be available in the 2 year time scale.

1.3.3. Issue 3: GGUS Statistics and Reports

GGUS report generator does not produce all statistics and reports that are needed.

Mitigation: Collection and review of requirement for the report generator took place. Various development options are currently being evaluated

1.4. Issues from previous QRs

1.4.1. Issue 12: Sustainability of nascent NGIs

We are currently lacking feedback from Moldova. Albania has no concrete integration plans yet.

During PQ5 there was no consolidation trend of the Availability/Reliability of some of the new NGIs. These statistics will be assessed to identify which NGIs despite of having successfully passed the integration step have difficulties in guaranteeing the stability of their infrastructure.

1.5. Plans for the next period

1.5.1. Operations

Security

- Organization of security training sessions and of various security-related meetings at the EGI Technical Forum
- Revision of security procedures and in particular for the follow-up of security alarms in the security dashboard
- Development of a security service challenge framework to be deployed by NGIs

Technology deployment and integration

- Creation of an Accounting Task Force for the coordination of development efforts of different projects (EMI, EGI-InSPIRE, IGE), of requirement gathering and of deployment plans
- Discussion of the integration of different middleware stacks into the Information Discovery System
- Assessment of readiness and commitment of sites participating to Early Adoption
- Planning of SR effort according to the UMD release schedule
- On-going works of the Globus and UNICORE integration task forces

Central tools

- Decommissioning of the old Operations Portal cic.egi.eu (September)
- Improvement of the central monitoring system controlling the status of the central tools
 - track development of probes for the monitoring operational tools (some of them need to be extended) and integrate them into the ops-monitor central Nagios instance



- track and perform planned tests of failover configurations of centralized tools
- improve the registration of central tools in GOCDB (creation of a EGI.eu “NGI” structure)
- Review the registration of regional tools in GOCDB
- EGI Technical Forum session on tools for availability/reliability computation and reporting

Accounting APEL=A, Portal=P

- (A) New Central Infrastructure in Production at RAL.
- (A) Central Server ready to receive records from new clients.
- (A) All external services ready to start publishing by new method.
- (A) Accounting Workshop at the Technical Forum
- (P) FQAN and foreign usage to be deployed (already delivered for test).
- (P) New ActiveMQ connector with repository to be implemented

Helpdesk

- Development and maintenance of GGUS
 - The Technology Helpdesk will need some further fine tuning of the workflows and some additional options, e.g. the EGI software provisioning team needs to be able to open tickets against the EMI release management support unit to notify about issues encountered during the Staged Rollout phase (the problems cannot follow the classic support workflows as the software is still under testing and not part of a UMD release).
 - Improvement of the report generator (it is currently under redesign).
 - Integration of new NGIs.

Support

- Improvement of the process for the follow-up of underperforming sites
- Study of problem of UNKNOWN results affecting the availability/reliability statistics and definition of a notification mechanism to reduce the rate
- Refinement of automated notification mechanisms that complement the revised procedure for COD escalation
- Review of upcoming new releases of the operational dashboard
- Refinement of ROD metrics
- Distribution of a IPv6 questionnaire for discussion at the EGI Technical Forum network support activities

Availability/Reliability

- Finalization of the Resource Provider OLA for discussion in the OMB for approval in QR3
- Assessment of impact of UNKNOWN test results on Availability/Reliability statistics
- Testing of a new site availability profile extended to include new services such as WMS, LB, VOMS, FTS, etc.
- Discussion of a new profile for EGI.eu Availability/Reliability reporting
- Assessment of Availability/Reliability status of NGIs, definition of a strategy for the improvement of the performance of the underperforming NGIs
- Finalization of procedure for the re-calculation of monitoring results and availability statistics

Documentation

- Review of material recently migrated from GOCDB

1.5.2. Tool Maintenance and Development



Operation Portal

- Security Dashboard:
 - Integration of RT system : creation / update tickets , templates
 - Implementation of the feedback given by CSIRT team
 - Extend the dashboard with the capability of displaying the information in the regular dashboard view
- VO Dashboard:
 - Estimate the workload
 - Prepare the technical requirements
 - Improvements on the filter used in the dashboard to used it also in the VO dashboard
- Integration of Lavoisier 2.0

GOCDB

- Aim to complete Data Scoping/Tagging implementation in the central GOCDB (to allow Sites, Services and other data to be identified as either 'EGI.EU,' 'Local' or 'some other' scoped data). This involves many currently active sub-tasks. See <https://wiki.egi.eu/wiki/GOCDB/Release4/Development> [1]
- Complete the roll-out of the new MVC architecture to fully replace the old GUI/form processing logic.
- Work with Fraunhofer Institute to install GOCDB web portal failover.
- Review and update the Regional-Publishing GOCDB plan by Oct 2011.

EGI Helpdesk

There are various strands of development and maintenance work taking place in PQ6. The Technology Helpdesk will need some further fine tuning of the workflows and some additional options, e.g. the EGI software provisioning team needs to be able to open tickets against the EMI release management support unit. As described in the issues section the work on improving the report generator is on-going. Currently various options on how to implement the missing functionality are being evaluated. Another on-going strand of work is the integration of NGIs and the decommissioning of ROCs. Whereas the decommissioning of ROCs is almost finished, except for the non-European ones, there are still a significant number of NGIs not yet integrated in GGUS, which means that they haven't concluded the NGI creation process.

SAM

PQ6 will see the release from the SAM PT of two major releases: SAM Update-13 and 14. The major improvements planned are in the integration of the UNICORE probes, support for the fail-over Nagios as well as implementation and deployment of the Profile Management System (POEM) enabling easier configuration of metrics and services for the NGI and VO Nagioses. Work on improving the existing documentation and performance of the MyEGI and MRS components will also be performed. The PT would also like to start preparations and planning of the transition of SAM from gLite user interface (gLite-UI) to the EMI user interface (EMI-UI).

Accounting Repository

- Accounting Workshop at the EGITF
- New repository that accepts the old and new publishing methods.
- Migration to new system if all direct database inserting accounting sources are ready to move.

Accounting Portal

- New graph engine.



- Implementation of ActiveMQ interface with repository.
- FQAN support for site admin view
- Foreign user - VO scope computation.

1.6. NGI Reports

The individual NGI reports are available at <https://documents.egi.eu/document/719>.



2. USER SUPPORT

2.1. Summary

PQ5 represented the transition from the first year start-up phase of the project to the main thrust of activity. Preparations and activity relating to the first annual review took up significant time but this was a valuable opportunity to capture the achievements of the first year, take stock and refine plans for the future. During the period the new six-month workplans for each of the TNA3.4 services (Application Database, Training Marketplace, VO Services) have been prepared and endorsed by the UCB. A summary of these have been written by UCST and made available on the EGI Website²⁴. Another over-arching activity that took place during this period was the preparations and initial planning for the EGITF. The EGITF represents an important opportunity to both interact with and also bring together the two key constituencies that are served by the UCST namely the user communities and the NGI support teams. With this opportunity in mind the goal was to run sessions and workshops to present processes and services, discuss them and refine plans for exploitation of these.

2.2. Main achievements

Two workshops are being planned for the EGITF on Data management (in three parts) and portal/portlet/widget technologies. In addition there will be three user oriented sessions: (1) update reports from the VRCs, (2) showcase presentations from a selection of NGI support teams (a regular forum event now) and (3) a new concept, the EGI/NGI roadshow model. The roadshow model is based on schemes that a number of NGIs have undertaken where they go out and visit universities and other research centres and present what they can offer to researchers and IT teams in terms of access to infrastructure. A framework for planning and conducting such events will be presented to NGIs in order to refine what help they might require from EGI in delivering such events in their own country in order to increase and better satisfy their user base.

One of the ongoing challenges for this activity has been efficient and effective communication channels to and between the various NGI user support teams. Having captured a core mailing list by the end of the first year of the project UCST have migrated the data into the better structured EGI.eu Customer Relationship Management database. This was reported during PQ5 in MS306 User Support Contacts²⁵.

The implementation of a cohesive User Support platform is predicated on the tighter integration of the recently developed workplans²⁶ for the various Technical Services under TNA3.4. The summary of the workplans has been made accessible on the User Support Section of the Website. Web widgets have been identified as an important part of the User Support Platform, as these enable reusable, customisable services for NGIs and VRCs. The implementation of web widgets for the User Support Platform is now ongoing within TNA3.4 and the process has been expanded to other work packages through USAG and to NGIs through a series of blog posts. The topic will be discussed further at the EGITF.

One USAG meeting was held in PQ5 (May 4th)²⁷, where the coherency of development directions for user-facing services was discussed. Three UCB meetings were held (May 11, Jun 14, Jul 15). At these

²⁴TNA3.4 services workplans on EGI website: <http://www.egi.eu/user-support>

²⁵ <https://documents.egi.eu/document/564>

²⁶ <https://documents.egi.eu/document/569>

²⁷ USAG meeting: <https://www.egi.eu/indico/conferenceDisplay.py?confId=468>



the workplans for TNA3.4 services were endorsed. The VRCs reported back to EGI on progress and plans for user-related session at the EGITF were discussed, and outstanding and exceptional requirements were discussed with follow-up actions identified and agreed. Six requirements concerning “Coherency of storage and file catalogs” and “Stability and scalability of data management services”²⁸ have been endorsed and have been forwarded to the TCB for consideration. The VRCs expressed their concerns about the sometimes low level scope of services in UMD, which require communities to develop and integrate generic functionality into their own community-specific software. UCST is following this up by collecting the topics that emerged during the discussion as generic functionalities which should be included outside of community-specific code. Details about the UCB meetings can be found in the minutes²⁹.

UCST also followed up user requirement tickets through the EGI Requirement Tracking system: a sixth requirement topic has been identified (Data management) and has been assigned two subtopics: “Coherency of storage and file catalogs” and “Stability and scalability of data management services”. Six requirements from these subtopics have been endorsed by UCB and were also submitted to TCB. Investigations about middleware services APIs, command line clients for non-Linux platforms and MPI capabilities resulted in new documentation (API³⁰, CLI³¹, MPI³²). While the MPI page is already final, the other pages still require input from UCST, NGIs or technology providers. This will be completed in PQ6. Besides providing useful documentation for users, the pages are expected to trigger more specific and more structured requirements about improving access mechanisms and MPI execution services in EGI. This is an on going process within UCST, with NGIs involved/invited in specific requests. Documentation of the VO registration process description was harmonised with the new release of the EGI Operations Portal. (This was a joint task with JRA1).

UCST collaborated with EUAsiaGrid, EUMedGrid-Support, EPIKH and GISELA projects to enter applications provided by their user communities into the EGI Application Database. The Hungarian NGI was supported as they prepared for the EGI day of the Joint European DCI Summer School (<http://www.lpds.sztaki.hu/eudciss2011>)

UCST is working with SA3 on a Wiki-based user manual on how to use and monitor the MPI capabilities of EGI.

2.2.1. User Community Support Team

During PQ5 work has continued on identifying the support that can be coordinated to support the adoption of international computing solutions for international research-related problems. To simply classify these people as users is to obscure the detail of these complex relationships. A number of recent documents and presentations (e.g. HealthGrid 2011, IWSG-Life 2011) articulate these individuals as grid-enablers. Ensure that these grid-enablers have the tools and services they need is a key part of the requirements processing that is performed by the UCST.

2.2.2. User Support Services

Development of the NA3 technical services has continued to focus on the move towards a more integrated suite of resources that are customisable by other providers. This reflects a move towards a

²⁸ Requirements endorsed for the TCB: https://wiki.egi.eu/wiki/Track_UMD_Requirements

²⁹ Agendas and minutes of UCB meetings: <https://www.egi.eu/indico/categoryDisplay.py?categId=21>

³⁰ Table of EGI middleware APIs (not final at the time of writing): https://wiki.egi.eu/wiki/Service_APIs

³¹ Command line user interfaces for EGI middleware services: https://wiki.egi.eu/wiki/User_Interfaces

³² MPI User Guide for EGI users: https://wiki.egi.eu/wiki/MPI_User_Guide



business to business B2B model which locates NGIs and to some extent VRCs in the position of service providers for end users. Customisation of support services is essential in order to meet the needs of diverse partners and communities. During the period the new six-month workplans for each of the services have been prepared and endorsed by the UCB. A summary of these have been written by UCST and made available on the EGI Website.³³

The development of web widgets model is an important part of the current developments. It will enable customisable instances of the services that can be created by either NGIs or VRCs tailored to the needs of their own communities. So far this has been implemented by the AppDB development team. The other services will move towards this model of delivery during PQ6.

The EGI User Support platform will define the processes and mechanisms for developing and deploying customisable services. The initial focus will be on the existing technical services but during this second year of the project more services will be identified from the current and potential user communities. Where ever possible identified services will be developed from within the wider community following well established open source development processes in order that such applications achieve a sustainable lifecycle whilst required. Two workshops have been proposed to initiate this process: “Grid application software development: best practices, issues and needs for application developers” and “The EGI User Support Platform: contributing and consuming, a forum for community involvement”. Interest has already been shown in these workshops in the workshop poll³⁴ and the intention is that the workshops will take place before the end of this calendar year.

During PQ5 all of the services have made good progress against their published plans and planning for the next major cycle in conjunction with a thorough review of the existing delivered services. In conjunction more directed dissemination activity will take place to drive forward usage and awareness of the technical services, the user support platform and the requirements gathering process for guiding the future development of these services. This started with the development/update of dissemination materials (brochures, bookmarks, stickers) for the EGITF and with the preparation of online surveys that will be integrated into the services to capture feedback and requirements from the users of the services directly. New requirements and feedback that was collected from users of the tools will be evaluated, budgeted and prioritised after the EGITF will be incorporated into the next six month roadmap of the tools.

AppDB

Development plans for the AppDB during PQ5 were focused on the following areas:

- Quality of information
- Information retrieval
- Notification / Dissemination
- Cross-browser compatibility
- EGI User Support Platform
- Architecture

Effort has been split in fourteen distinct sprints³⁵, of which six are planned to be available before the TF. During PQ5 three of these sprints have been completed in order to achieve better performance and

³³ <http://www.egi.eu/user-support>

³⁴ EGI User Community workshops: <http://go.egi.eu/aaxdz>

³⁵ AppDB workplan (May-Oct 2011): <https://documents.egi.eu/document/510>



prepare for bigger changes in the code: (1) migrating the MySQL RDBMS backend to PostgreSQL, (2) re-implementing and improving the existing filtering mechanism, and (3) refactoring the existing codebase. The results of this effort will be visible for inspection from the development server instance, and are planned to be deployed into the production environment with the next major release (2.0) before the end of August. These changes deliver a significant increase of performance to the GUI, an up to 8 times performance increase to the API, and enhancements that were unfeasible before, such as syntactic searching.

Development of the AppDB in PQ6 will focus on completing the remaining sprints of the workplan, to capture feedback and requirements during the TF and to prepare a new six month plan based on the users' requirements. The plan can be then discussed at USAG and endorsed by UCB.

Training Marketplace

Early in PQ5 version 2 of the EGI Training Marketplace was developed, tested and then released on June 7th. Version 2 of the Training Marketplace has a significantly new look and feel to version 1. It contains significant increased functionality which includes a map view of NGI training events, a training wish list (a web form is available for users to specify their needs and publish a list view of these requirements), the ability to advertise expertise and ideas e.g., training resources (a web input form is available for people to advertise their expertise, ideas and resources and publish a list view of these) and a form to advertise relevant MSc, PhD and other taught courses. Version 2 also fully integrates approximately 9000 items of legacy material from the Digital Library training repository with Apache Solr³⁶ as a search engine. As a consequence of this, there is now seamless search functionality across all objects in the Training Marketplace. For example a search on the term 'gLite' would retrieve both events and resources (e.g. materials, infrastructures, VOs) relating to the term.

For the remainder of PQ5 work has continued on V3 of the Training Marketplace. The development process was rapid as known functionality was implemented into successive iterations whilst a reliable version was available as production service. For the next cycle the user interface to the Training Marketplace will retain a similar look and feel to versions 3 and version 2, this is to ensure continuity and avoid confusion to the user. The most significant development task will be to create a widget (in fact three or four separate widgets) that will allow other projects to embed the Training Marketplace into their own websites and for the widget to be customisable. This customisation will mainly apply to the browse widget and it will take the effect of showing a default view of the local region. Another feature included in V3 will be the ability to report inappropriate comments (through the user feedback channel) for the UCST to investigate and remove. Once a number of wishes/requests have been added to the database a tag cloud will be included.

All feature and functionality requests for the Training Marketplace are now managed through EGI's RT system. Beyond the period June – September 2011 we envisage development work on the Training Marketplace to focus around cross-tool integration, for example between the AppDB and Training Marketplace. The capturing and evaluation of user requirements for this phase will take place over the period of the EGITF through a combination of surveys, workshops and other interactions with users.

VO Services

The VO Services work during PQ5 is following according to the defined six month work plan defined at PM12³⁷. In that context, the following activities were performed:

³⁶ Solr is an open source enterprise search platform from the Apache Lucene project. See: <http://lucene.apache.org/solr/#intro>

³⁷ VO Services workplan (May-Oct 2011): <https://documents.egi.eu/document/527>

- Operation of the VO Services Support Unit in EGI Helpdesk dealing with tickets (14) concerning direct requests to the VO supervisor, asking for consultancy and support for VOs or providing feedback regarding some of the VO Services available tools.
- Assisting the Fusion VO with integration into the VO SAM infrastructure (this is still in progress). Continue to operate a VO SAM instance for the following VOs: phys.vo.ibergrid.eu, life.vo.ibergrid.eu and ict.vo.ibergrid.eu. Consultancy has also been delivered to HealthGrid (on behalf of the Life-Science Grid Community VRC) during the process of operating its own dedicated service. Updating the VO SAM documentation to cope with the various SAM releases delivered each month, and with workarounds for the problems observed for each release (https://wiki.egi.eu/wiki/VO_Service_Availability_Monitoring)
- Follow up of RT ticket #1153 (<https://rt.egi.eu/rt/Ticket/Display.html?id=1153>) and RT ticket #1180 (<https://rt.egi.eu/rt/Ticket/Display.html?id=1800>) regarding the setting up and operation of the VO Operations dashboard, and discussion within UCST on how to proceed.
- Capture and discussion of new VO specific requirements for HealthGrid (<https://rt.egi.eu/rt/Ticket/Display.html?id=2518>).
- Review of existing documentation and creation of new documentation found relevant for VOs. The following new documents were added to the VO Services Documentation Wiki (https://wiki.egi.eu/wiki/VO_Services/Documentation):
 1. A proposal for a Top BDII high availability service: This is the best practice document (requested by SA1 and written by NGI_IBERGRID) for the benefit of the VRC/VO resource providers to enable high availability for the information service.
 2. A failover approach for the replication of VOMS and LFC MySQL grid based services: A best practice proposal for implementing failover of MySQL grid based services in the LFC and VOMS server written to address a request from LSGC VRC.
 3. A summary of the relevant policies for VOs.
- Consolidation of the VO Admin Dashboard functionalities (<https://vodashboard.lip.pt/>). The MySQL backend was restructured to improve reliability and performance. The VO Admin management interfaced was introduced and the VO Deputy" and "VO Manager" roles are now recognized and allowed to customize the VO Admin Dashboard Main Page and Application page. The VO Administration interface is accessible through an icon in the main menu.
- Evaluation of the Vbrowser tool and inclusion of the tool in the VO Services Portfolio wiki page (https://wiki.egi.eu/wiki/VO_Services/Services_and_Tools_Portfolio).
- Elaboration of the Version 1 of a tool for identifying affected files in a full SE or in a SE to be decommissioned. The tool is now under testing by the HealthGrid community.
- Distribution of several dissemination materials (flyers) regarding TNA3.4 technical services and UCST activities in the 5th Iberian Grid Infrastructure

2.2.3. NGI User Support Teams

Besides the standard operation of user support services (training, VO support, consultancy, etc.) several NGIs invested work into the improvement of user support services. Particularly:

- Cyprus: During PQ5, NGI_CyGRID user support worked with users from Statistical and Mathematical Department on running the R project for statistical computing on grid. R is a language and environment for statistical computing and graphics. It provides a wide variety of statistical (linear and nonlinear modelling, classical statistical tests, time-series analysis, classification, clustering, ...) and graphical techniques, and is highly extensible. R has been installed on two Cyprian clusters: CY-01-KIMON and CY-03-INTERCOLLEGE. We had some training session with those users, in order to show them how to write and submit their R scripts on grid, and get then the results. Our users are now running successfully their R scripts on grid.

