EGI-InSPIRE

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Abstract

An overview of the EGI-InSPIRE project between 1st August 2011 and 31st October 2011 covering project quarter 6 (PQ6)



I. COPYRIGHT NOTICE

II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Steven Newhouse	EGI.eu	16/11/2011
Reviewed by	**AMB & PMB**		15/12/2011
Approved by	**AMB & PMB**		16/12/2011

III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	16/11/2011	First draft	S. Newhouse et al.
2	14/12/2011	Second draft	S. Newhouse et al.
3	15/12/2011	Version for PMB review	S. Newhouse et al.

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.

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1. EXECUTIVE SUMMARY

All activities across the project contributed greatly to the success of the EGI Technical Forum that was held in Lyon, France from 19-23 September 2011, and organised in collaboration with local hosts CC-IN2P3 and France Grilles. In total, 655 participants registered for the event, the largest attendance at an EGI event to date. The event was collocated with the Open Grid Forum, Grid2011, GlobusEUROPE, a French Grid Day and the 9th e-Infrastructure Concertation meeting.

Two federated Operations Centres, namely IT and DECH ROC (formerly operating Italy, Germany and Switzerland), were decommissioned as these countries are now established as NGI Operations Centres. The integration of the South African Grid (SAGrid) as a new integrated Resource infrastructure Provider started after finalization of the related MoU in September 2011. The first Resource infrastructure Provider Operational Level Agreement (OLA) which defines the responsibilities of and services provided by an NGI was approved and will be incrementally expanded as monitoring and Availability/Reliability reporting evolve, to include NGI services that are currently not monitored. The first version of the Metrics Portal (https://metrics.egi.eu/) supporting EGI-InSPIRE quality assurance activities was deployed in to production. Security Service Challenge 5 (SSC5) used new tools to run at a scale four times larger than previous SSC runs and the results are now being processed.

Of the three UMD releases in PQ6 (http://repository.egi.eu), 31 products involving 49 test deployments were conducted during staged rollout of which 3 products were rejected. For the first time this included a selected list of GLOBUS components. The established process for continuous improvement of Quality Criteria produced the second release of Quality Criteria for UMD software, while the third release is already drafted, and scheduled for publication in 6 months time. The post-provisioning support for middleware provided by the DMSU continued following established processes allowing team members to focus on gaining experience in supported Grid middleware. Consequently the DMSU's ratio of solving tickets increased to 20% of all tickets processed by the DMSU, thus improving overall service quality and reducing support load on the 3rd level support units. Additionally, the DMSU contributed documentation for specific product configuration, as well as general platform-specific documentation for UMD.

The technical services have been coming to the end of their 6 month development cycle and released updated services at the EGITF11 for dissemination and feedback from the community. A focus across all of the technical services is the gadgets which enable the technical services to be easily embedded into other webpages. The UCST setup a central section in the EGI webpage to collect and report about gadget-related activities

During PQ6 external relations were promoted through five MoUs and articles were published in Supercomputing Online, HPC in the Cloud, International Innovation, Public Service Review: European Union 22 and there were 3 EGI items in iSGTW.

The first phase of the project restructuring coming out of the first EC review was completed with the merging of NA2 and NA3 to establish the NGI International Liaison and a model of working through virtual teams that will enable a more dynamic and inclusive response to tackling common issues facing the EGI community.



2. OPERATIONS

2.1. Summary

Two federated Operations Centres, namely IT and DECH ROC (formerly operating Italy, Germany and Switzerland), were decommissioned as these countries are now established as NGI Operations Centres. The integration of the South African Grid (SAGrid) as a new integrated Resource infrastructure Provider started after finalization of the related MoU in September 2011. Two new MoUs that will bring to a further extension of the integrated infrastructures are being finalized: the EDGI MoU for the integration of desktop grids and the Ukraine MoU aiming at the integration of the Ukrainian NGI.