- Czech Republic: NGI_CZ actively support the VO auger, which is now (1st half of 2011) is the fifth in the grid usage statistics (just after the four LHC VOs). The problem of some long running jobs without updating output was traced to the bug in the CORSIKA program, authors provided a patch. The new program version will be used for new shower libraries. FTS channels for the VO auger are now available at the FTS in FZK. Further testing will take place in PQ6 for bulk transfers between sites supporting the VO auger. We discussed possible support for the new Czech community in the CTA (Cerenkov Telescope Array) project. The vo.cta.in2p3.fr is now supported on the prague1cg2 site. First jobs were executed by the VO members.
 - Finland: The customer support provided by CSC for the Finnish Grid Initiative (FGI) has been rather modest during this period. Some demonstrations about running AutoDock and BLAST in the grid environment has been performed for potential users. We are also currently upgrading our gridBLAST implementation. The reason for the low usage of the FGI resource is the ongoing hardware update. At the moment the FGI project is focused to the procurement of new hardware that will be taken in use in all the participating sites by the end of this year.
 - France: The main activities were the preparation of the French Grid days that are being collocated with the EGITF. In addition a portal has been setup to present the publications related to “France Grilles”, the French NGI.
 - Georgia: Because of the small effort level within the NGI for user support activities, the NGI was able to establish links with only a very few users:
 - Scientific groups of biophysical chemistry of the Tbilisi State University and the Sokhumi State University: Modelling of some biochemical processes with the purpose of realization of their thin and purposeful synthesis.
 - Andronikashvili Institute of Physics: High gain reach in fusion by relativistic compression ion bunches in radiation pressure acceleration regime.
 - Institute of Meteorology: Advanced Research WRF (ARW) modeling system for the weather research and forecasting.
- The NGI is planning to prepare project for the next year national call for the further development of the national grid infrastructure and support services.
- Greece: Conducted a survey of HellasGrid users to understand (i) the degree of satisfaction of HellasGrid users of EGI and (ii) to gather the requirements of HellasGrid users regarding the future versions of middleware. In addition new user requirements were followed up on and new application were introduced into the HellasGrid infrastructure. These include ffmpeg, different Java versions to support users’ code, mathematical libraries, ROOT package with support for remote file access.
 - Hungary: BME and SZTAKI has updated the official NGI-HU website³⁸ according to the feedback from users. SZTAKI has officially made gUSE³⁹ the grid virtualization environment opensource (8th June), to enable it for a wider user community. SZTAKI has organized the Joint DCI Summer School 2011⁴⁰ in mid-July to give insights to the technologies provided by the EGI-InSPIRE project (amongst other European projects). During PQ5 the NGI_HU applications-support team has put significant effort in order to assist teams and individuals on porting their applications into the Grid, as well as to guide them on the best (and most appropriate) usage of the software available in the NGI_HU infrastructure. JChem and Kopi were being ported. The plan for the near

³⁸ Hungrid Website: <http://www.lcg.kfki.hu/>

³⁹ grid User Support Environment: <http://www.guse.hu/>

⁴⁰ <http://www.lpds.sztaki.hu/eudciss2011/>

future is to organize an event similar to Café Grid 2011⁴¹ for potential user communities in October on the latest European grid and cloud achievements.

- Ireland: In PQ5 the consultancy work continued with existing grid users particularly in mathematics and astronomy/astrophysics. Grid-Ireland continues to provide a support helpdesk for Irish grid users. In the next period Grid-Ireland will continue with the deployment of web portals (general purpose and application specific, e.g., for solar physics users) to replace a number of under-used command-line user interface services.
- Italy:
 - Set up a first release of the REST-full “lightweight” crypto library for generating Grid proxy certificates starting from X.509 certificates stored into USB smart cards.
 - A comparison between several technologies and portals for job submission in a grid environment.
- Poland: Detailed instructions concerning access and execution of Gaussian software has been given for users from Italy. Publishing best practices documentation for the software in English is ongoing. Preparation of short movies concerning access to the infrastructure, basic gLite commands etc. Is ongoing. The material is almost ready, post-production work is still needed to give it a final form. The videos are foreseen to be published in PQ6. A training event for local communities concerning user friendly tools easing access to grid infrastructure has been organised at the NANO 2011 conference in Gdansk. Cooperation with CTA ESFRI has started. One application of the Polish CTA research group is currently under porting to the PL-Grid infrastructure using the InsilicoLab environment.
- Portugal: The Portuguese NGI User Support Team is currently addressing requests from Life Science Portuguese Researchers hosted at the Laboratório de Microbiologia e Biotecnologia which is part of BioFIG (Center for Biodiversity, Functional & Integrative Genomics). Such users follow research lines in comparative genomics use tools that have the need of high-performance computing. They use new NGS techniques (Next Generation Sequencing) where a large volume of data is produced per each sequenced genome (> 10 Gb). These data has to be assembled for reconstruction of the genetic backbone of each chromosome as well as to perform SNP’s and genomic comparative analysis of the sequenced organisms. To achieve those goals the NGI uses the Velvet, Cortex, SAMTools, ABySS and SOAP applications based in velvet algorithms using De Bruijn graphs for assemblage. The main work from the Portuguese User Support teams consisted in understanding the software and analysis framework, and on partially porting it to a grid context through an easy to use framework for the end-users.
- Serbia: Help was provided to the Serbian chemistry community in deployment and usage of AutoDock Vina software in the AEGIS VO of EGI. This open-source application for drug discovery, molecular docking, and virtual screening is successfully installed and used at two AEGIS Grid site (AEGIS01-IPB-SCL and AEGIS07-IPB-ATLAS). Besides this the ILOG CPLEX optimizer code has been ported to AEGIS infrastructure in collaboration with the Mathematical Institute of the Serbian Academy of Sciences and Arts. Support to researchers from the Faculty of Pharmacy and the Faculty of Chemistry of the University of Belgrade in usage of NAMD, Firefly, and Gaussian applications continues. Beside these activities, we managed to significantly upgrade central NGI_AEGIS user interface machine (ui.ipb.ac.rs) to Intel Xeon machine with 8 cores and 16 GB of RAM.
- Slovakia: During PQ5 work was focused primarily on the support of new users which are concerned with the simulations of the spread of fire in tunnels, where the FDS (Fire Dynamics Simulator) model is applied. FDS belongs to the most challenging scientific and technological CFD problems. It has been designed to run on a variety of platforms and OS, either serially or in

⁴¹ <http://www.isgtw.org/spotlight/caf%C3%A9-grid-comes-hungary>

parallel (using MPI), with or without multi-threading (using OpenMP). We have assisted by porting several variants of FDS on a quad-core compute cluster, and examined alternatives for its integration into the grid infrastructure. We are preparing training materials presenting JDL-descriptions for advanced types of applications (MPI, OpenMP, Parametric, DAG) which are to be submitted through both the WMS and CREAM clients.

- Slovenia: In PQ5 Slovenia gained some new active users from the following disciplines: knowledge technologies, civil engineering, and theoretical physics. We have added some additional tutorials for users on our wiki⁴². We have noticed that grid technology is still unknown to many researchers, which is why we intend to write some articles for the Slovenian media.
- Switzerland: UZH hosted a site visit from Computational chemistry community representatives from University of Perugia (Dr. Alessandro Constantini) for learning and implementing a workflow use case with the GC3/UZH developed tool, GC3Pie.
- Turkey: The researchers utilizing TR-Grid e-infrastructure were supported with porting their applications as well as providing solutions to their troubles. The web pages such as wiki and blog have been enriched⁴³. Furthermore, we are planning to promote communication between the expert and new national researchers on grid computing and provide getting solution from not only user support team but also expert users effectively. Finally, we have been contributed to WeNMR Workshop⁴⁴ in Turkey by providing grid certificates for the participants as well as support for related VO registration.
- UK: The UK held two one day workshops entitled “UK NGI Technical Roadmap”. One was open to UK Research Institutes and the other to large international projects including FP7 funded projects and ESFRI projects. 7 ESFRI projects were represented at the projects meeting, during which there were opportunities for discussion about e-infrastructure requirements and priorities and a talk was given to them about the EGI. Glasgow University have been outreaching and supporting a new user community and VO, the Optics VO and now have new members of that VO using their resources.

The EGI.eu UCST monitors the evolution of these services and identifies when and how these could be replicated and reused within other NGIs and user communities, contributing to more robust, more reliable and more sustainable support activities within those countries.

2.2.4. Shared Services & Tools

2.2.4.1. Dashboards

3.2.4.1.1 HEP Dashboard Application.

During the referenced period substantial progress was made for the Dashboard application in the following monitoring areas:

Job monitoring: A new version of the production task monitoring has been deployed for ATLAS and has been validated by the ATLAS production team. A lot of feedback and feature requests were received and following this feedback there is some new functionality being implemented. Additional functionality was also requested by ATLAS for the job monitoring historical view; a new version which enabled this functionality has now been deployed for validation.

⁴² www.sling.si – limited access

⁴³ TR-Grid: <http://www.grid.org.tr/>

⁴⁴ <http://www.wenmr.eu/wenmr/successfull-software-workshop-istanbul>



Data Management monitoring: There were two releases for the new version of ATLAS DDM Dashboard were deployed in production in May and July correspondingly. The latest version of ATLAS DDM Dashboard has advanced filtering and grouping of the monitoring metrics, customizable historical plots and better performance, it is already used by ATLAS shifters and it has got very positive feedback from the ATLAS computing community.

Site and Service monitoring: A new version of the downtime collector has now been deployed and is in production. This version defines site downtime and takes into account topology information of a given virtual organization. Multiple improvements were performed in the Site Status Board (SSB) application, the SSB database was repartitioned and many SQL queries were redesigned; this allowed for improving performance of the SSB user interface. A new version was deployed at the end of July for ATLAS, ALICE and LHCb and will be deployed for CMS in the beginning of August. The validation was started for the first version of the Site Usability Interface with complete functionality compatible with the new SAM architecture. This work will continue in the next quarter. Also the Dashboard cluster has migrated to SLC5 with an alarm system set up for the SSB collectors.

3.2.4.1.2 Life Sciences Dashboard design.

The Life Sciences Grid Community (LSGC) dashboard will integrate, into a single portal, various VO management services. The following services are currently considered for integration:

- User management tools
- VRC-wise Grid monitoring and operating tools
- Community files management
- VRC-wise accounting

The "VO Admin Dashboard" (<https://vodashboard.lip.pt>), which similarly aims at providing an integrated VO portal, appears to be a promising basis for the Dashboard. It is currently being investigated. The precise Dashboard development roadmap is currently being settled. In addition, a VO-oriented version of the Operations Portal is being discussed at UCB. The LSGC pushes towards this solution that is expected to cover some important operational needs.

2.2.4.2. Tools

One of the major ongoing development themes in the Ganga project has been to provide features that improve usability and user support functionality. Notable highlights include further development of a web-based monitoring interface (WebGUI) that allows users to conveniently view the status of their submitted Ganga jobs and browse the local job repository.

User job task-monitoring has been improved to gather information about all submitted jobs, irrespective of their submission backend; this provides the developers with an understanding of the usage patterns outside of the known Grid use-cases. Furthermore, improvements were made to the Ganga usage monitoring service to give a more detailed breakdown of the use of Ganga across different VOs.

Development has also focused on migrating community-specific applications into the Ganga core, from where they can be exploited by a wider user base. One such example is Ganga ATLAS, which was initially developed to allow bulk submission of Athena jobs, and which is now available as an experiment neutral package in the core. In addition to bulk submission, the Tasks package allows jobs to be chained (the output of one job is used as input to a subsequent job) and is capable of resubmitting failed jobs. Since moving the Tasks package to the core, development has begun on LHCb-specific tools to exploit task workflows. Significant other developments include a protection mechanism to limit the number of times a job will be submitted, which prevents inherently bad jobs wasting compute resources. Similarly, the granularity of analysis 'task' control has been increased, such that only the failing sub-set of jobs need be resubmitted.



The Ganga PanDA work has seen developments to improve the handling of generated output files; specifically the ability to merge multiple output files has been added. This allows users to select between pre-configured merging routines for a set of known file types or, alternatively, to use their own custom merging script. Additional developments include the re-enabling of job splitting, based on the size of input files, and a client-side rebrokering mechanism that is capable of resubmitting failed or killed sub jobs.

In the area of Tag support both user-generated Tag files and centrally produced Tag datasets are now fully supported within Ganga. The Ganga Tag-based workflow has been integrated into the ATLAS PanDA distributed analysis system and provides the foundations on which the ATLAS Skim service runs.

Finally, a new Ganga application was developed for the purposes of targeting ATLAS production queues from within the HammerCloud test framework. The resulting application (ProdTrans) allows Ganga to submit to production queues, and provides support for running production transformation jobs. The application has been in use within a production environment since May 2011; see the HammerCloud section of this report for further details.

2.2.4.3. Services

3.2.4.3.1. Hydra Service.

An experimental Hydra service has been successfully deployed on a gLite release 3.1 UI, and is usable for test purposes. Hydra is a file encryption/decryption tool distributed by EMI that enables the encryption of sensitive files stored on storage resources. Work is currently on going to migrate Hydra to gLite release 3.2 at CERN by gLite experts from the EMI project⁴⁵. Beside deployment of the key store services, it will be needed to install and publish the Hydra client on all sites where Worker Nodes may be required to access the Hydra service (presumably all sites accessible to the LS HUC VOs).

3.2.4.3.2. GReIC.

During PQ5 the grid-database registry application has been finalized. Several improvements have driven to a pre-production release available online for internal test and bug fixing activities. VO management, notification and permalink have been added according to the initial design phase.

As part of the user support activity, a new use case named UNIPROT related to the LS community has been jointly defined with the bioinformatics group working at the University of Salento.

The main issues addressed by this use case relate to:

- Accessing to the UNIPROT data bank, even testing and evaluating different data models.
- Running both simple and complex queries against the UNIPROT data bank.
- Making the UNIPROT data bank available in grid to the LS community through a grid-database service interface.

In the context of this activity, a relational-based schema of the UNIPROT data bank has been designed and implemented. Moving towards a more structured approach (the relational one) the complex queries requirements have been strongly addressed (the new database schema includes about 30 relational tables). An ETL (Extraction-Transformation-Loading) tool to move the data from the UNIPROT flat file into a relational DB has been implemented and tested jointly with the bioinformatics group.

The ETL tool is comprised of two components:

⁴⁵ MS607: Hydra service deployment on a multi-servers configuration, <https://documents.egi.eu/document/327>

- A C library responsible for extracting the data from the flat file and for storing it into an XML file.
- The GRelC translator component responsible for translating the XML file entries into bulk queries for the new relational database.

This ETL tool can be used for all of the databases in EMBL format with information like the ones stored into the UniProt data bank. In our use case the UniProt/Swiss-Prot data bank has been moved into a relational database.

The database allows submitting queries like:

- *given a protein, select the OG (OrGanelle) that indicates if the gene coding for a protein originates from mitochondria, a plastid, a nucleomorph or a plasmid.*
- *given a protein, select the specie, its classification and taxonomy.*

The relational version of the UniProt data bank has been deployed on the machines provided by SPACI to support these use cases and it is now being tested by a small group of users for validation purposes.

As stated before, SPACI has been providing support also, both in terms of service and data hosting for the LS community. In the UniProt use case an i386 machine with a PostgreSQL DBMS has been set up. Support to the end users has been also provided via email or (as in the case of the LS use case mentioned before) through F2F meetings.

2.2.4.4. Workflow & Schedulers

During PQ5 the activity has been focused on developing the proposed use cases in Kepler. We had continued work on the VMEC+DKES workflow. This use case follows a parametric + parametric model:

Several parametric executions of the first application (VMEC) are launched.

For each execution of VMEC, several parametric executions of the second application (DKES) are submitted, using as input the output of VMEC.

The first tests performed with this use case demonstrated some challenges of having a large number of tasks being submitted. This use case requires of 2500 jobs (for the simplest test), this number being too high for some of the components of the infrastructure to achieve an optimal performance. Job management becomes critical in this case. A workflow solution based on direct using of the statuses events of the jobs using the Logging and Bookkeeping (LB) events has been designed and will be implemented.

As a result of the work previously developed, an article in the conference Ibergrid regarding the Physics results achieved by using the grid was published.

We also have continued our work on development and optimization of the workflow that is a combination of the equilibrium solver CHEASE supplying input information to the MHD stability code MARS-F that calculates complex RWM eigenvalue (growth rate and real frequency). This use case represents a kind of parametric + parametric execution model, where each application is executed following a parameter scan approach. Scientific results achieved with usage of this workflow have been presented during 38th European Physical Society (EPS) conference on Plasma Physics.

During the PQ5, CSC has maintained and operated CSC's SOMA2 service. In addition, Autodock 4 integration work in SOMA2 continued. Also, we started investigations of how to setup a SOMA2 service which would be provided to other user communities as well and not only for current CSC users. On the program development, effort has been put in upgrading used core UI library components and migration work to be able to use the updated components. Work has been done to improve the basic grid support in SOMA2 along with other minor fixes and improvements.