The first Resource infrastructure Provider Operational Level Agreement (OLA) was drafted and approved in the October OMB meeting[1]. This is a major accomplishment as for the first time a document defining NGI responsibilities and services was approved. The OLA will be incrementally expanded as monitoring and Availability/Reliability reporting evolve, to include NGI services that are currently not monitored. Together with this OLA, a template for VO Service Level Agreements involving VOs and NGIs was drafted[2]. This document will provide a guideline to define service level targets for the VO-dedicated services operated by NGIs. The first version of the Metrics Portal[3] supporting EGI-InSPIRE quality assurance activities was deployed in to production. SA1 significantly contributed to the debugging of the tool.

EGI.eu's operational tool configuration in the GOCDB was updated and refactored. All central operational tools are now part of an "EGI.eu" group, and new service types were added for each operational tool to replace EGEE legacy service types and assign new types to new services[4]. At the same time, all regional operational tools instances were transferred to NGIs. Security Service Challenge 5 (SSC5) used new tools to run at a scale four times larger than previous SSC runs and the results are now being processed. Of the three UMD releases in PQ6, 31 products involving 49 test deployments were conducted during staged rollout of which 3 products were rejected. For the first time this includes a selected list of GLOBUS components.

A questionnaire for NRENs about IPv6 was distributed to collect feedback from NGIs in order to develop a strategy plan according to the input received. IPv6 compliance was also addressed during the October TCB meeting. The output of the survey is being processed[5]. Activities will be carried out in collaboration with the HEPiX IPv6 Working Group. An MoU with DANTE is being discussed.

The GGUS documentation was migrated to the EGI wiki. GGUS usability was improved and a workshop was organized also involving EMI and WLCG to discuss the development roadmap of the GGUS report generator. The GOCWIKI was decommissioned as all the data has been transferred to the EGI wiki.

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[1] https://documents.egi.eu/document/463

[2] https://documents.egi.eu/document/725

[3] https://metrics.egi.eu/

[4] https://rt.egi.eu/rt/Ticket/Display.html?id=2587

[5] https://wiki.egi.eu/wiki/IPv6

2.2. Main Achievements

2.2.1. Security

Analysis of PY1 review. The PY1 review report was analysed and a risk assessment plan defined to address the reviewers' comments. The plan will be documented in deliverable D4.4 and actual risk assessment activities will follow. An initial team of experts that will be engaged in risk assessment activities was appointed.

Security procedures, milestones and deliverables. EGI CSIRT security incident handling procedure has been updated[6]. The SVG vulnerability issue handling procedure is updated and placed in the permanent location. EGI SVG agreed a procedure with gLite (who maintain repositories and releases) for ensuring vulnerabilities continue to be fixed until the end of security support for gLite 3.1 and gLite 3.2.

Work on the EGI Security Risk Assessment (D4.4) has begun. This includes a plan for a high level security assessment of EGI which will be carried out in the coming months. A team was created of members willing to participate to risk assessment activities.

Security Service Challenge 5. EGI CSIRT Security Service Challenge 5 results were disseminated in media such as ISGTW[7] and Inspired Autumn 2011[8]. A presentation about SSC5 was also given at the Grid Deployment Board of WLCG[9]. Security Service Challenge 5 site reports are still being processed: this task is delayed due to more development work needed for the report generator. A new monitoring framework[10] was implemented and used to monitor the leaked proxy during SS5 activities.

Security dashboard. The Security Dashboard is now integrated with the EGI operations portal and is accessible from the production instance of the Operations Dashboard[11]. EGI CSIRT is currently tidying the information in the dashboard so that it can be used by sites and NGIs. A few issues were identified and corrected and several Nagios probes have been updated during this process. A paper abstract on the EGI security monitoring infrastructure was submitted to ISGC2012.

EGI CSIRT organized security training at EGITF11[12]. The training has been well received.

Liaison with OSG. The exchange of information about security issues being handled in the two infrastructures is being discussed. GGUS is already interfaced with the OSG ticketing system, however it does not ensure confidentiality of security information. A different exchange mechanism is being discussed.