2.2.4.5. MPI

As per the CCMST/UNIPG work plan, UNIPG produced a report entitled “WORK PERFORMED BY THE RESEARCH CLUSTER OF THE UNIVERSITY OF PERUGIA: MPI on the Grid, Second Trimester Report” in July 2011. This covers work on using a hybrid Cloud/Grid model to enable GPU resource allocation and exploitation. UNIPG has also continued work on the following:

- Parallelisation of some linear algebra routines.
- Implementation of the “horse race” programs for atom diatom quantum reactive scattering of UNIPG ABC and RWAVEPR.
- Evaluation of Chimere in preparation for parallelisation.
- Parallelisation of DL_POLY, NAMD and VENU96.

TCD has installed two new sub-clusters to support Parallel Jobs. The first is a cluster of gLite 3.2 enabled Sony PlayStations. This exploits the “Cell Broadband Engine” processor. For some codes this offers approximately a twenty times speedup over conventional processors. The second sub-cluster is a cluster of 32 GP-GPUs. It consists of 16 nodes, each with 2 NVIDIA GPUs. This cluster uses CUDA 4.0 libraries.

CSIC/TCD evaluated early releases of gLite-MPI and WMS-3.3. The products are not yet ready for production.

2.2.5. Domain Specific Support

2.2.5.1. High Energy Physics

Whilst the main focus of this task continued to be support for the four main LHC experiments – ALICE, ATLAS, CMS and LHCb – effort was also provided to other HEP experiments / collaborations, including those from both past (ALEPH – at the LEP collider) and possible future (ILC/LCD – at the foreseen International Linear Collider) virtual organisations.

The LHC machine performed extremely well during this period, exceeding expectations by delivering first one and then two inverse femtobarns well ahead of schedule (both occasions being marked by CERN Press Releases). This translates into significantly more data to be processed on the grid than in the previous year of LHC data taking.

All aspects of the service and its related support continued to function smoothly, with further affirmations of the reliability and usability of the system at the highest levels of CERN’s scientific committees.

LHCb Data management system

The DIRAC system was developed in order to provide a complete solution for using the distributed computing resources of the LHCb experiment. DIRAC system has been developed in a very generic way and with a modular architecture that have made it suitable for serving other VOs as well. The LHCb DIRAC system is the DIRAC extension specific to the LHCb experiment, which has been formally separated from DIRAC in order to streamline the implementation of features requested by LHCb community. Its support in EGI has started in October 2010. The progress during PQ5 is summarized in the following items:

- As reported in previously (D6.3) the activity of consistency checks between Grid storage elements and files catalogues has been continued. In particular, a new messaging system recently developed at CERN, to make storage elements and file catalogues talk to each other and keep them in synchronization, has been evaluated. The integration of this new system with the current LHCb DIRAC data management system has been proven by means of a prototype.

- The implementation of some new accounting tools, mentioned in D6.3, has been completed, and the new systems are currently in production, providing the important functionality of accounting plots for the storage resources usage for LHCb data over the storage elements of all Grid sites supporting the VO. Space usage can be displayed as a function of several parameters, such as the data taking conditions of the LHC and of the LHCb detectors, the version of the software used to process the data, the event type, file type and other relevant parameters.
- New functionality added to the LHCbDIRAC Replica Manager module, which is the client in charge of interacting with the storage middleware. The client has been adapted to deal with storage elements for the new tape archived data, recently implemented in LHCb computing model (as mentioned in D6.3).

ATLAS Distributed data management

ATLAS, one of the LHC experiments, fully relies on the use of Grid computing for offline processing and analysis. This processing is done using the well-known tier model it uses resources across heterogeneous interoperable Grids worldwide and is the ATLAS Distributed Data Management (DDM) project responsible for the replication, access and bookkeeping of ATLAS data across more than 100 distributed Grid sites.

The work in PQ5 has been focused on the consolidation of the current production system in different fronts:

- The DDM infrastructure monitoring is responsible for the early detection of system failures and degradations of DDM services. The infrastructure has been extended to a client-server model that communicates over message queues and where the server publishes the health reports to the CERN IT Service Level Status monitoring solution. Based on this new implementation, significant effort has been invested in developing and improving the service monitoring for a variety of the DDM subcomponents, being the most relevant:
 - Central Catalogues: This component consists of the database backend that contains all the DDM information and communicates with the agents through an apache frontend. The service level monitoring for the Central Catalogues has been enhanced with several new metrics. This has uncovered different issues (e.g. inefficient swap memory setup) that were affecting the load balancing of the Central Catalogue machines and thus were affecting the service availability.
 - Santa Claus: This critical agent is responsible to discover the newly generated detector data and trigger the replication from T0 to T1s according to the MoU shares. The component started suffering under the degraded response time of the DDM Central Catalogues and it was necessary to monitor the health of this service. As a side effect a few minor bugs have been exposed and fixed.
- Optimization of the DDM Site Services is the set of agents responsible for the ATLAS data placement using the underlying WLCG middleware. Improvements for this component include:
 - Optional direct submission of FTS jobs to GridFTP (bypassing SRM), which was needed to speed up the migration of CERN data to the new EOS storage technology.
 - Enhancing, fine-tuning and bug fixing of cross-cloud subscriptions, which were implemented in the last quarters.
 - Adaptation to use the recently implemented ATLAS Grid Information System and provided a first step for its functional validation.
 - Ongoing work includes the adaptation of Site Services for Tier3s in order to provide a throttled way of transferring data to these sites. The requirements of these sites are:
 - Submission of FTS jobs directly to the GridFTP server, since it is a big overhead for these sites to maintain a SRM server.



- No file/dataset registration in any catalog (LFC, Central Catalogues): Sites want to have local control of the data without taking care of catalog synchronization.
- Since there is no LFC registration, file look-up has to be done using GridFTP-ls, which has strong efficiency penalties.

Support is provided for a variety of DDM components, with strong focus on the day-to-day operations in data replication.

Other areas that have also been worked on includes the planning and set up of the migration from Castor to EOS for the ATLAS experiment, defining the schedule and procedures to carry it out, writing documentation on the new methods to access data and preparing the appropriate support and help tools.

CMS

During PQ5, two patches release for the CRAB2 Client have been produced, in order to fix problems with JobSplitter, to deprecate srmv2, to enable the compatibility with various CMSSW framework changes and finally to be aligned with newer version of condor and gliteUI. A new release for CRABServer has been also provided.

On the development side the RESTful based CRABServer interface has been implemented. The APIs for all basic operations are available, in particular workflow submission, check status, get output and get logs are currently supported. Each of the API has its own specific unit test.

Also during PQ5 the support for the User Sandbox Management has been developed. The user sandbox is the archive of all user own library, files, configurations which must be shipped to the worker node. A central cache HTTPS based is now available and all the stacks (from the client up to the server components) have been enabled to use it. For consistency reasons the checksum checks are now available and used for all the files movement.

Another major implementation addressed during the past quarter is the validation of the whole set of inputs provided to CRAB by the user. All the rules to match and checks to perform are provided by the server to the client through a specific REST API.

PQ5 has seen the creation of the first version of the AsyncStageOut which is ready to be tested and integrated. A basic specific monitoring has been implemented to support the related operations.

Finally a deploy/manage model has been defined and designed in order to simplify the deployment operations. The first version of the Deploy/Manage scripts is available and CRABServer RPM has been produced. Also the first version of the documentation is now available⁴⁶.

Other recent work has mainly coped with the improvement of the reliability of the tool. Particularly focused on these tasks:

- Participation in the testing cycles of the CRAB3 tags which have been released.
- Development of unit tests for both the CRAB REST interface, and the crab client commands.
- Development of a job emulator plugin which will allow the making scalability tests.
- Starting the scalability tests.

Several tags of CRAB3 have been prepared in the past months; these tests are usually done before making tags available to the CMS Integration team in order to have more reliable source code.

Another way to make source code more robust is to write unit tests which ensure that code meets its design and behaves as intended. In the past months, the development of the test suite for the CRAB

⁴⁶ <https://svnweb.cern.ch/trac/CMSDMWM/wiki/CRABServerManagement>



RESTful interface, the set of web services exposed by the CRAB3 server, has been developed as well as the development of the unit tests for a part of the CRAB client.

Scalability tests are another important tool to check the quality of code. Unfortunately, testing a tool like CRAB at a huge scale means to send millions of jobs at sites with the risk of crashing them and interfering with the normal operations of users. For that reason a plugin which emulates what happens on Grid sites has been written. Jobs are not actually sent to a node, but are kept locally on the machine running the agent. After a configurable amount of time, jobs are marked as complete, and the workflow can continue without bothering Grid sites.

This plugin is being used to make scalability tests of the CRAB3 server. These tests not only will be useful in order to have an understanding of how much load can be handled by a single agent, but they can also be used to make some critical decisions about the development of the CRAB tool. For example, we are trying to understand which solution is better: a single central database (with some replicas) with information about all the requests and the jobs, or a central database with partial information and local databases with all the information (queries made by the user are redirected to the correct local database by the central one).

Persistency framework

During PQ5, the activities of the EGI fellow focused on three issues related to the CORAL project. The first activity on CORAL was a significant redesign of the internal class structure of the Oracle plugin, to address possible crashes in CORAL when using objects defined during a deleted session. These issues are related to the ongoing work on the CORAL handling of network glitches, which previously had also been one of the main activities during PQ4. The new version of the Oracle plugin was validated by the successful execution of the CORAL test suite. Documentation was also created to describe the new features with the assistance of the UML class diagrams for the packages involved in the new implementation. The new internal class design was then extended also to two other back-ends, SQLite and MySQL. Initially the new changes introduced a bug in SQLite, but this was immediately fixed and the patch for SQLite validated by the execution of the CORAL test suite. The validation of the changes in MySQL, instead, is still ongoing.

The second activity on CORAL during this quarter concerned the consolidation of the CORAL test suite. A few tests were revised in both their structure and their usability. A small number of them also required bug fixes.

The third activity on CORAL during PQ5 focused on the improvement of CORAL monitoring for the Frontier plug-in, which was affected by a few bugs. Some meetings were also held with ATLAS and CMS database experts to review the requirements of the experiments for the monitoring functionalities in CORAL. Presently, in CORAL there is a basic monitoring in the Oracle and Frontier plugins, useful for CMS performance analysis, and a more complex extended version of monitoring in the CoralServer, used by ATLAS. The review and improvement of the basic monitoring functionalities is a crucial step, to start the validation of the current implementation for all plugins and to evaluate the modifications required for any new feature.

2.2.5.2. Life Science

Following the recommendations of the Life Sciences Grid Community (LSGC) board, effort was invested in the organization and the development of appropriate tools to better manage the users' community. The LSGC board organizes monthly phone meetings which minutes are available from



the community wiki⁴⁷ [R2]. Most effort during the project first year has been invested in the set-up of community communication channels and technical assistance to the end users.

As part of this effort, a redundant VOMS server has been provisioned and installed by the HealthGrid association for the biomed VO. Its production use will help shielding the users from downtimes of the main server. A redundant LFC server solution is also being investigated for the biomed VO, and discussed with IberGrid who already set up such a configuration. The technical team set up during the first project year is now ramping up. Regular phone meetings are being organized to improve the team coordination. Standard procedures to deal with storage, resources, and decommissioning of failures are being strengthened. Improvements of the monitoring Nagios server probes are being discussed with operations.

2.2.5.3. Astronomy and Astrophysics

For what concerns activity TSA3.5.2 (VisIVO), during PQ5 it was mainly focused on the study and on the porting of the VisIVO MPI version on gLite Grid. Depending on the structure and size of datasets, the Importer and Filters components could take several hours of CPU to create customized views, and the production of movies could last several days. For this reason the MPI parallelized version of VisIVO plays a fundamental role.

The preliminary study and the porting we are carrying out is mainly focused on the most important modifications of the code we need to finalize. The VisIVO MPI version, in fact, works assuming that the shared home directory and each process can directly work on the tables. Modifications of the code are necessary to make VisIVO MPI compliant with the gLite Grid. We started to modify some classes of the VisIVO Filter component to make feasible selections on a data table and preliminary tests were carried out.

Another important aspect to enhance performances is the integration of VisIVO on Grid nodes where GPUs are available. CUDA (Compute Unified Device Architecture) is the computing engine available in NVIDIA GPUs (Graphics Processing Units) accessible to software developers through variants of industry standard programming languages. Because VisIVO is developed in C++, the environment of CUDA is used to develop some computing-intensive modules of VisIVO. This activity has now started and a preliminary study on how to produce a CUDA-enabled version of VisIVO for gLite is in progress.

The first study we are carrying out is to port and optimize the data transfer between the CPU and GPUs on worker nodes where a GPU is available. We started to analyse the heaviest VisIVO Filter: the Multi-Layer Resolution Filter. This filter makes possible the inspection of a very large user file (hundreds of gigabytes) and the creation of data for the visualization of the entire dataset with different levels of resolution: starting from a fixed position, that represents the centre of the inner sphere, concentric spheres are considered. Different levels of randomization can be given, creating a more detailed table in the inner sphere and a less detailed table in the outer regions, or vice versa. The region external to the last sphere represents the background.

Concerning activity TSA3.5.3 (Grid and Supercomputing), the following applications have been identified: FLY (INAF-OACT Cosmological code) and Gadget + Flash, the most common cosmological codes in Astrophysics.

The FLY code (a tree N-Body code) was executed on the gLite Grid. Some problems arise when running with a high number of N-Body particles. One of the most critical bottlenecks is represented by the data transfer from the catalogue to the effective worker nodes. Unfortunately, the huge dimension

⁴⁷ <http://wiki.healthgrid.org/LSVRC:Index>



of datasets makes tricky to have multiple replicas of them. The same problem happens during the data production phase, when a list of data files (each of them being tens of gigabytes in size) is produced.

To overcome this problem a workflow is under definition; it should be adopted when the code is used in challenging scenarios where data files being several tens of gigabytes in size have to be handled. The outcome of this activity will be reported to the WGs involved in HPC on gLite.

During PQ5, the work to integrate in Grid the BaSTI (A Bag of Stellar Tracks and Isochrones) Astronomical Database and its feeding FRANEC code has gone on as well. We have developed a web portal in order to facilitate the submission of the FARANEC code in Grid. The portal allows the user to define a set of parameters and to run the simulation of a stellar evolution in Grid, without worrying about the technical details of the underlying Grid Infrastructure. Our portal is based on P-GRADE web portal. Since the portal is designed for the submission of an arbitrary job in Grid, it was necessary to do some low level “tricks & hacks” to make it able to fully satisfy our needs. What we got, therefore, is a user-friendly tool ready to be used and suited to our needs.

Besides activities reported above, the considerable fraction of the TSA3.5 activity during PQ5 has been dedicated to the coordination of the European A&A community in EGI in order to stimulate and to foster the requirements gathering process to be fed to EGI. This activity, although not officially inserted in the TSA3.5 work plan, is strictly related to it given that one of the most important objectives of the task is the provision to EGI of requirements, use-cases and test-beds related to: a) interactivity between e-Infrastructures based on different technologies (Grid, HCP and Cloud); b) support for the access and management of astronomical databases from Grid Infrastructures. To achieve this objective people working in TSA3.5 (who are currently in charge of the coordination of the European A&A community at large) need to interact with as many European A&A research groups and Institutes as possible.

2.2.5.4. Earth Sciences

The team that works on Earth System Grid (ESG) interoperability is developing and testing a scenario based on an application from IPSL which uses CMIP5 data (climate model data stored on the ESG). The MPI code of the application is now running successfully on EGI. An important activity during this period was the implementation of a multi-threaded climate data transfer program to download the data from the ESG data nodes.

The other critical point for this test bed is the challenge of different authentication schemes for EGI and ESG, as they don't belong to the same federation. This situation, which is also relevant for the usage of the GENESI-DR infrastructure from EGI, was presented at the Workshop on "Federated identity system for scientific collaborations" in CERN on June 8-9 2011. Different solutions have been considered to make the use of ESG data with EGI easier. The software NDG Security Stack (<http://ndg-security.ceda.ac.uk/wiki>) has been set-up on a testing instance and has been reviewed. It was first developed for the NERC DataGrid and further on extended to be used as the Earth System Grid Federation security module. It includes support for OpenID, X509 and SAML; this security module is frequently used in climate data infrastructure. This instance is to be used for prototyping a solution for the authentication problem, which might be a new Credential Translation Service. The work is done in cooperation with Philip Kershaw (STFC, UK), who is working on the Earth System Grid Federation security model and software.

While the GENESI-DR infrastructure can be used to discover many data sets of various data centres, and also includes now data from OGC web services, such as WMS instances, the data of the Earth System Grid is not discoverable through it. The search and discovery of ESG data sets is thus a separate issue, which is not a comfortable position for the users of EGI. It would be ideal to have single points of access for the search and discovery of data sets from the different sources, as well as a unified client to transfer the data, for easy inclusion in EGI job scripts or applications. The Earth



System Grid, though, offers public access to THREDDS catalogues for the hosted data sets on a given Data Node (e.g. <http://cmip-dn.badc.rl.ac.uk/thredds/esgcat/catalog.html> for the BADC CMIP5 data). Therefore, solutions to unite the GENESI-DR search with a search capability for these dedicated catalogue instances have been searched. A promising solution seems to be the GI-cat service developed by ESSI-Lab (<http://essi-lab.eu/gi-cat>), which uses a mediation approach to execute remote searches federating the results and remote catalogue crawling building up a local copy of the catalogues to be searched. As it evaluates and transforms the meta data of its sources to a common internal scheme, it can at the same time offer different catalog interfaces, allowing existing clients the access through different protocols (such as OGC CS/W, OpenSearch, GeoRSS and OAI-PMH).

Contact to the developers has been made, and the software is evaluated on a test-instance at SCAI. The software should be able to crawl through the THREDDS catalogues of the ESGF data nodes and stores the resulting metadata in a local eXist database that is evaluated for search requests. The usage for applications and the performance and especially the scalability of the service need to be assessed yet. In principle, together with a common Earth Science metadata catalogue for custom data, such as GeoServer (<http://geoserver.org>), this approach could be a good solution to unify the search and discovery of external Earth Science data.

The Climate-G VO, which was founded to execute tests regarding the coupling of the Climate-G test bed with computational services, has been decommissioned. Users of the VO have been invited to join the generic Earth Science Research VO (ESR). The Climate-G test bed will be accessible from there.

2.3. Issues and Mitigation

2.3.1. Issue 1: Hydra packages delivery

The EMI release cycle has slowed down the planned deployment of a file encryption service. A close collaboration has been set up with the EMI team in charge of Hydra development, but at the time of writing no guaranteed deadline was given for delivery.

2.3.2. Issue 2: Gathering process of requirements

The requirements gathering within the A&A community for EGI relating to Grid/HPC/Cloud and for Grid/Astronomical Databases is progressing slowly and will be a focus in PQ6.

2.4. Plans for the next period

2.4.1. High Energy Physics

This task has now ramped up to full staffing levels (as of 1st July 2011). Following on from discussions at the WLCG Collaboration workshop and at the WLCG Grid Deployment and Management boards, some technical evolution of the basic WLCG infrastructure, middleware and experiment services are expected. This is based not only on the experience of a year and a half of solid data taking and processing, but also on the on-going changes in the IT world around us. Whilst continuing to provide support for the key services and communities concerned, this task will be actively involved in the study and implementation of any such changes in close collaboration both with the experiments as well as other parties in EGI-InSPIRE.

2.4.2. Life Sciences

The Hydra Service

A 3-server based Hydra key-store will be deployed as a service for the Life Sciences community. This task, due in the first year of the EGI-InSPIRE project, has been delayed as it is deemed preferable, for long-term maintenance issues, to wait for the gLite 3.2 version of Hydra to be released and install the



Hydra service on recent gLite 3.2 servers from the beginning, rather than have to move installed key stores on new machines later on.

Redundant LFC

The delivery of a redundant LFC server is planned. Technical solutions for setting up such an alternate service are currently being investigated with the support of UCST.

2.4.3. Astronomy & Astrophysics

For what concerns activities TSA3.5.2 (VisIVO) and TSA3.5.3 (Grid and Supercomputing) as well as the work on BaSTI and FRANEC reported in section 3.2.5.3 they will continue in PQ6. A consistent fraction of the activity planned for PQ6 will be dedicated to the provision to EGI of requirements, use-cases and test-beds. To overcome the current standstill situation a strong coordination of the A&A community is requested in the next three months. For this coordination activity the forthcoming events (especially the EGITF) are of utmost importance. A specific workshop for the A&A HUC, moreover, is under preparation. This event will take place in Paris in November 2011, in the framework of the Astronomical Data Analysis Software and Systems (ADASS) XXI Conference. The main goals of the workshop consists in reinforcing the A&A HUC activities in EGI and in fostering the formal endorsement of the A&A VRC by EGI; to this end, the workshop should make the A&A community in the right position to sign the MoU (or at least the LoI) with EGI.



3. SOFTWARE PROVISIONING

3.1. Summary

In PQ5, the single most important achievement was the publication of UMD 1.0.0, the first release of a UMD in EGI. All tasks within SA2 demonstrated that the processes set up to provision software for the production infrastructure work well. Trained with EGI's internal technology providers (SAM, and the EGI Trust Anchors), the processes scaled well when loaded with nearly 50 software components to verify, which eventually resulted in the publication of 30 products as part of UMD 1.0.0.

In the meantime, the set of documents defining EGI's Quality Criteria underwent a major review as planned and were published at the end of PQ5. This new revision improves the coverage of EGI Capabilities with associated Quality Criteria. Facilitating efficient verification of delivered software components, a test-bed of virtual machines was designed and deployed. It scaled well as demonstrated with the verification of the software components that were planned to be included in UMD 1.0.0.

Effectively providing a prototype of a virtualised infrastructure, the verification testbed enabled the Software verification teams to swiftly commission and decommission Virtual Machines without affecting other parts of the infrastructure as part of the formal verification of software components for inclusion in UMD releases. Furthermore, instead of being destroyed, the Virtual Machines that were used for formal software verification could be published as trusted and certified appliances for Resource Providers to instantiate locally.

Post-release publication support provided by the DMSU is working its way steadily into better integration and interaction with the stakeholders of EGI. Interaction with the operations community in EGI is steadily improved, and a knowledge base is in its early inception phase for the DMSU members to rely on for even more efficient and qualified software service support in EGI.

3.2. Main Achievements

3.2.1. Quality Criteria

The Quality Criteria task has continued the process for the publication of the second release of the Quality Criteria documents, due in August as planned in the task Roadmap. The current draft of this second release was made available to the TCB and the quality managers of the different Technology Providers.

A complete and detailed revision log of the criteria, which describes all the sources that have triggered changes from the first release of the documents is available⁴⁸. Apart from the changes coming from external to SA2 sources (such as Operations and User requirements, input from Technology Providers, and recommendations from the Security Vulnerability Group), special attention was given to the suggestions and issues found during the verification process of the products of the first UMD release.

Besides the criteria for the already covered capabilities, the TSA2.2 team has continued the definition of criteria for uncovered UMD Capabilities. The current draft of the documents adds criteria for the following UMD Capabilities:

- Messaging, using JMX as reference implementation.
- Interactive Job Management, using gssissh and glogin/i2glogin as reference implementations.
- Client API, using SAGA as reference implementation.
- Remote Instrumentation, using Instrument Element and the OGF RISGE documents as reference.

⁴⁸ https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Dissemination

3.2.2. Criteria Verification

TSA2.3 introduced several changes to the verification processes and infrastructure. As planned, the Verification test bed based on OpenNebula was successfully tested and used by the external verifiers. More than 10 virtual machines were executed and used at same time to create in a few days a new test bed from scratch. Thanks to the new infrastructure, more than 30 products were verified within a few weeks. To help the new verifiers the process documentation available in the EGI Wiki was updated, and now includes the section “The EGI Verification Testbed”⁴⁹. It explains how to request, configure and use a new virtual machine and integrate it into the test bed to be used by the verifiers. The Verification procedure also has undergone major changes, the complete workflow and procedure is now described in the wiki page⁵⁰.

The most important changes are:

- The product acceptance criterion now is explicitly described in the wiki.
- The Technology Provider tickets response times as agreed in the respective SLAs are now included.

The different types of responses to RT tickets representing the software products are described. Similar to GGUS, RT provides a “public” reply feature that anyone who has access to the ticket can see; and a “comment” feature only visible to those that are able to manipulate the ticket.

3.2.3. Deployed Middleware Support Unit

The work of DMSU followed well-established procedures defined in PY1. In PQ5 refinement of these procedures were discussed in order to address identified issues:

- Too higher ratio of tickets assigned to 3rd line support,
- Lack of communication with EGI operations, and
- Occasional long reaction time to tickets.

The new procedures are currently being deployed, as described in MS507⁵¹ and they are being deployed currently. In particular, the new process guarantees that only proven software bugs, missing pieces of documentation etc. are assigned to the 3rd line.

DMSU started to generate digests of tickets in the EGI wiki⁵² describing current known issues and their workarounds.

Compared to PQ4 several ARC and a few UNICORE related tickets were handled by DMSU, indicating that the standard EGI support channels are starting to be used by users of those middlewares as well.

In PQ5 DMSU handled 218 tickets (only 10% increase compared to PQ4), which suggests the sustained load has been reached. Out of those, 20 were reassigned back to TPM. 37 tickets were solved directly in DMSU, which almost doubles the ratio with respect to PQ4. However, this statistics is still distorted by the tickets related to UMD-1 verification, which go the "fast track", being directly assigned to Technology Providers (3rd line support) for immediate reaction. Therefore we can expect more improvement in regular conditions.

⁴⁹ https://wiki.egi.eu/wiki/EGI_Verification_Testbed

⁵⁰ https://wiki.egi.eu/wiki/EGI_Verifier_Guideline

⁵¹ <https://documents.egi.eu/document/504>

⁵² https://wiki.egi.eu/wiki/InSPIRE-SA2:DMSU_digests

For PQ5, the average time to solve a ticket in DMSU is 24 days, while the median time is 4.2 days. If only tickets assigned to DMSU in PQ5 are considered, the mean time is 4.6 days. This discrepancy is caused by a few tickets, which were put on hold for a significant amount of time for being solved in the EMI-1 initial release in mid-May 2011.

3.2.4. Support Infrastructure

TSA2.4 focused its effort in the implementation the 4th iteration of the Software Provisioning process, integrating GGUS (<https://ggus.eu/tech/>), RT (<https://rt.egi.eu>) and the EGI Software Repository (<http://repository.egi.eu>). A new module, the “UMD Composer”, is used to construct UMD releases by combining Products, per Platform and architecture (PPAs) that successfully passed Quality Criteria Verification and StagedRollout. Using the Composer, a group of authorized members are able to:

- Initiate a UMD major or minor/revision update,
- Populate an active UMD release (not deployed in production yet) and
- View archived UMD releases (already in production) and edit its metadata.

TSA2.4 developed a plugin for Wordpress, which is used as a front-end for the repository for automated publication of UMD release metadata (release notes, documentation links etc.) in the EGI Software Repository. A series of dry runs of the UMD publication part of the Software Provisioning process were conducted to ensure that the Composer does not disrupt the provisioning process – but also to train members of the TSA1.3 and TSA2.3 on how to use the system.

In Parallel TSA2.4 continued its operations as usual:

- Accepted Releases from EMI (EMI 1 updates 1-3) and IGE (IGE 1.0.0)
- Released UMD 1.0.0 with products (<http://repository.egi.eu/2011/07/11/release-umd-1-0-0/>)
- Released the EGI Trust Anchor release 1.39-1 and 1.40-1.
- Released the SAM monitoring tools updates 11 and 12
- Maintenance of EGI web space and related content management system
- Maintenance of EGI Single Sign On (SSO) system
- Maintenance of EGI wiki
- Maintenance of the EGI Document server
- Maintenance and customization of EGI Request Tracker
- Maintenance of EGI Integrated Digital Conference system (Indico)

3.3. Issues and Mitigation

During PY1 12 issues in SA2 were recorded. The majority of those issues were resolved as reported in the previous quarterly reports. The following covers carried-over issues, and issues that were newly reported in PQ5 continuing the issue numbering for easy follow-up and reporting.

3.3.1. Issue 5: UMD Capabilities not yet defined

TSA2.2 is continuously working to improve existing, and provide new sets of Quality Criteria. During PQ5 Quality Criteria for the following EGI Capabilities were drafted, and will become final with the publication of the next set of formal Quality Criteria documents:

- Interactive Job management (based on gsissh and glogin),
- Remote Instrumentation (based on instrument element by DORII)
- Client API (based on SAGA).

The following EGI Capabilities will be targeted in the following project quarter:

- VM Management
- VM Image Format
- VM Image Distribution
- Workflow

- Client Tools (a new capability defined in D5.4)

3.3.2. Issue 11: Requirements reported as support requests

The following process to handle requirements submitted via GGUS is described in MS507⁵³, and summarised as follows:

Each request is digested into a more general form and then submitted as into the EGI Requirements queue. The GGUS ticket, and the respective requirements tickets are then cross-referenced to each other. A summary of these actions is given to the GGUS ticket requestor; after that the GGUS ticket is closed as “unsolved”. The respective requirement ticket in RT is tagged with the “DMSU” tag to be able to further follow-up on this requirement.

3.3.3. Issue 12: Low ratio of ticket resolution in DMSU

MS507 describes an updated DMSU support request management process, as a response to this and other issues (such as SA2 issue 11 described in section **Error! Reference source not found.**). The updated process was enacted mid-PQ5, and already shows effect as seen in the reported metrics (see section **Error! Reference source not found.** for more details).

3.3.4. Issue 13: Inaccurate information about the MSA2.5 metric

Metric MSA2.5, Mean time taken to validate a release, is gathered directly from RT and executive summary reports. Unfortunately this value is not accurate as the current executive summary only has two fields: Start and end date of the Verification. These fields do not specify the real worked hours to verify a new product. The verification template needs to be updated to include a new field “Worked hours”, which needs to be filled out by the verifier.

3.3.5. Issue 14: SA2.3 PMs and effort usage overhead

We have noticed a time effort peak for TSA2.3 in the last PPT report. In QR5, EGI released UMD1.0.0 and UMD1.2.0; due to these releases the verification team has increased its activity and effort during the last months. This new worked effort will diverge from the official PM allocation for TSA2.3 activity. This divergence between the planned and real worked effort must be taken into account for effort planning, and long term sustainability of the quality criteria verification effort.

3.4. Plans for the next period

The Quality Criteria task will publish the second release of the Quality Criteria Documents in PQ6. Once published, the team will continue the process of definition and completion of the criteria by following the documents lifecycle and roadmap. The work on uncovered capabilities will focus on the virtualisation capabilities of the UMD Roadmap.

In preparation for the first full releases of existing Technology Providers the release workflow will be continuously under review and optimisation with the help of internal technology providers. Much like the organisation of experts in TSA2.5, teams of verification engineers that are experts in certain middleware components will be formed, and assigned to verification of releases as they are delivered to EGI.

Awareness and knowledge about the Software Provisioning Process will be raised on various meetings and events, particularly targeting NGIs and Technology Providers. Outreach and process integration with other groups and communities within EGI-InSPIRE will be continued, particularly in closing the

⁵³<https://documents.egi.eu/document/504>



loop between detecting issues, assignation to technology providers, and the feedback on release and test plans.

The following EGI Capabilities will be targeted in the following project quarter:

- VM Management
- VM Image Format
- VM Image Distribution
- Workflow
- Client Tools (a new capability defined in D5.4)

The Verification task will update the verification templates to match the changes in the Quality Criteria documents. SA2.2 and SA2.3 members will work together to release the new version (Quality Criteria and the Verification templates) at same time. The new created templates will be used in the next UMD1.2 release scheduled in September.

The Software Provisioning Workflow will be reviewed at the EGITF. Technology Provider, Operations personnel and participants from SA2 itself will review the process and discuss improve to process. Requested changes will be assessed according to feasibility and timeline of potential implementation. Further, SA2 will investigate how the Software Provisioning process and tools could be expanded to allow the provisioning of VM images into the EGI Software Repository. This includes extending the access to the process and tools for virtually any Resource Centre expert whether to endorse a particular VM image for local site execution or not, as described in the EGI Virtualisation profile.

The DMSU will continue implementing and fine-tuning the process described in MS507, including the negotiation, follow-up, and escalation of ETA.



4. EXTERNAL RELATIONS

4.1. Summary

Substantial progress has been made during PQ5 regarding the advancement in external collaborations with 5 MoUs signed with collaboration and support projects as well as finalising our second Virtual Research Community. A number of articles, reports, and blogs were also produced on key topics such as virtualisation, Horizon 2020 and on EGI policy issues. As with each quarter, the various policy groups continue to meet and advance activities in their dedicated areas. Work has already begun in preparations for the next EGITF in Lyon. The policy team will be organising its 2nd policy workshop as well as a two-session workshop on business models and sustainability. The SPG produced new security policies and revised an old one.

4.2. Main Achievements

4.2.1. Dissemination

The addition of the graphic designer / writer to the Dissemination team in is enabling the EGI branding to be developed further, including presentation templates, poster templates, brochure templates and banners. Plans for year two in this and other areas were outlined in the EGI Dissemination Plan⁵⁴ and Dissemination Handbook⁵⁵, which were completed during PQ5. The project presentation was also updated⁵⁶.

The dissemination team continued to develop the flagship EGI website during PQ5. A review of the website was carried out in PM15 showing that the structure of the website content is now functionally complete⁵⁷. A number of use cases have been developed and made available on the website at http://www.egi.eu/results/success_stories/. The Glossary, Staff pages, EGI-InSPIRE's Deliverables and Milestones and other pages have been updated as required. The team has also been working closely with the EGI-InSPIRE work package leaders to encourage regular contributions to the EGI blog from across the project and wider community. By the end of July 2011, 55 blog posts had been contributed in total.

The fifth issue of the EGI *Inspired* newsletter was prepared during PM15, to be distributed at the end of the month. The project team also produced three Directors letters in May, June and July. Articles about EGI were also published in the e-IRG Newsletter, *The Parliament* magazine, the IN2P3 Newsletter, the CLARIN newsletter, *Public Service Review: European Science & Technology* and five EGI-related articles in *iSGTW*. A press release “EGI releases the first Unified Middleware Distribution” was issued on 27 July, and also released via the EGI news and Twitter feed.

The EGI dissemination team worked with local NGI contacts to present the project at events during the quarter. These included booths at ISC2011 in Hamburg, Germany in June, in collaboration with KIT and at HPCS 2011 in Istanbul, Turkey in collaboration with the team at TUBITAK. EGI also hosted a booth at the HealthGrid 2011 event in Bristol, UK, run by the User Community Support Team. EGI is also part of a communications working group run jointly by TERENA, DANTE and EGI, and has regular meetings with the communication representative for e-IRG.

⁵⁴ <https://documents.egi.eu/document/507>

⁵⁵ <https://documents.egi.eu/document/541>

⁵⁶ <https://documents.egi.eu/document/506>

⁵⁷ <https://documents.egi.eu/document/601>



In PQ5, NA2.2 has also focused on preparations for the EGITF in Lyon, 19-23 September. This has included participation in the Programme and Organising Committees, as well as working on an outreach plan for the meeting and advertising the event itself through our media channels. Content was also developed for the conference website at <http://tf2011.egi.eu/> and the site has been regularly updated. The dissemination team is also working with the Organising Committee and the local organisers to produce the badges, signage, programmes, giveaways and conference bags. A ‘save the date’ page has been created for the EGI Community Forum in Munich, 26-30 March at <http://cf2012.egi.eu/>. A poster for this event will be presented at the Technical Forum in Lyon.

During PQ5, e- ARENA hosted a stand at a session of the State Panel on high technology and innovations, devoted to the development of scientific research infrastructures of “mega science” facilities, chaired by the Prime Minister of the Russian Federation V.V. Putin “Grid at JINR” presented Google Earth dynamic overlays for WLCG and showed the experiments^{58,59}. The UK team established the Community Champion Programme in the UK, which included establishing the network, holding a one day workshop and coordinating fortnightly meetings of the Champions, who are disseminating their expertise to Champions in other research fields.

IGI followed up the EGIUF in Vilnius by presenting the materials produced at an IGI/NGI workshop in Italy. IISAS produced a website for the 7th International Workshop on Grid Computing for Complex Problems GCCP2011, October 24-26, 2011, Bratislava <http://conference.ui.sav.sk/gccp2011>. The ex-president of SAS, Stefan Luby, also gave an interview for Slovak radio *Z prvej ruky*. KTH is planning for a cloud workshop in collaboration with StratusLab and VENUS-C at the upcoming eScience 2011 conference in Sweden in December.

4.2.2. Policy

EGI.eu worked on several aspects through the Policy Development Team (PDT). As regards the establishment of external collaboration, 5 MoUs were signed: CHAIN (Project), DECIDE (Project), e-ScienceTalk (Project), gSLM (Project) and LSGC (VRC); 2 MoUs reached the end of the negotiation process and are ready for signature in the coming quarter: MAPPER (Project), ScalaLife (Project); 4 MoUs are in the final negotiation phase: HMRC (VRC), SAGrid/Meraka (Resource Provider), SIENA (Project), WLCG (VRC). Concerning the advancement of the already signed 7 MoUs, the achievement of milestones was tracked through direct engagement with the partners. In the area of the SLA with the technology providers, discussion was started on the setting up and implementation of the monitoring.