2.2.2. Service Deployment and Integration

[6] https://documents.egi.eu/document/649

[7] http://www.isgtw.org/feature/48-hour-grid-security-challenge

[8] http://www.egi.eu/results/newsletters/Inspired_Autumn_2011/Report_on_the_SSC5.html

[9] http://indico.cern.ch/conferenceDisplay.py?confId=106648

[10] https://wiki.egi.eu/wiki/Security_drills_framework

[11] https://operations-portal.egi.eu/csiDashboard

[12] https://www.egi.eu/indico/sessionDisplay.py?sessionId=57&confId=452#20110922 and https://www.egi.eu/indico/sessionDisplay.py?sessionId=57&confId=452#20110923

Staged rollout activities during PQ6 were focused on the release of UMD 1.1.0, 1.2.0 and 1.3.0. In PQ6 31 products entered staged rollout of which 3 were rejected as a result of 49 staged rollout tests. This includes a selected list of Globus components which were released for the first time in UMD 1.2.0.

The number of Early Adopter sites has been increasing even though it is not considered to be sufficient yet as for some products only a single early adopter site is available. The participation of NGI_UK has increased and several sites from the UK have committed to test several products.

Several issues were discovered in the software provisioning process leading to the release of UMD 1.0.0. These processes were streamlined to address them and it is now documented on the wiki[13]. A process was also defined in order to handle conflicting staged rollout results when a blocking issue is found by an early adopter site, but no evidence of the problem is found by other sites. A risk assessment procedure was established to assess the differences in the involved scenarios, the impact of a change on the end-users, and the OMB is authoritative policy board to approve or reject the involved products. These were captured in Deploying software into the EGI Production Infrastructure (MS409)[14].

Wiki articles were improved to provide a better overview of the status of software products from release to stage rollout. The wiki now provides information about the products that will be released in UMD[15].

2.2.3. Help desk & Support Activities

GGUS Support Units. Various new NGI support units have been introduced during PQ6: NGI_UK and NGI_ZA, StratusLab, EGI Software Provisioning Support (with an interface to the EGI RT system) and SLM. The Support Units decommissioned are: NUST, R-GMA, and ROC_UK/Ireland. All decommissioned support units have been moved to the list of former support units. Finally, VO "mice.gridpp.ac.uk" was added to the list of VOs which provide support via GGUS.

GGUS Documentation. The documentation on GGUS interfaces has been moved from PDF files stored at the GGUS server to the EGI wiki[16].

Improved usability and report generation. A "Did you know?" page was introduced directing people's attention to the latest features and features not widely known. For user's convenience a downtime check in GOC DB was introduced notifying in case of downtimes of a site specified on ticket submit form. The search results have been extended by a column "Type of Problem" which can be ticked for displaying it. User's submitting TEAM or ALARM tickets can now select a "Problem Type". "Problem Type" values are a sub-set of the "Problem Type" values available for USER tickets. The search engine was extended by searching for user DNs.

A workshop involving EGI (Operations, DMSU, Software Provisioning and the Metrics Portal), EMI and WLCG was organized to evaluated and prioritized requirements[17].

[13] https://wiki.egi.eu/wiki/Staged-rollout-procedures

[14] https://documents.egi.eu/document/478

[15] https://wiki.egi.eu/wiki/Middleware#Software_provisioning_dashboard

[16] https://wiki.egi.eu/wiki/Category:FAQ_Interfaces_%28GGUS%29

GGUS Interfaces. SNOW is the ticketing system of CERN. Besides support unit "ROC_CERN" a lot of the EMI 3rd level middleware support units are located at CERN and using SNOW. A big effort has been made for defining the processes and implementing ticket synchronization between GGUS and SNOW. Nevertheless further enhancement is needed.

Grid oversight. Two ROD team newsletters were issued (August and October)[18].

The results of a questionnaire distributed to ROD teams were discussed. Purpose of the questionnaire was to collected feedback on national grid oversight activities. COD collected information on operational tools, documentation, video tutorials, and newsletters etc. A total of 44 responses were received, which COD rates as very valuable. From 12 NGIs more than one response was submitted. The outcome was discussed during the Grid Oversight session at the EGITF11[19].