The PDT supported the organisation, chairing, note taking and post-event reporting of the User Virtualisation Workshop (12-13 May 2011, Amsterdam). Concerning the contribution to the EGI blog, 4 posts covering EGI Policy, Common Strategic Framework for EGI, Virtualisation and Horizon 2020 were published. One article was contributed for the e-IRG Newsletter “EGI on a virtual road”. One article was contributed to the EGI-Inspired newsletter Summer Edition on Service Level Management, ITIL and relations with the gSLM project. The PDT also contributed to the interview requested by VENUS-C and to the SIENA Gap Analysis. On the EU strategic policy matter, a Digital Agenda progress report on identified priorities for EGI was defined.

The PDT will hold two workshops at the EGITF: Policy Workshop and Business Model and Sustainability Workshop. In support to the preparation of the latter, a survey about EGI/NGI Business Model and Sustainability was defined and launched. In order to resolve open issues emerged within the analysis of the ERIC legal framework, a set of specific questions for the ERIC Team were defined and are ready to be submitted.

⁵⁸ http://www.jinr.ru/img_news/11/080711/p1_b.jpg

⁵⁹ http://www.jinr.ru/news_article.asp?n_id=958



Progress was made in moving forward the EGI Glossary towards the first official version with a public comment period of more than one month. The collaboration pages for the EGI website were updated with new external partners and the consistency improved. The secretariat provided support for various policy groups. INFN collaborated as part of the editorial team of the new 'Endorsement and Operations of Virtual Machine Images' policy. The collaboration was carried out through dedicated teleconferences and during an SPG meeting on Thursday 14 July 2011. Contributions were also made to the EGI Operational Security Procedures. Within the Italian NGI, the discussion about a future general purpose grid web portal and the possibility to use it in conjunction with an on-line CA was started together with the implications and the restrictions of the IGTF and EUGridPMA policies.

TCD participated in the SPG meeting in June 2011. TCD provided comments and participated in meetings related to the SPG 'Endorsement and Operations of Virtual Machine Images' policy, with a particular emphasis on matching the policy to the StratusLab Marketplace for virtual machine images and related tools. TCD participated in a national Research Prioritisation exercise hosted by Forfás, Ireland's policy advisory board for enterprise, trade, science, technology and innovation (<http://www.forfas.ie>). The NGI representative made contributions expressing support for prioritisation of e-Infrastructure for research. The outcomes of these exercises will influence future national funding for research.

CNSR contributed effort as part of the Program committee of the EGITF 2011. The French NGI is also the local organiser of this event. Vincent Breton has worked on setting up a task force within the EGI Council in charge of the integration of user communities. The mandate of the task force was drafted and discussed with NGI representatives and EGI.eu.

LIP has participated in the following EGI policy bodies, EGI PMB, EGI Council, EGI AMB and EGI OMB. There was a continuous participation in EUGridPMA and IGTF grid authentication and security related activities. LIP runs the Portuguese grid certification authority for Portugal and is a member of the EUGridPMA and IGTF. LIP has technical coordinator of the Portuguese National Grid Initiative was responsible for enforcing EGI policies in the Portuguese NGI, these also spans to the operations at the Iberian level in the framework of the IBERGRID initiative. LIP also participated in the WLCG grid deployment board (GDB) activities.

STFC continued to lead the Security Policy Group (SPG). The main activity during this quarter was work on two security policy documents. Firstly, a new "Service Operations Security Policy"⁶⁰ was produced. This is an update of the old "Grid Site Operations Policy"⁶¹. The main changes were: to generalise the policy to include all Services (not just those run by a Resource Centre/Site), to exclude items which are operational in nature and not related to security and to change terms to more appropriate ones now used in the EGI. Secondly, a new security policy related to the Endorsement and Operation of Virtual Machine Images is being produced⁶². This is an extension of an earlier security policy produced by the SPG Chair via his membership of the HEPiX Virtualisation Working Group. The SPG Chair also worked on the following topics:

- Produced a new draft of the Attribute Authority Service Operations Profile and presented this at the EUGridPMA meeting in Prague (11-13 June 2011)
- Continued work on the activity called "Security for Collaborating Infrastructures" which is a collaboration between EGI, WLCG, OSG, DEISA/PRACE, and TeraGrid to build a standard

⁶⁰ <https://documents.egi.eu/document/669>

⁶¹ <https://documents.egi.eu/document/75>

⁶² https://wiki.egi.eu/wiki/SPG:Drafts:Virtualisation_Policy



framework for security policy for interoperation. A meeting was chaired and some new draft was discussed.

4.2.3. Events

The EGI Technical Forum 2011 (EGI-TF2011) will take place in Lyon 19-23 September 2011. The preparations between the LoC and the EGI.eu people in Amsterdam are at full speed. There were some problems in organising the registration and handling of payments, but at the end of June online registration was opened at <http://go.egi.eu/tf11-registration>. By the end of July 340 persons registered for the Early Bird fee. The number is above expectations. Details of the event and registration are available at the main event website (<http://tf2011.egi.eu>) including the programme (<http://go.egi.eu/tf11-timetable>). Registrations are possible for the full week, one, two or three days. Registration includes access to any co-located events running on the days that you have registered. These multi-day events include the Open Grid Forum and Grid2011. Specific one-day community meetings will also be held during the week, including the French Grid Day, GlobusEurope, and a workshop by the SIENA project. The eConcertation meeting is also co-located with the last two days of the Technical Forum.

The EGI Community Forum 2012 (EGI-CF2012) will be organised in Munich, Germany, 26-30 March 2012. The organisation of the poster session, the theme for the meeting and the room reservations has been started.

4.3. Issues and mitigation

4.3.1. Issue 1: Inactive partners

UPT has still not yet nominated contacts for their dissemination activities 15 months into the project. We will continue to work with the Collaboration Board through NA1 to identify contacts for dissemination in this partner.

4.4. Plans for the next period

EGI.eu will focus on the preparation of the EGITF sessions, on the analysis and report on EGI/NGI Business Model and Sustainability Survey and on the conference attendance. The MoU negotiation and advancement activities will continue. The SLA monitoring process will be put in place and tested. The analysis on the EGI role in Horizon 2020 with the identification of concrete actions and monitoring of them will also continue.

TCD will continue work on the SPG Virtual Machine Endorsement policy and communicate with StratusLab to provide requirements and gather feedback.

STFC will complete two new/revised security policies in PQ6. Work will also start on two other policies. Firstly the top-level main Security Policy document revision will start, the aim being to present a draft of this at the upcoming EGITF. Work will also start on a new updated policy on the security aspects of Data Privacy. The aim is to complete these during calendar year 2011. Work will also continue on the IGTF Attribute Authority Profile and we plan to hold a 2-day face-to-face meeting of the participants of "Security for Collaborating Infrastructures".

In PQ6, NA2.2 will continue to work on the outreach plan for the EGITF 2011, including press releases to be issued during the event. The team will also update the website with content about sponsors and produce poster and presentation templates for delegates and also booth materials such as posters and banners. The team will create promotional materials to advertise the EGI Community Forum in Munich in March 2012, and participate in the Programme and Organising Committee. NA2.2 will run a session in Lyon, a "Birds of a Feather" event focusing on shared dissemination



experiences with members of NA2.2, and other interested attendees. NA2.2 will also participate in the Programme Committee for the ISGC2012 event in Taiwan in March 2012.

A range of printed materials will be developed using the new brochure template, including an update to the general EGI brochure and a training market place brochure. The design of the home page of the website will also be reviewed to include more graphical elements. The team will also work with CESNET to add a feed from the EGI blog to the home page of the website. A further series of articles will be published in Pan European Networks, Public Service Review: European Union and Public Service Review: Science & Technology, including an 8 page booklet in conjunction with an article from Digital Agenda Commissioner, Neelie Kroes for distribution to 140,000 contacts by email and in printed form at the Technical Forum.

NA2.2 will attend and prepare for a number of additional events during Q6, including the TERENA communications meeting in Belgrade, Serbia in September, the UK All Hands Meeting, York, in September, a booth at SC11, Seattle, US in November and an information stand, masterclass and articles at SciTech Europe in Brussels, Belgium in November.

5. CONSORTIUM MANAGEMENT

5.1. Summary

The main focus during PQ5 was the preparation for the EC Review. Several rehearsal meetings were held across the different WPs to prepare presentations to the agenda agreed with the EC. This allowed the presentations to be refined – both for content and timing – and as a result the review itself ran fairly smoothly. Additional information was provided to the EC Reviewer’s overnight during the two day review. No specific feedback was provided during the review to the project and the formal feedback did not arrive until after the end PQ5 (4th August 2011).

5.2. Main Achievements

5.2.1. Project Management

Management of the EGI Global Tasks (especially around the cost of delivering these activities) came up repeatedly as a concern from the EC reviewers. A separate analysis of the cost of delivering these services is being prepared, however the effort reported in PQ5 (in the following tables) for some global task partners indicates some immediate areas of concern – especially on top of additional effort being committed in PY1.

- NA3: CSIC
- SA1: FOM , STFC, CERN and KTH
- JRA1: FCTSG

In SA3 CIEMAT, CSC and CNRS are continuing to over commit effort.

5.2.2. Milestones and Deliverables

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*) ⁶³	Revised delivery date(*)	Status (**)
D1.5	WP1	Quality Plan and Project Metrics https://documents.egi.eu/document/436			13	15	PMB approved
D2.9	WP2	Dissemination Plan https://documents.egi.eu/document/507			13	15	PMB approved
D2.10	WP2	EGI-InSPIRE Presentation https://documents.egi.eu/document/506			13	15	PMB approved
D3.3	WP3	User Community Support Process https://documents.egi.eu/document/661			15	17	PMB approved

⁶³ (*) Dates are expressed in project month (1 to 48).

(**) Status = Not started – In preparation – Pending internal review – PMB approved

(***) Nature = **R** = Report **P** = Prototype **D** = Demonstrator **O** = Other, Deliverable id: for Milestone attached to a deliverable

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*) ⁶³	Revised delivery date(*)	Status (**)
D5.4	WP5	UMD Roadmap https://documents.egi.eu/document/612			15	17	PMB approved
MS111	WP1	Quarterly Report Template https://documents.egi.eu/document/513			13	13	PMB approved
MS506	WP5	EGI Software Repository- Architecture and Plans https://documents.egi.eu/document/503			13	14	PMB approved
MS609	WP6	HUC Contact Points and the Support Model https://documents.egi.eu/document/419			13	14	PMB approved
MS705	WP7	CIC Operations Portal Work Plan https://documents.egi.eu/document/525			13	15	PMB approved
MS706	WP7	Operational Tools Accounting Work Plan https://documents.egi.eu/document/531			13	16	PMB approved
MS217	WP2	Dissemination Handbook https://documents.egi.eu/document/541			14	15	PMB approved
MS306	WP3	User Support Contacts https://documents.egi.eu/document/564			14	15	PMB approved
MS409	WP4	Deploying Software into the EGI Production Infrastructure https://documents.egi.eu/document/478			14	15	PMB approved
MS410	WP4	EGI Helpdesk and the NGI Support Units https://documents.egi.eu/document/522			14	16	PMB approved
MS411	WP4	Operational Level Agreements (OLAs) within the EGI production infrastructure https://documents.egi.eu/document/524			14	16	PMB approved
MS507	WP5	Deployed Middleware Support Unit Operations Procedures https://documents.egi.eu/document/504			14	15	PMB approved
MS508	WP5	Software Provisioning Process https://documents.egi.eu/document/505			14	15	PMB approved
MS707	WP7	Roadmap for the maintenance and development of the deployed operational tools https://documents.egi.eu/document/523			14	16	PMB approved
MS112	WP1	Quarterly Report https://documents.egi.eu/document/723			15	17	PMB approved

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*) ⁶³	Revised delivery date(*)	Status (**)
MS218	WP2	EGI Newsletter https://documents.egi.eu/document/724			15	15	PMB approved
MS219	WP2	Establishing the external relations area of the website covering the policy bodies and collaborating https://documents.egi.eu/document/544			15	15	PMB approved
MS307	WP3	User Support Metrics https://documents.egi.eu/document/675			15	16	PMB approved
MS412	WP4	Operational Security Procedures https://documents.egi.eu/document/649			15	16	PMB approved
MS610	WP6	Services for High Energy Physics https://documents.egi.eu/document/540			15	16	PMB approved
MS611	WP6	Services for the Life Science Community https://documents.egi.eu/document/683			15	17	PMB approved

5.2.3. Consumption of Effort

OVERVIEW OF EFFORT COMMITTED ACROSS THE PROJECT: PM13 to PM15 (May 2011 to July 2011)

Report extracted on 06 September 2011

Type	Work Package	Worked PM Funded	Committed PM	Achieved PM PQ5 %	Achieved PM (YEAR1) %
MGT	WP1	20,2	20,6	98%	77%
COORD	WP2	40,8	44,1	93%	80%
COORD	WP3	62,9	60,0	105%	86%
SUPPORT	WP4	317,7	296,9	107%	98%
SUPPORT	WP5	31,9	31,4	101%	81%
SUPPORT	WP6	60,1	61,0	98%	102%
RTD	WP7	19,3	23,8	81%	76%
Total		552,8	537,7	103%	93%

The detailed breakdown of effort contributed to each work package by each partner is provided in the following tables for PQ5 along with YEAR1 figures. Each work package (for reporting purposes) is split into the different types of effort used within EGI-InSPIRE (which has different reimbursement rates) and is therefore reported separately.

The different types are:

- M: Project Management as defined by the EC.
- E: EGI Global Task related effort.
- G: General tasks within the project.
- N: NGI International Task related effort.

Note: INFN figures are draft

WP1-E - WP1 (NA1) - NA1 Management (EGI)

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
1-EGI.EU	8,3	8,9	93%	73%
Total:	8,3	8,9	93%	73%

WP1-M - WP1 (NA1) - NA1 Management

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
1-EGI.EU	11,3	11,2	101%	80%
Total:	11,3	11,2	101%	80%

WP2-E - WP2 (NA2) - NA2 External Relations (EGI)

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
1-EGI.EU	21,6	19,3	112%	76%
26A-FOM	0,4	0,3	122% (using unspent PY1 effort)	85%
34A-STFC	1,2	1,2	100%	102%
Total:	23,1	20,8	111%	78%

WP2-N - WP2 (NA2) - NA2 External Relations

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
2-UPT	0	0,8	0%	0%
5A-IICT-BAS	0,1	0,5	20%	29%
7C-SWITCH	0,0	0,4	7%	19%
8-UCY	0,5	0,5	102%	74%
9-CESNET	0,6	0,5	128%	70%
10B-KIT-G	1,1	0,9	125%	113%
10E-BADW	0	0,2	0%	0%
12A-CSIC	1,7	1,4	118%	132%
12D-UPVLC	0	0,8	0%	67%
13-CSC	0,3	1,1	30%	59%
14A-CNRS	1,5	0,9	176%	136%
14C-HealthGrid	0,8	0,4	184%	115%
18B-BME	0,2	0,1	160%	299%
18C-MTA SZTAKI	0	0,1	0%	0%

19-TCD	0,4	0,4	100%	100%
20-IUCC	0,2	0,3	88%	61%
21A-INFN	1,4	1,3	114%	87%
22-VU	0,7	1,3	51%	111%
26A-FOM	0,5	0,2	268%	138%
26B-SARA	0	0,3	0%	22%
27A-SIGMA	0	0,4	0%	5%
28A-CYFRONET	0,5	1,0	50%	138%
29-LIP	1,0	0,8	129%	105%
30-IPB	0,8	0,8	104%	104%
31-ARNES	0,4	1,1	35%	74%
31B-JSI	1,0	0,6	165%	89%
32-UI SAV	0,2	0,5	35%	71%
33-TUBITAK ULAKBIM	1,0	1,0	103%	103%
34A-STFC	1,1	1,5	74%	101%
36-UCPH	0,1	0,8	16%	12%
38-VR-SNIC	0,0	0,1	24%	90%
38A-KTH	0,2	0,4	64%	13%
39-IMCS-UL	0,1	1,4	9%	20%
40A-E-ARENA	1,0	0,9	118%	125%
Total:	17,7	23,3	76%	83%

WP3-E - WP3 (NA3) - NA3 User Community (EGI)

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
1-EGI.EU	14,0	12,6	111%	79%
12A-CSIC	1,1	0,8	141%	152%
16A-GRNET	2,8	2,1	133% (using unspent PY1 effort)	96%
16E-IASA	0	0,8	0%	200%
29-LIP	1,1	0,8	143%	99%
34A-STFC	3,1	1,1	269% (Additional effort due to UE withdraw)	17%
34B-UE	0	0,3	0%	399%
Total:	22,0	18,4	119%	92%

WP3-N - WP3 (NA3) - NA3 User Community

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
2-UPT	0	1,9	0%	0%
3-IIAP NAS RA	0	0,4	0%	0%
5A-IICT-BAS	0,1	0,5	26%	49%
7A-ETH ZURICH	0	0,3	0%	33%
7B-UZH	0,1	0,5	24%	102%

8-UCY	0,8	0,5	164%	140%
9-CESNET	1,3	1,8	73%	117%
10B-KIT-G	2,4	2,6	93%	100%
10C-DESY	0,7	0,6	122%	119%
10D-JUELICH	0	0,2	0%	0%
10G-FRAUNHOFER	0,3	0,8	41%	5%
12A-CSIC	0,1	0,2	43%	197%
12D-UPVLC	1,7	1,5	112%	85%
13-CSC	2,7	1,5	183%	72%
14A-CNRS	2,6	1,8	145%	101%
14B-CEA	0	0,7	0%	0%
14C-HealthGrid	2,5	0,9	287%	297%
15-GRENA	0,4	0,4	100%	83%
18A-MTA KFKI	0,6	0,6	111%	112%
18B-BME	0,3	0,6	61%	174%
18C-MTA SZTAKI	2,0	0,9	224%	213%
19-TCO	0,9	0,9	98%	97%
20-IUCC	0,7	0,8	88%	229%
21A-INFN	1,7	2,5	70%	89%
22-VU	0	0,9	0%	0%
23-RENAM	2,2	0,6	383%	215%
26A-FOM	0,4	0,3	144%	41%
26B-SARA	2,0	0,3	654%	13%
27A-SIGMA	0	0,3	0%	7%
27B-UJO	0	0,4	0%	0%
27C-URA	0,4	1,0	45%	7%
28A-CYFRONET	1,2	0,4	283%	97%
28B-UWAR	0	0,9	0%	8%
28C-ICBP	1,1	0,9	130%	69%
29-LIP	2,5	1,8	144%	109%
30-IPB	1,1	1,0	105%	105%
31-ARNES	0,4	0,7	64%	73%
31B-JSI	1,1	0,5	223%	109%
32-UI SAV	1,3	2,4	55%	85%
33-TUBITAK ULAKBIM	2,9	2,3	129%	102%
34A-STFC	1,0	1,0	99%	39%
34C-UG	0,3	0,3	134%	0%
34D-IMPERIAL	0	0,3	0%	0%
34E-MANCHESTER	0	0,3	0%	0%
36-UCPH	0,3	1,3	26%	17%
38A-KTH	0	0,6	0%	0%
40A-E-ARENA	0,5	0,4	118%	60%
Total:	40,9	41,6	98%	83%

WP4-E - WP4 (SA1) - SA1 Operations (EGI)

	Q5	YEAR 1
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Partner	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
1-EGI.EU	2,8	2,3	123%	92%
10B-KIT-G	4,5	4,4	103%	92%
12A-CSIC	0,8	1,1	79%	84%
12B-FCTSG	0,8	0,8	111%	239%
13-CSC	1,3	1,4	88%	104%
14A-CNRS	0,5	0,8	70%	103%
16A-GRNET	1,8	4,4	41%	11%
17-SRCE	0,6	0,7	84%	122%
21A-INFN	2,7	2,3	119% (using unspent PY1 effort)	89%
21B-GARR	0,4	0,8	53%	200%
26A-FOM	1,2	0,8	161%	163%
26B-SARA	0,9	1,4	64%	178%
28A-CYFRONET	1,3	1,4	92%	103%
29-LIP	1,3	1,1	122%	102%
34A-STFC	5,6	4,4	127%	117%
35-CERN	4,8	3,7	131%	119%
38A-KTH	1,9	1,4	134%	126%
Total:	33,3	32,9	101%	102%

WP4-N - WP4 (SA1) - SA1 Operations

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
2-UPT	0	2,0	0%	0%
3-IIAP NAS RA	0,5	1,2	43%	35%
5A-IICT-BAS	0,8	6,8	11%	30%
5B-IOCCP-BAS	0,3	0,5	51%	36%
5C-NIGGG-BAS	1,4	0,5	275%	72%
6-UIIP NASB	0,6	1,9	33%	150%
7A-ETH ZURICH	2,3	2,1	106%	53%
7B-UZH	2,0	1,1	178%	44%
7C-SWITCH	2,1	2,2	98%	99%
8-UCY	1,9	3,0	65%	59%
9-CESNET	6,7	8,0	83%	93%
10B-KIT-G	8,5	8,5	101%	107%
10C-DESY	2,0	1,6	123%	127%
10D-JUELICH	1,6	1,6	100%	96%
10E-BADW	2,8	2,8	101%	89%
10G-FRAUNHOFER	1,3	1,3	104%	110%
10H-LUH	2,2	1,6	136%	30%
11-UOBL ETF	3,5	4,7	74%	49%
12A-CSIC	1,9	2,8	68%	102%
12B-FCTSG	5,1	4,5	113%	125%
12C-CIEMAT	2,4	2,4	102%	64%

12D-UPVLC	2,2	1,8	123%	85%
12E-IFAE	3,3	2,9	114%	114%
12F-RED.ES	7,8	3,3	240%	137%
12G-UNIZAR-I3A	3,0	3,3	93%	99%
12H-UAB	2,9	2,5	115%	112%
13-CSC	5,1	4,2	121%	135%
14A-CNRS	21,2	15,8	134%	168%
14B-CEA	5,7	4,0	144%	134%
15-GRENA	1,2	1,2	104%	86%
16A-GRNET	9,0	7,7	117%	86%
16B-AUTH	1,3	0,8	166%	88%
16C-CTI	2,9	0,8	363%	17%
16D-FORTH	2,8	0,8	345%	88%
16G-UI	0,3	0,5	69%	38%
16H-UP	1,2	0,6	185%	84%
17-SRCE	4,6	4,5	103%	109%
18A-MTA KFKI	4,2	4,1	102%	105%
18B-BME	1,3	1,8	69%	93%
18C-MTA SZTAKI	4,1	1,5	265%	283%
19-TCD	4,5	5,9	77%	99%
20-IUCC	1,5	1,6	97%	56%
21A-INFN	30,8	22,9	135%	110%
21B-GARR	0,4	0,8	53%	0%
22-VU	1,9	1,4	139%	72%
23-RENAM	2,7	1,3	208%	147%
24-UOM	3,2	4,4	72%	70%
25-UKIM	6,1	4,4	137%	124%
26A-FOM	3,1	2,0	155%	240%
26B-SARA	5,9	8,0	74%	26%
27A-SIGMA	1,2	2,5	49%	38%
27B-UIO	2,6	1,8	147%	61%
27C-URA	1,3	0,9	146%	19%
28A-CYFRONET	9,2	7,2	127%	148%
28B-UWAR	0	0,4	0%	0%
28C-ICBP	1,6	1,1	139%	126%
28D-POLITECHNIKA WROCLAWSKA	1,6	1,0	165%	30%
29-LIP	8,2	6,7	123%	96%
30-IPB	7,3	7,4	99%	101%
31-ARNES	3,9	2,7	146%	90%
31B-JSI	4,0	3,2	127%	89%
32-UI SAV	4,5	6,0	75%	74%
33-TUBITAK ULAKBIM	7,2	8,2	88%	96%
34A-STFC	5,9	6,5	91%	99%
34C-UG	4,1	3,6	113%	162%
34D-IMPERIAL	5,1	3,6	141%	141%
34E-MANCHESTER	2,7	3,6	76%	86%
36-UCPH	1,4	5,1	27%	54%

38A-KTH	0,3	0,4	79%	52%
38B-LIU	1,8	1,9	96%	86%
38C-UMEA	3,1	3,0	102%	88%
39-IMCS-UL	1,6	3,3	49%	43%
40B-SINP MSU	2,4	1,3	195%	99%
40C-JINR	1,0	0,8	118%	60%
40D-RRCKI	1,0	0,8	118%	60%
40F-ITEP	0,9	0,8	118%	60%
40G-PNPI	0	0,8	0%	0%
51A-ICI	4,9	1,4	352%	203%
51C-UPB	0	0,8	0%	0%
51D-UVDT	0,6	0,6	105%	88%
51E-UTC	0,7	0,6	123%	62%
51H-INCAS	0	0,2	0%	0%
51J-UB	0	0,1	0%	495%
y	284,4	263,9	108%	98%

WP5-E - WP5 (SA2) - SA2 Provisioning Soft. Infrastr. (EGI)

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
1-EGI.EU	2,6	2,3	114%	90%
9-CESNET	6,3	6,7	94%	95%
10D-JUELICH	1,8	1,5	120%	83%
12A-CSIC	3,3	3,3	99%	101%
12B-FCTSG	3,0	1,1	286% (extra effort around UMD1 .0)	92%
16A-GRNET	3,2	3,5	92%	47%
16B-AUTH	1,8	0,8	226% (using unspent PY1 effort)	42%
16E-IASA	0	0,8	0%	201%
16F-ICCS	0,5	0,8	56%	33%
21A-INFN	3,2	2,9	108%	99%
29-LIP	5,5	4,4	125%	81%
36-UCPH	0	1,5	0%	0%
38B-LIU	0,8	1,5	56%	72%
41-NORDUNET	0	0,4	0%	33%
Total:	31,9	31,4	101%	81%

WP6-G - WP6 (SA3) - SA3 Sces for Heavy User Comm.

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
10G-FRAUNHOFER	2,5	2,3	110%	23%
12A-CSIC	1,7	2,3	78%	62%
12C-CIEMAT	2,3	1,5	154%	115%

13-CSC	3,5	1,5	235%	91%
14A-CNRS	10,3	3,8	270%	95%
14B-CEA	0	0,7	0%	0%
14C-HealthGrid	0,7	2,4	29%	33%
19-TCD	1,7	1,8	100%	100%
21A-INFN	0	5,0	0%	0%
21C-INAF	2,1	2,5	83%	83%
21D-UNIPG	0,7	0,8	97%	385%
21E-SPACI	1,1	2,3	49%	44%
28C-ICBP	0,7	0,5	131% (using unspent PY1 effort)	33%
31B-JSI	0,2	0,3	70%	47%
32-UI SAV	1,1	1,5	73%	43%
35-CERN	31,4	28,4	111%	100%
37-EMBL	0	3,7	0%	0%
Total:	60,1	61,0	98%	76%

WP7-E - WP7 (JRA1) - JRA1 Operational Tools (EGI)

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
10B-KIT-G	3,0	2,9	103%	82%
12B-FCTSG	1,5	0,8	199%	187%
14A-CNRS	0,7	0,8	98%	102%
16A-GRNET	0,4	0,8	53%	30%
17-SRCE	0,9	0,8	119%	110%
21A-INFN	1,7	1,5	112%	114%
34A-STFC	1,6	1,5	107%	88%
35-CERN	1,1	0,8	150% (using unspent PY1 effort)	18%
Total:	11,0	9,7	113%	91%

WP7-G - WP7 (JRA1) - JRA1 Operational Tools

Partner	Q5			YEAR 1
	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM %
10H-LUH	1,5	1,5	101%	-
12B-FCTSG	0	1,9	0%	21%
14A-CNRS	4,6	4,8	97%	71%
17-SRCE	0	0,4	0%	119%
21A-INFN	0	2,2	0%	-
34A-STFC	2,2	2,6	82%	48%
35-CERN	0	0,8	0%	72%

Total:	8,3	14,1	59%	69%
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5.2.4. Overall Financial Status

Project Period 2

Partner	Q5				
	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
1-EGI.EU	60.5	56.4	107%	536,993	318,817
2-UPT ⁶⁴	0	4.7	0%	0	0
3-IIAP NAS RA	0.5	1.6	33%	1,523	503
5A-IICT-BAS	1.0	7.8	13%	6,018	1,986
5B-IOCCP-BAS	0.3	0.5	51%	1,570	518
5C-NIGGG-BAS	1.4	0.5	275%	8,394	2,770
6-UIIP NASB	0.6	1.9	33%	2,414	797
7A-ETH ZURICH	2.3	2.4	95%	19,351	6,386
7B-UZH	2.1	1.6	131%	14,850	4,900
7C-SWITCH	2.1	2.6	83%	29,861	9,854
8-UCY	3.3	4.0	82%	28,322	9,346
9-CESNET	14.9	17.0	88%	97,779	39,262
10B-KIT-G	19.6	19.3	102%	174,463	68,954
10C-DESY	2.7	2.2	123%	23,900	7,887
10D-JUELICH	3.4	3.3	103%	30,449	12,765
10E-BADW	2.8	3.0	95%	25,256	8,335
10G-FRAUNHOFER	4.1	4.3	96%	36,310	13,518
10H-LUH	3.7	3.1	119%	33,162	11,886
11-UOBL ETF	3.5	4.7	74%	14,268	4,709
12A-CSIC	10.6	11.8	90%	82,819	35,165
12B-FCTSG	10.5	9.0	117%	81,818	34,135
12C-CIEMAT	4.7	3.9	122%	36,906	13,440
12D-UPVLC	3.8	4.0	96%	30,025	9,908
12E-IFAE	3.3	2.9	114%	25,521	8,422
12F-RED.ES	7.8	3.3	240%	61,077	20,155
12G-UNIZAR-I3A	3.0	3.3	93%	23,645	7,803
12H-UAB	2.9	2.5	115%	22,519	7,431
13-CSC	13.0	9.7	133%	133,618	48,865

⁶⁴ No effort consumed in PY1.

14A-CNRS	41.6	28.6	145%	359,193	129,443
14B-CEA	5.7	5.4	107%	49,610	16,371
14C-HealthGrid	4.0	3.7	107%	34,582	11,829
15-GRENA	1.6	1.6	103%	3,954	1,305
16A-GRNET	17.3	18.5	93%	133,566	54,902
16B-AUTH	3.2	1.6	196%	24,631	10,546
16C-CTI	2.9	0.8	363%	22,822	7,531
16D-FORTH	2.8	0.8	345%	21,672	7,152
16E-IASA	0	1.6	0%	0	0
16F-ICCS	0.5	0.8	56%	3,538	1,769
16G-UI	0.3	0.5	69%	2,654	876
16H-UP	1.2	0.6	185%	8,964	2,958
17-SRCE	6.1	6.3	97%	30,343	11,255
18A-MTA KFKI	4.8	4.7	103%	18,886	6,233
18B-BME	1.8	2.5	72%	10,015	3,305
18C-MTA SZTAKI	6.0	2.5	238%	36,519	12,051
19-TCD	7.5	8.9	84%	72,840	25,227
20-IUCC	2.4	2.6	93%	31,579	10,421
21A-INFN	41.6	40.5	103%	306,306	110,529
21B-GARR	0.8	1.5	53%	5,850	2,428
21C-INAF	2.1	2.5	83%	15,269	6,107
21D-UNIPG	0.7	0.8	97%	5,382	2,153
21E-SPACI	1.1	2.3	49%	8,132	3,253
22-VU	2.6	3.6	71%	21,447	7,078
23-RENAM	4.8	1.8	262%	14,464	4,773
24-UOM	3.2	4.4	72%	7,697	2,540
25-UKIM	6.1	4.4	137%	24,257	8,005
26A-FOM	5.6	3.5	159%	56,832	21,522
26B-SARA	8.9	10.0	89%	90,812	31,560
27A-SIGMA	1.2	3.2	39%	12,199	4,026
27B-UIO	2.6	2.2	117%	25,435	8,394
27C-URA	1.7	1.9	92%	17,093	5,641
28A-CYFRONET	12.2	10.1	121%	104,478	36,407
28B-UWAR	0	1.3	0%	0	0
28C-ICBP	3.4	2.5	134%	28,723	9,870
28D-POLITECHNIKA WROCLAWSKA	1.6	1.0	165%	13,996	4,619
29-LIP	19.6	15.4	127%	107,145	42,646
30-IPB	9.1	9.2	100%	49,900	16,467
31-ARNES	4.8	4.5	106%	28,600	9,438
31B-JSI	6.4	4.6	139%	38,088	12,642
32-UI SAV	7.1	10.4	69%	57,040	19,440

33-TUBITAK ULAKBIM	11.1	11.4	97%	77,993	25,738
34A-STFC ⁶⁵	21.6	19.9	109%	222,185	94,941
34B-UE	0	0.3	0%	0	0
34C-UG	4.4	3.9	115%	45,615	15,053
34D-IMPERIAL	5.1	3.9	132%	52,377	17,284
34E-MANCHESTER	2.7	3.9	71%	28,196	9,305
35-CERN	37.9	34.1	111%	546,056	231,948
36-UCPH	1.8	8.6	21%	20,187	6,662
37-EMBL	0	3.7	0%	0	0
38-VR-SNIC	0.0	0.1	24%	339	112
38A-KTH	2.5	2.8	89%	28,155	13,037
38B-LIU	2.6	3.4	78%	30,252	11,611
38C-UMEA	3.1	3.0	102%	35,337	11,661
39-IMCS-UL	1.7	4.7	37%	13,552	4,472
40A-E-ARENA	1.6	1.3	118%	6,138	2,026
40B-SINP MSU	2.4	1.3	195%	9,646	3,183
40C-JINR	1.0	0.8	118%	3,802	1,255
40D-RRCKI	1.0	0.8	118%	3,799	1,254
40F-ITEP	0.9	0.8	118%	3,507	1,157
40G-PNPI	0	0.8	0%	0	0
41-NORDUNET	0	0.4	0%	0	0
51A-ICI	4.9	1.4	352%	30,066	9,922
51C-UPB	0	0.8	0%	0	0
51D-UVDT	0.6	0.6	105%	3,608	1,191
51E-UTC	0.7	0.6	123%	4,209	1,389
51H-INCAS	0	0.2	0%	0	0
51J-UB	0	0.1	0%	0	0
Total:	552.8	537.7	103%	4,652,360	1,851,589

5.3. Issues and mitigation

5.3.1. Issue 1: Overspending EGI Global Task partners

The recommendation relating to greater transparency on the costs relating to the delivery of the EGI Global Services will focus additional monitoring on these activities. The first stage will be the preparation of the appropriate financial information from partners to provide an overview.

5.4. Plans for the next period

The issues raised by the EC Review are currently being analysed by the project as to how they will be implemented. This analysis is being supported by the project office and will certainly result in an

⁶⁵ Exceeding planned effort as now undertaking work previously allocated to UE.



amendment to the current description to work and updated milestones and deliverables to reflect these changes.

6. PROJECT METRICS

6.1. Overall metrics

Project Objectives	Objective Summary	Metrics	Value Q5	Target Y2
PO1	Expansion of a nationally based production infrastructure	Number of production resources in EGI (M.SA1.Size.1)	346	330
		Number of job slots available in EGI (M.SA1.Size.2)	337.608	350000
		Reliability of core middleware services (M.SA1.Operation.5)	NA	91%
PO2	Support of European researchers and international collaborators through VRCs	MoUs with VRCs (M.NA2.11)	1	10
		Number of papers from EGI Users (M.NA2.5)	39	60
		Number of jobs done a day (M.SA1.Usage.1)	1,029,830	525000
PO3	Sustainable support for Heavy User Communities	Number of sites with MPI (M.SA1.Integration.2)	93	100
		Number of users from HUC VOs (M.SA1.Size.7)	9,672 (July 28) HEP 7224 LS 963 CC 529 AA 502 ES 368 Fusion 86	5500
PO4	Addition of new User Communities	Amount of desktop resource (M.SA1.Integration.3)	1548	5
		Number of users from non-HUC VOs (M.NA3.9)	5840 (July 28) Computer Science and Mathematics (30); Multidisciplinary (2618); Other (3222)	1000

		Public events organised (M.NA2.6)	19 events 82 days 1400 p	2000
PO5	Transparent integration of other infrastructures	MoUs with resource providers (M.NA2.10)	0	5
PO6	Integration of new technologies and resources	MoUs with Technology providers (M.NA2.9)	0	4
		Number of HPC resources (M.SA1.Integration.1)	56	3
		Amount of virtualised resources (M.SA1.Integration.4)	16 695	1

6.2. Activity metrics

6.2.1. NA1 - Project Management

Metric ID	Metric	Task	Value for Q5
M.NA1.1	Number of NGIs actively contributing resources into the production infrastructure	TNA1.2	45
MNA1.2	Time to review deliverables & milestones (from entering External Review to exiting PMB Review)	TNA1.4	BEING CALCULATED

6.2.2. NA3 - External Relations

Metric ID	Metric	Task	Value for Q5
M.NA2.1	Number of press releases issued	TNA2.2	1
M.NA2.2	Number of media contacts sent press releases	TNA2.2	0
M.NA2.3	Number of press cuttings relating to EGI, EGI.eu or EGI-InSPIRE	TNA2.2	15
M.NA2.4	Number of interviews given to media organisations	TNA2.2	0
M.NA2.5	Number of papers published by users of EGI	TNA2.2	39
M.NA2.6	Public events organised by EGI.eu & NGI teams	TNA2.2	19 events 22 days 1400 particip.
M.NA2.7	Events with EGI presence (stand, presentation, or literature)	TNA2.2	3
M.NA2.8	Number of unique visitors per month on the main websites	TNA2.2	1
M.NA2.9	Number of MoUs or agreements signed with technology providers	TNA2.3 & TSA2.1	0
M.NA2.10	Number of MoUs or agreements signed with external (non-EGI) Resource Infrastructure Providers	TNA2.3 & TSA1.1	0

M.NA2.11	Number of MoUs or agreements established with collaborating Virtual Research Communities (VRCs)	TNA2.3 & TNA3.1	1
M.NA2.12	Number of MoUs or agreements signed with other partners	TNA2.3	4
M.NA2.13	Number of policies or procedures recorded by EGI.eu that apply to User Communities	TNA2.3 & TNA3.1	0
M.NA2.14	Number of policies or procedures recorded by EGI.eu that apply to Infrastructure Providers	TNA2.3 & TSA1.1	1
M.NA2.15	Number of policies or procedures recorded by EGI.eu that apply to Technology Providers	TNA2.3	0

6.2.3. NA3 - User Community Coordination

Metric ID	Metric	Task	Value for Q5
M.NA3.1	Number of GGUS tickets CREATED (grouped by submitting community – where available)	TNA3.2/3	User tickets: 1969 Operational tickets: 795
M.NA3.2	Average and Median Solution time to resolve tickets	TNA3.3	Average: 22.1 days Median: 16.1 days (average of SU medians)
M.NA3.3	Uptime of User Support websites: <ul style="list-style-type: none"> • Training • Application Database • VO Support Services 	TNA3.4	Training: 99% AppDB: 99% VO Services: <ul style="list-style-type: none"> • 85%: LIP VO SAM instance • N.A: UPV VO SAM instance (lost during reinstallation) 91%: VO Admin Dashboard (started on 15/05/2011)
M.NA3.4	Visitors to User Support websites: <ul style="list-style-type: none"> • Training • Application Database • VO Support Services 	TNA3.4	Training: 425 AppDB: 534 VO Services: <ul style="list-style-type: none"> • 276 (http://www.egi.eu/usersupport/services) 348 (https://vodashboard.lip.pt)

M.NA3.5	Number of VO Support Services	TNA3.4	<p>Evaluated: 2 (VO Admin Dashboard, LFCBrowseSE)</p> <p>Supported: 7 (GANGA, DIANE, MINIDASHBOARD, VO SAM, VBROWSER, VO Admin Dashboard, LFCBrowseSE)</p> <p>Offered as service: 3 (2 VO SAM instance at LIP and UPV, 1 VO Admin Dashboard at LIP)</p>
M.NA3.6	Number of Applications in the AppDB	TNA3.4/3	<p>Applications: 365</p> <p>Tools: 36</p> <p>Personal profiles: 636</p>
M.NA3.7	Number of Training Days delivered through NGI Training events	TNA3.4/3	38
M.NA3.8	Number of: <ul style="list-style-type: none"> • New/decommissioned VOs • Low/Medium/High Activity VOs • international VOs 	TNA3.1	<p>3/0</p> <p>10/16/26</p> <p>110</p>
M.NA3.9	Number of users (grouped by community and VO)	TNA3.1	<p>8,793 (July 28)</p> <p>HEP 7224</p> <p>Infrastructure 3251</p> <p>LS 963</p> <p>CC 529</p> <p>AA 502</p> <p>ES 368</p> <p>Computer Science and Mathematics 30</p> <p>Fusion 86</p> <p>Multidisciplinary 2618</p> <p>Others 3222</p>

6.2.4. SA1 –Operations

Metric ID	Metric	Task	Value for Q5
M.SA1.Usage.1	Average number of jobs “done” per day for all VOs		1,029,830
M.SA1.Usage.2	Normalised consumed computing capacity		2,363,625,828
M.SA1.Usage.3	Normalised Computing power consumed outside of a user’s home country	TSA1.1	NA

Metric ID	Metric	Task	Value for Q5
M.SA1.Size.1	Total number of production resource centres that are part of EGI	TSA1.1	346
M.SA1.Size.2a	Total number of job slots available in EGI – Integrated and peer	TSA1.1	337,608
M.SA1.Size.2b	Total number of job slots available in EGI – Project	TSA1.1	248,424
M.SA1.Size.3	Installed Capacity in HEP-SPEC 06 in EGI	TSA1.1	1,933,746
M.SA1.Size.4	Installed disk capacity (PB) in EGI	TSA1.1	106.69
M.SA1.Size.5	Installed tape capacity (PB) in EGI	TSA1.1	67.447
M.SA1.OperationalSecurity.1	Number of Site Security Challenge (SSC) made	TSA1.2	40
M.SA1.OperationalSecurity.2	Number of Sites passing one Security Challenge	TSA1.2	N/A (ongoing)
M.SA1.OperationalSecurity.3	Number of suspended sites for security issues	TSA1.2	0
M.SA1.Integration.1	Number of production HPC clusters	TSA1.3	56
M.SA1.Integration.2	Number of production sites supporting MPI	TSA1.3	93
M.SA1.Integration.3	Amount of integrated desktop resources	TSA1.3	1548
M.SA1.Integration.4	Amount of virtualised installed capacity accessible to EGI users (HEP-SPEC 06)	TSA1.3	16 695

Metric ID	Metric	Task	Value for Q5
M.SA1.ServiceValidation.1	Total number of components tested/rejected in staged rollout	TSA1.3	54/2
M.SA1.ServiceValidation.2	Number of staged rollout tests undertaken	TSA1.3	81
M.SA1.ServiceValidation.3	Number of EA teams	TSA1.3	46
M.SA1.Accounting	Number of sites adopting AMQ messaging for Usage Record publication	TSA1.5	242
M.SA1.Support.1	Overall average number of GGUS tickets in EGI per month CREATED	TSA1.7	939/938/903
M.SA1.Support.2	Average/Median monthly ticket solution time (hours)	TSA1.7	178-43/207-46/96-38
M.SA1.Support.3	Assigned ticket monthly Average RESPONSE TIME (hours)	TSA1.7	15/19/14
M.SA1.Support.4	Number of tickets SOLVED by TPM (1st line support)	TSA1.7	2/11/4
M.SA1.Support.5	Average-Median ticket assignment time by TPM (1st line support) per month (hours)	TSA1.7	4-0/3-0/2-0
M.SA1.Support.6	COD Workload per month	TSA1.7	686/791/560
M.SA1.Support.7	EGI ROD Workload per month	TSA1.7	2231/1751/1380
M.SA1.Support.8	EGI ROD Quality Metrics per month	TSA1.7	0.91/0.94/0.91
M.SA1.Operation.1	NGI monthly availability and reliability	TSA1.8	11/11/11

Metric ID	Metric	Task	Value for Q5
M.SA1.Operation.2	Number of sites suspended	TSA1.7	0/2/7
M.SA1.Operation.3	NGI monthly availability and reliability of core operations tools	TSA1.8	NA
M.SA1.Operation.4	NGI Monthly availability and reliability of core middleware services	TSA1.8	NA
M.SA1.Operation.5	EGI monthly reliability [availability] of site middleware services	TSA1.8	95 290/94 744
M.SA1.Operation.6	EGI monthly availability and reliability of central operations tools	TSA1.8	NA

6.2.5. SA2 – Software Provisioning

Metric ID	Metric	Value for Q5	Comments/Explanation
M.SA2-1	Number of software components recorded in the UMD Roadmap	30	
M.SA2-2	UMD Roadmap Capabilities coverage with Quality Criteria	85% (22)	
M.SA2-3	Number of software incidents found in production that result in changes to quality criteria	0	
M.SA2-5	Number of new Product releases validated against defined criteria	41	
M.SA2-6	Mean time taken to validate a Product release	21.03h	
M.SA2-7	Number of Product releases failing validation	5	
M.SA2-8	Number of new releases contributed into the Software Repository from all types of software providers	42	
M.SA2-9	Number of unique visitors to the Software Repository	766	
M.SA2-10	Number of unique visits to the Repository backend	1801	
M.SA2-11	Number of tickets assigned to DMSU	218	
M.SA2-12	Mean time to resolve DMSU tickets	24 days	Median is 4.2 days, see section Error! Reference source not found. for explanation

6.2.6. SA3 – Support for Heavy User Communities

Metric ID	Metric	Task	Value for Q5	Comments

M.SA3.1	Number of users of deployed dashboard instances	TSA3.2.1	8700	Unique IP addresses
M.SA3.2	Number of unique users of GANGA	TSA3.2.2	643	
M.SA3.3	Number of unique users of DIANE	TSA3.2.2	30	
M.SA3.4	Number of sites using GANGA	TSA3.2.2	85	
M.SA3.5	Number of sites using DIANE	TSA3.2.2	15	
M.SA3.6	Number of users of GReIC	TSA3.2.3	~100	Most of them are users in the Earth Science and Environmental Domain. Other domains: LS
M.SA3.7	Number of users of Hydra	TSA3.2.3	2	Under development
M.SA3.8	Number of users of SOMA2	TSA3.2.4	33	
M.SA3.9	Number of users using Taverna to access EGI resources	TSA3.2.4	0	Assumed: no input
M.SA3.10	Number of users using RAS	TSA3.2.4	8	
M.SA3.11	Number of users using MD	TSA3.2.4	8	
M.SA3.12	Number of users using Gridway	TSA3.2.4	7	
M.SA3.13	Number of MPI support tickets	TSA3.2.5	0	Assumed: no input
M.SA3.14	Mean time to resolve MPI support tickets	TSA3.2.5	0	
M.SA3.15	Number of HEP VO tickets	TSA3.3	45	

M.SA3.16	Mean time to resolution of HEP VO alarm tickets	TSA3.3	22:56 (HHH:MM)	
M.SA3.17	Number of Life Science Users of provided services	TSA3.4	12	Active technical shifters in the LSGC community
M.SA3.18	Number of databases integrated and/or accessible from EGI resources.	TSA3.4	~10	Metadata DB in the context of the Climate-G testbed (harvester and local indexes) Some DB for training purposes (in the context of GILDA). A new DB in the LS context (UNIPROT data bank) integrating 2 different biological data banks An XML based grid-database for benchmarking on large XML documents
M.SA3.19	Number of unique users of VisIVO	TSA3.5		
M.SA3.20	Number of data sets accessible from EGI resources	TSA3.6	0	

6.2.7. JRA1 – Operational Tools

Metric ID	Metric	Task	Value for Q5
M.JRA1.1	Number of software release	TJRA1.2 & TJRA1.5	7
M.JRA1.2	Number of software issues reported with deployed operational tools	TJRA1.2	27
M.JRA1.3	Mean time to release for critical issues reported in production	TJRA1.2	0
M.JRA1.4	Number of approved (by OTAG) enhancement requests	TJRA1.2	4
M.JRA1.5	Mean time from approval to release for approved enhancement requests	TJRA1.2	23 days



Metric ID	Metric	Task	Value for Q5
M.JRA1.6	Number of operational tool instances deployed regionally	TJRA1.3	40
M.JRA1.7	Number of different resources that can be accounted for in EGI	TJRA1.4	0

7. ANNEX A1: DISSEMINATION AND USE

7.1. Main Project and Activity Meetings

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
11/5/ 2011	Amsterdam	UCB meeting	2	https://www.egi.eu/indico/conferenceDisplay.py?confId=473
9-10/6/ 2011	CERN	Federated identity system for scientific collaborations	8	Federated security infrastructures for various ES data infrastructure (Earth System Grid for Climate data, GENESI for satellite data...) not interoperable with the one of EGI and even among them. Discussions have been carried out for ES and several other domains. https://indico.cern.ch/event/129364
14//6/ 2011	Phone	UCB meeting	2	https://www.egi.eu/indico/conferenceDisplay.py?confId=500
30/6-1/7/ 2011	Amsterdam	First Review of EGI-InSPIRE	20	Formal official review of EGI-InSPIRE at the end of the 1 st year of the project.
8/7/ 2011	University de Savoie – EDYTEM, Bourget du Lac	User meeting of MUST: computing and storage facility of Savoie University	-	http://indico.in2p3.fr/conferenceDisplay.py?confid=5353
15/7/ 2011	Phone	UCB meeting	1	https://www.egi.eu/indico/conferenceDisplay.py?confId=547

7.2. Conferences/Workshops Organised

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
5/5/ 2011	JINR, Laboratory of Information Technologies, Dubna, Russia	JINR Seminar on distributed computing and Grid-technologies	40	P.S. Berezovskiy (Keldysh Institute of Applied Mathematics RAS): "Job management in a grid with stand-alone resources" (Materials of Master's Thesis) http://lit.jinr.ru/view.php?lang=lat&var1=activ&var2=seminars&file=seminar_arch&menu=
9-14/5/ 2011	Beijing, China	Asia 3 2011 - Epikh School for Site Administrators	12	The aim of this tutorial was to prepare system administrators on the installation of grid sites and actually put together those facilities. The first days was dedicated to both the Condor and the gLite middleware services installation and configuration. The second part was dedicated to have the participants install sites, remotely (from the tutorial), at their home institutions (http://agenda.ct.infn.it/conferenceOtherViews.py?view=standard&confId=268).
12-13/5/ 2011	Amsterdam, The Netherlands	User Virtualisation Workshop	72	http://go.egi.eu/uvw1
13/5/ 2011	Jyväskylä, Finland	CSC 40 Years Seminar	15	Dissemination event about European resources available to Finnish researchers http://www.csc.fi/csc/kurssit/arkisto/csc40-jy
16-19/5/ 2011	Prague	TERENA 2011	525	https://tnc2011.terena.org/web/media/archive

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
16-20/5/2011	La Biodola (Pisa) Italy	CCR-Grid Workshop	120	http://agenda.infn.it/conferenceDisplay.py?confId=3530
16-26/5/2011	Beijing, China	Asia 3 2011 - Joint CHAIN/Epikh School for Application Porting	10	The Grid School aimed at increasing the number of scientific/industrial applications running on the EUChinaGRID infrastructure. The School also aimed at bringing new research groups to use the EUChinaGRID resources as well as to diversity the application domains and scientific communities http://agenda.ct.infn.it/conferenceDisplay.py?confId=475 .
23-25/5/2011	Ljubljana	4 th Belle II Computing Workshop	40	http://kds.kek.jp/confLogin.py?returnURL=http%3A%2F%2Fkds.kek.jp%2FconferenceDisplay.py%3FconfId%3D6893&confId=6893
23-27/5/2011	Stellenbosch, Africa	Africa 5 2011 - Joint CHAIN/SPECIAL/Epikh School for Grid Site Administrators	6	The aim of this tutorial was to prepare system administrators on the installation of grid sites and actually put together those facilities to increase the size of the SAGrid infrastructure. The first days was dedicated to the gLite middleware, services installation and configuration. The second part was dedicated to have the participants install sites, remotely (from the tutorial), at their home institutions http://agenda.ct.infn.it/conferenceDisplay.py?confId=534 .
30-1/5/2011	Helsinki, Finland	Computational methods in protein science workshop	20	Dissemination event about European resources available to Finnish researchers. Mr. Kimmo Mattila (CSC) gave a lecture concerning grid computing and guided a hands-on exercise about running virtual screening tasks in grid environment.
30/5/2011-9/6/2011	Stellenbosch, Africa	Africa 5 2011 - Joint CHAIN/SPECIAL/Epikh School for Application Porting	16	The Grid School aimed at increasing the number of scientific/industrial applications running on the SAGrid production infrastructure. The School also aimed at bringing new research groups to use the SAGrid resources as well as to diversity the application domains and scientific communities http://agenda.ct.infn.it/conferenceDisplay.py?confId=531 .
31/5-2/6/2011	JINR, Dubna, Russia	ATLAS Computing Technical Interchange Meeting	60	V.Ilyin (SINP MSU) Russian Grid Segment and Tier1 Perspectives V.Korenkov (JINR) Grid Activities in JINR A. Petrosyan, D.Oleynik (JINR) Dubna Tier 3 site. Current Status A. Petrosyan, D.Oleynik (JINR) Tier 3 Monitoring Project. Short term plans N.Kutouski(JINR) JINR infrastructure for Tier 3 simulation S. Belov, I. Kadochnikov (JINR) xRootd monitoring for local site. Tutorial.
2/6/2011	Singapore	1st Int. Workshop on Climate Change Data Challenges - (C2DC)	20	Conference URL: http://www.iccs-meeting.org/iccs2011/index.html Workshop URL: http://adm05.cmcc.it:8080/C2DC/Home.html

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
8-10/6/2011	Santander, Spain	5th Iberian Grid Infrastructure Conference	~ 70	<ul style="list-style-type: none"> - Co-coordination of the 5th Iberian Grid Infrastructure Conference and participation in the Scientific Advisory Committee and in the Editorial Board - Annual gathering discussion point for the DCI Iberian community for all activities from operations, applications and user support. Presentation of the major breakthroughs in the community - Conference URL: http://www.ibergrid.eu/2011/ - Programme URL: http://indico.ifca.es/indico/conferenceTimeTable.py?confId=358
9/6/2011	JINR, Laboratory of Information Technologies, Dubna, Russia	JINR Seminar on distributed computing and Grid-technologies	35	V.V. Galaktionov (JINR) "GridCom, GridCommander: graphical interface for Grid Jobs and Data management" http://www.jinr.ru/news_article.asp?n_id=934
20-23/6/2011	Santander, Spain	CMST workshop ICCSA 2011		The workshop (http://www.iccsa.org/sessions) was aimed at discussing user applications implemented on the EGI grid within the COMPCHEM activities. The discussion is extended to quality of users and quality of services
20-25/6/2011	Albena, Bulgaria	Special session: "HPC Grid Applications", during the 3 rd AMITANS Conference	More than 90 participants.	1 tutorial and 9 contributed talks were presented demonstrating achievements of the Bulgarian Grid applications in the domains: environmental protections, computational fluid mechanics, semiconductor physics etc. http://2011.eac4amitans.org/2.html
24/6/2011	Oxford, UK	UK NGI Technical Roadmap Workshop	7 UK ESFRI project representatives and 4 NGI/EGI staff	
27-28/6/2011	Bristol, UK	HealthGrid Conference	50	http://bristol2011.healthgrid.org/
06/7/2011	Birmingham, UK	UK NGI Technical Roadmap Workshop	15 UK HEIs and 4 NGI/EGI staff	
11-13/7/2011	Hanburg, Germany	WLCG Collaboration Workshop	120	http://indico.desy.de/conferenceDisplay.py?confId=4019
11-16/7/2011	Budapest, Hungary	Joint European DCI Summer School 2011		http://indico.lpds.sztaki.hu/indico/conferenceDisplay.py?confId=10 http://www.lpds.sztaki.hu/eudciss2011/

7.3. Other Conferences/Workshops Attended

Date	Location	Title	Participants	Outcome (Short report & Document Server URL to presentations made)
4-6/5/2011	Budapest	FET11		http://www.fet11.eu/
9-12/5/2011	Oslo	Nordugrid 2011	60	http://indico.hep.lu.se//conferenceTimeTable.py?confId=1047
11-13/5/2011	Prague, Czech Republic	22 nd EUGridPMA Meeting	13	https://www.eugridpma.org/meetings/2011-05/

12/5/2011	Amsterdam	Cloud workshop	2	
16-19/5/2011	Prague	Terena Networking conference	500	https://tnc2011.terena.org/web/media/archive
14-16/5/2011	2011 -06-14- 16	Zürich, Switzerland	Documentation workshop	9 (2 from CSC)
16-20/5/2011	Toulouse, France	CTA Meeting Toulouse		http://cta.irap.omp.eu/toulouse2011/
16-20/5/2011	Biodola, Elba island, Italy	Workshop CCR INFN GRID 2011		Coordination workshop with all INFN resource centers e and communities (URL:
17/5/2011	Lille, France	Lille Grid Day	45	Presentation of France Grilles (French NGI) and Life Sciences activities in France on grid infrastructure. Lille is a new site. http://indico.in2p3.fr/conferenceDisplay.py?ovw=True&confId=5324
17/5/2011	Sofia, Bulgaria	IPB at SEERA-EI meeting in Sofia	100	The Executive Agency “Electronic Communications Networks and Information Systems” of the Bulgarian government, as a part of SEERA –EI project activities, has organized a meeting on “HPC related policy and programs” for South Eastern Europe policy makers. This event is seen as a crucial step for planning the SEE common vision and strategy for eInfrastructures coordinated development and use. SCL's Antun Balaz present Serbian experiences, plans and expectations towards SEE high performance computing infrastructures development during the round table on "HPC initiatives in other SEE countries: Romania, Serbia, FYROM, Greece". More information and presentation is available at: http://www.scl.rs/news/743
18-20/5/2011	Garching at Munich, Germany	NGI-DE annual meeting	NGI-DE sites and others (D-Grid, IGE); about 80 participants from 12 countries	Talks from projects Initiative for Globus in Europe, D-Grid (including DGI-2) and EGI-InSPIRE; workshops on different topics such as support coordination, service monitoring, portals, security, accounting, GT4 migration, and others.
20-22/5/2011	Hisar, Bulgaria	Workshop for Supercomputer Applications	120	Liaison with national supercomputer applications project SuperCA++, contacts with scientific advisors and young researchers, presentations and discussions about other HPC and Grid applications from domain of biomedicine and statistical physics.
20-24/5/2011	Santiago de Compostela, Spain	Pierre Auger Observatory Analysis Workshop	Jiri Chudoba	http://fpaxp1.usc.es/aanalysis/
23-24/5/2011	Berlin, Germany	ASPIRE Workshop	66	S. Newhouse provided a presentation and S. Andreozzi chaired a break out session to lead the discussion. A number of areas were identified to focus on new development of new Internet services for research and education
23-26/5/2011	Newport Beach, CA, USA	CCGRID	200	1. Presentation of the paper « The Grid Observatory » (full paper) (see below for refs) 2. Member of the PC 3. Member of the judging panel for 4th International Scalable Computing Challenge (SCALE 2011) Site

				http://www.ics.uci.edu/~ccgrid11/
26/5/2011	Lyon, France	GRISBI 2011 days	50	http://www.grisbio.fr/evenements/journee2011/programme/ presentation of GRISBI, work done and future work
26/5/2011	Cork, Ireland	Lero / EMC Seminar	~20, 1 from NGL_IE	Presented NGL_IE involvement in EGI and other DCI projects. Made contact with Lero, Irish Software Engineering Research Centre and EMC (http://emc.com) research staff with intent to collaborate in future.
26/5/2011	Sofia, Bulgaria	Jubilee Session “ 50 years from the first computer centre in Bulgaria”	200	The President of Bulgaria and the Chairman of the Bulgarian Parliament gave speeches during the session. E. Atanasov presented the Bulgarian Grid Infrastructure and the contribution of the Bulgarian teams, researchers and developers of the Grid applications in the European e-infrastructure projects.
26-27/5/2011	Oslo	NOTUR2011	10	Norwegian HPC conference, where Norwegian EGI personell get to meet face to face. Link:
30-31/5/2011	Strasbourg, France	LCG France	60	presentation of France Grilles (French NGL) http://indico.in2p3.fr/conferenceDisplay.py?confId=4941
31/5-1/6/2011	Paris, France	Green Days @ Paris	30	The goal of this 2-days workshop was to build up the french community interested in green computing. A working group on instrumentation should be created 4T 2011, and the community will reconvene in January 2012. Site http://perso.enslyon.fr/laurent.lefevre/greendaysparis/
7/6/2011	Santander, Spain	5ª Reunión Plenaria de la Red Española de e-Ciencia	150	http://www.e-ciencia.es/FichaEvento.jsp?externos=null&IDEvento=25
8-10/6/2011	London	IWSG-Life11	38	IWSG-Life'11 brought together scientists from the field of life sciences, bioinformatics and computer science. The aim is to exchange experience, formulate ideas and introduce up-to-date technological advances in molecular and systems biology in the context of Science Gateways (https://sites.google.com/a/staff.westminster.ac.uk/iwsg-life2011/scientific-programme).
8-10/6/2011	Santander, Spain	Ibergrid 2011	150	EGI-INSPIRE Software Quality Criteria: http://indico.ifca.es/indico/contributionDisplay.py?contribId=27&sessionId=11&confId=358 http://www.ibergrid.eu/2011/
9-10/6/2011	CERN	Federated identity system for scientific collaboration		Problem addressed: federated security infrastructures for various ES data infrastructure (Earth System Grid for Climate data, GENESI for satellite data...) not interoperable with the one of EGI and even among them. An ES Grid user needs to get a collection of certificates to carry out ES applications. Discussions have been carried out for ES and several other domains. https://indico.cern.ch/event/12936

10-6/2011	Bern, Switzerland	Swiss National Grid Association - Scientific Advisory Council 2011	20	http://www.swing-grid.ch/event/306650-swing-scientific-advisory-council-2011
14-16/6/2011	Zurich	Documentation Workshop	2 (total of 6 + 3 remote participants)	https://www.egi.eu/indico/conferenceTimeTable.py?confId=481#20110614
14/6/2011	Lille, France	Grid Day		http://www.lifl.fr/~touzet/calculintensif11.html
14/6/2011	Otranto (Italy)	CMCC Annual Meeting	100	http://www.cmcc.it/publications-meetings/meetings/ottranto-13-15-june-2011-cmcc-annual-meeting
16-17/6/2011	Tbilisi, Georgia	The Regional Conference "THE WAY FORWARD FOR THE INFORMATION SOCIETY in the Eastern Europe and South Caucasus countries: Priorities and Challenges"	100	http://www.extend-ict.eu/closing-Conference
17-21/6/2011	Hamburg, Germany	ISC'2011	(10 from CSC)	Information about European resources available to researchers was distributed on the CSC stand.
24/6/2011	Paris, France	CNRS-CSIC meeting	10	
26/6-1/7/2011	JINR, University Centre, Dubna, Russia	Scientific school for Teachers from JINR member-states	41	S.Mitsyn (JINR) "What Grid is and how IT helps modern physics"
27/6/2011	Bristol, UK	HealthGrid	40	http://bristol2011.healthgrid.org/
27/6-8/7/2011	HTW Berlin	Grid educational event	50	Learning the Grid concept and job/data management on the Grids
31/6-1/7/2011	STFC RAL, UK	UK HEP SYSMAN meeting	~40, 7 from EGI	http://indico.cern.ch/conferenceDisplay.py?confId=145475
5/7/2011	JINR, Dubna, Russia	A session of the State Panel on high technology and innovations, devoted to development of scientific research infrastructures of facilities known as facilities of the "mega science" class, chaired by the Prime Minister of the Russian Federation V. V. Putin http://www.jinr.ru/news_article.asp?n_id=958	>100	Stand "Grid at JINR" presented and Google Earth dynamic overlays for WLCG and experiments shown See photo http://www.jinr.ru/img_news/11/080711/p1_b.jpg
4-8/7/2011	Stara Lesna, Slovakia	International Conference on mathematical Modeling and Computational Physics	78	V.V.Korenkov (JINR) "Grid Activity in Russia and JINR"
4-8/7/2011	Istanbul, Turkey	High Performance Computing and Simulation (HPCS-2011)		http://hpcs11.cisedu.info/program (run EGI booth during the conference as well as presented the accepted paper)
6/7/2011	Oxford	NGI Technical Roadmap Workshop for large projects	4 EGI people and 7 ESFRI/FP7 projects	
7/7/2011	Special Economic Zone "Dubna"	Student's scientific and technical school "Future personnel -2011"	>100	V.Mitsyn(JINR) excursion at the JINR Grid computing centre A.Uzhinsky(JINR) lecture "Grid activity in Russia and JINR"

	Dubna, Russia			
8/7/2011	University de Savoie EDYTEM, Bourget du Lac, France	User meeting of MUST: computing and storage facility of Savoie University		Agenda: http://indico.in2p3.fr/conferenceDisplay.py?confId=5353
8/7/2011	Bologna, Italy	IGI Portal		Workshop on portals and scientific gateways
13-29/7/2011	JINR, Dubna, Russia	2011 Student Practice in JINR Fields of Research	70	Lecture V.V.Korenkov (JINR)"Laboratory of Information Technologies" Practice for students on grid-technologies and parallel computing
23/7/2011	Bologna, Italy	IGI Portal		Workshop on portals and scientific gateways
26/7/2011	Dublin, IE	Research Prioritisation TWG3 Technology and Social Media, Creative and Cultural Enterprise		David O'Callaghan made a written submission on the importance of e-Infrastructure as an opportunity and setting out the NGLs strengths.

7.4. Publications

Publication title	Journal / Proceedings title	DOI code	Journal references	Authors Initials	Authors Surname
Capabilities of the HPC Grid cluster at IICT-BAS	Automatica& Informatics		Accepted, 2011	E. T. A.	Atanassov Gurov Karaivanova
Framework for Service Composition in g-Lite	AIP Conference proceedings		Accepted, 2011		Radoslava Goranova
Atmospheric Composition of the Balkan Region and Bulgaria. Some Numerical experiments	AIP Conference proceedings		Accepted, 2011	G. D. K. A. N. G. M.	Gadzhev, Syrakov, Ganev, Brandiyska, Miloshev, Georgiev, Prodanova
Quantum Critical Transport Near the Mott Transition	Phys. Rev. Lett.	10.1103/PhysRevLett.107.026401	107 (2011) 026401	H. J. D. V.	Terletska, Vucicevic, Tanaskovic, Dobrosavljevic
The Role of Disorder on the Electronic Structure of Conjugated Polymers. the Case of Poly-2,5-bis(phenylethynyl)-1,3,4-thiadiazole	Phys. Chem. Chem. Phys.	10.1039/c1cp20329k		J. M. N. M.	Granadino-Roldan, Vukmirovic, Fernandez-Gomez Et al.
Nonlinear Bose-Einstein-condensate Dynamics Induced by a Harmonic Modulation of the S-wave Scattering Length	Phys. Rev. A	dx.doi.org/10.1103/PhysRevA.84.013618	84 (2011) Accepted	I. A. H. A.	Vidanovic, Balaz, Al-Jibbouri, Pelster

The DECIDE Science Gateway				V. A., R. B., T. C., G. L., S. M., F. P., R. R., D. S., I. C., A. S., D. P., L. L., K. J. B., F. T., J. G., B. V., G. F.	Ardizzone, Barbera, Calanducci, Fargetta, La Rocca, Monforte, Pistagna, Rotondo, Scardaci, Castiglioni, Schenoni, Perani, Leone, Blinowska, Turkheimer, Babiloni, Georges, Vellas and Frisoni
Grid technology For hydrological application	Journal of Hydrology,	DOI 10.1016 /j.jhyd rol.2011.04.03	Vol. 403, 1-2, 186-199, 2011.	G. M. L. M. N. N. V.	Lecca Petitdidier Hluchy, Ivanovic, Kussul, Ray, Thieron
The Grid Observatory	In 11th IEEE/ACM Int. Symp. On Cluster, Cloud and Grid Computing, pp 114 – 123, May 2011		pp 114 – 123, May 2011	C. A. P. M. C. J. J. M.	Germain Renaud Cady, Gauron Jouvain, Loomis, Martyniak, Nauroy, Sebag
Towards non-stationary Grid models.	Accepted for publication in The Journal of Grid Computing		9 :4, December 2011 (regular issue).	T. C. P. M.	Elteto , Germain Renaud, Bondon, Sebag.
The ClimateG testbed: towards large scale distributed data management for climate change.	Proceedings of the International Conference on computational science, 1-3 June 2011.			S. G. P. M. H. S. J. A.	Fiore, Aloisio, Fox, Petitdidier,. Schwichtenberg, Denvil, Blower, Cofino
Recent improvements in HLRmon, an accounting portal suitable for national Grids	Proc. of the 2011 International Conference on Grid Computing and Applications	ISBN: 1-60132-181-3 pp. 10-13		M.	Savic
Optimization of intermolecular interaction potential energy parameters for Monte-Carlo and molecular dynamics simulations	Eighth International Conference on "Large Scale Scientific Computations", June 6-10, 2011, Sozopol, Bulgaria			D.	Shahpaski
Experience on running the Ibergrid infrastructure within EGI	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9			I. E. A.	Campos Fernandez Lopez
Fostering multi-scientific usage in the Iberian production infrastructure	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9			G. M. H.	Borges David Gomes

Towards Green Computing	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9			A. C. E.	Simon Fernandez Freire
EnergySaving Cluster experience in CETA-CIEMAT	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9			M.F. J.C. S.	Dolz Fernandez Iserte
Focusing on an integrated computing infrastructure: the IFCA experience	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. López García, P. Orviz Fernández, I. Cabrillo Bartolomé
Orchestrating Services on a Public and Private Cloud Federation	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				J. Ejarque, J. Álvarez, H. Muñoz, et al.
COMPSs in the VENUS-C Platform: enabling e-Science applications on the Cloud	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				D. Lezzi, R. Rafanell, F. Lordan, et al.
Merging on-demand HPC resources from Amazon EC2 with the grid: a case study of a Xmipp application	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Lorca, J. Martín-Caro, R. Núñez-Ramírez, et al.
An Automated Cluster/Grid Task and Data Management System	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				L. Miranda, T. Sá, A. Pina, et al.
DISET protocol for DIRAC	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Casajús, R. Graciani
LHCb Grid resource usage in 2010 and beyond	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				R. Graciani, A. Casajús
Aggregated monitoring and automatic site exclusion of the ATLAS computing activities: the ATLAS Site Status Board	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				C. Borrego, A. Di Girolamo, X. Espinal, et al.

A Geographical Information System for wild ?re management	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Pina, A. Esteves, J. Puga, V. Oliveira]
Extending a desktop endoscopic capsule video analysis tool used by doctors with advanced computing resources	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				I. C. Oliveira, E. Dias, L. Alves, et al.
Exchanging Data for Breast Cancer Diagnosis on Heterogeneous Grid Platforms	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				D. Segrelles, J. M. Franco Valiente, R. Medina, et al.
Analyzing Image Retrieval on Grids	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				O. D. Robles, P. Toharia, J. L. Bosque, et al.
The CHAIN Project	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				F. Ruggieri, A. Alberto, G. Andronico, et al.
Stellarator Optimization Using the Grid	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Gómez-Iglesias, F. Castejón, M. A. Vega-Rodríguez
OptiWeb: An optimization application for steel cut industries ported to the Grid in the framework of PireGrid project	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				J. Ibar, G. Ruiz, A. Tarancón, et al.
DataLight: data transfer and logging of large output applications in Grid environments	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				P. Abreu, R. Fonseca, L. O. Silva
Software Provision Process for EGI	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				M. David, G. Borges, J. Gomes, et al.
Support to MPI applications on the Grid	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				E. Fernández del Castillo]
EGI-InSPIRE Software Quality Criteria	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Simón, C. Fernández, I. Díaz, et al.

An Aspect-Oriented Approach to Fault-Tolerance in Grid Platforms	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				B. Medeiros, J. L. Sobral
A SLA-based Meta-Scheduling in Advance System to Provide QoS in Grid Environments	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				F. J. Conejero, L. Tomás, B. Caminero, et al.
Vulnerability Assessment Enhancement for Middleware	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				J. Serrano, E. Heymann, E. Cesar, et al.
Web interface for generic grid jobs, Web4Grid	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Tugores, P. Colet
Population-Based Incremental Learning Algorithm to Search for Magic Squares	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				M. Cárdenas-Montes, J. M. Franco Valiente, A. Cortés Fácila, et al.
WRF4G: simplifying atmospheric modeling experiment design in distributed environments	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				V. Fernández-Quiruelas, L. Fita, J. Fernández, et al.
GSG Tool: General Scripts on Grid Creating generic scripts for problems on Astrophysics	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				J. R. Rodón, A. D. Benítez, M. Passas, et al.
Simulation of batch scheduling using real production-ready software tools	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Lucero
Analysis of Xen efficiency in Grid environments for scientific computing	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				A. Tugores, P. Colet
Datacenters infrastructures remote management: a practical approach	Proceedings of the 5th IBERGRID. ISBN: 978-84-9745-884-9				E. de Andrés, A. Fuentes, T. de Miguel
From EGEE Operations Portal towards EGI Operations Portal	ISGC 2010, Taiwan. Proceedings	S.C. Lin et E. Yen "Data Driven e-Science: Use Cases and Successful Applications of Distributed Infrastructures", Springer pp. 129-140			H.Cordier, C.L'Orphelin, S.Reynaud, O.Lequeux, S.Loikkanen, P.Veyre

A federated system for sharing and reuse of images and image processing tools in neuroimaging	Computer Assisted Radiology and Surgery	CARS'11	Berlin, Germany, June 2011	B F C F	Gibaud, Ahmad, Barillot, Michel et al.
NeuroLOG: A framework for the sharing and reuse of distributed tools and data in neuroimaging	Organization for Human Brain	OHB'11	Québec city, Canada, June 2011	M M F C	Dojat Péligrini-Issac Ahmad Barillot et al.
g-INFO portal: a solution to monitor Influenza A on the Grid for non-Grid users	HealthGrid'11	HG'11	Bristol, UK, June 2011	T-T Q-M T-H H-P	Doan Dao Vu Pham et al.
Multi-infrastructure workflow execution for medical simulation in the Virtual Imaging Platform	HealthGrid'11	HG'11	Bristol, UK, June 2011	R S B V	Ferreira Da Silva Camarasu-Pop Grenier Hamar et al.
Studies of Resistive Wall Mode stability in multi-parametric space using Grid infrastructure	38th European Physical Society (EPS) conference on Plasma Physics			D T M M P	Yadykin Žok Plóciennik Owsiak Strand
“The Climate-G Portal: The context, key features and a multi-dimensional analysis”	Future Generation Computer System	doi:10.1016/j.future.2011.05.015		S A G	Fiore Negro Aloisio
“Grid and Cloud Database Management”		Springer, ISBN: 978-3-642-20044-1, 1st Edition., 2011, 353 p. [available online on July 31, 2011]		S G	Fiore Aloisio (editors)