During the EGITF11 additional topics were addressed: the new simplified escalation procedure (PROC01) that came into force on 1st October 2011, metrics for the monitoring of ROD performance (needed for the Resource infrastructure Provider OLA) and management of non-OK alarms. Three ROD metrics were proposed and will be prototyped (these will be periodically published in the ROD newsletter) and from October 2011 NGIs not meeting the minimum performance threshold will be requested to provide explanations in GGUS tickets.

NGIs were identified that were closing alarms in non-OK status because of invalid or insufficient reasons. Those NGIs were approached by the COD team and asked to improve their implementation of the procedures.

Recently, COD identified an issue with the availability and reliability metrics, which include a substantial amount of UNKNOWN test results for individual sites as well as for all sites in an entire NGI. Since UNKNOWN test results are not taken into account in the availability/reliability metrics, this problem undermines validity of the availability and reliability metrics distributed monthly. Currently this issue is under investigation[20].

Network Support. A network support session was held during the EGITF11[21] to update the community about the status of network monitoring tools being offered for troubleshooting and performance measurement (HINTS, PerfSONAR MDM for e2eMON and NetJobs)[22], and to kick-off the discussion about the involvement of NGIs in IPv6 compliance testing activities. The EGEE DownCollector tool was decommissioned as not being compatible with GOCDB4.

A questionnaire for NGIs about IPv6 was distributed to collect feedback from NGIs and to develop a strategy plan according to the input received. IPv6 compliance was also addressed during the October

[17] https://www.egi.eu/indico/conferenceDisplay.py?confId=655

[18] https://documents.egi.eu/document/298

[19] https://www.egi.eu/indico/contributionDisplay.py?contribId=35&confId=452

[20] https://wiki.egi.eu/wiki/Grid_operations_oversight/Unknown_issue

[21] https://www.egi.eu/indico/conferenceTimeTable.py?confId=452#20110919

[22] https://wiki.egi.eu/wiki/Network

TCB meeting. The output of the survey is being processed[23]. Activities will be carried out in collaboration with the HEPiX IPv6 Working Group.

A MoU is being discussed with DANTE.

2.2.4. Infrastructure Services

Messaging. The new version of the messaging broker ActiveMQ 5.5 was tested in October. For testing purposes an additional broker network was set up. The testing network consisted of 4 brokers (2 at AUTH and one at CERN and SRCE) and passed all the tests. The main issue with the new broker is the lack of proper packaging and Yaim module which needs to be resolved prior to upgrade of the production instances.

Metrics Portal. The Metrics portal[24] was rolled to production for deployment in PQ6.

Operations Portal. Two new versions of Operations Portal were deployed in PQ6: 2.6.3 (05/08/2011) and 2.6.4 (29/09/2011). The detailed list of new features can be found later on in this section. At the end of the quarter there were four NGI instances: NGI_BY, NGI_CZ, NGI_GRNET and NGI_IBERGRID. Decommissioning of the old CIC portal (cic.egi.eu) was postponed and is planned in PQ7.

SAM. Two new versions of SAM were released in this quarter: SAM-Update13 (07/09/2011) and SAM-Update14 (22/10/2011). SAM/Nagios deployment of NGI instances continued. As part of the creation of NGI UK, UKI ROC SAM instance was switched to NGI instance covering two NGIs: NGI_IE (Ireland) and the new NGI_UK. At the end of the quarter following SAM/Nagios instances were in production[25]:

- 26 NGI instances covering 37 EGI partners;
- 2 ROC instances covering 2 EGI partners
- 1 project instances covering 1 EGI partners
- 3 external ROC instances covering the following regions: Canada, IGALC and LA.

Starting with SAM-Update13 SAM uses a new test to check the EGI Trust Anchor versions on worker nodes. The new test is included in OPERATIONS tests and AVAILABILITY tests (and consequently has an impact in case of failure on the Availability/Reliability monthly reports). The main new feature of the new CA test is that metadata provided in the CA release is used so that there is no need for manual updates of the CA probe package for each new CA release.

Monitoring of core services and operational tools. EGI.eu operational tool configuration in the GOCDB was updated and refactored. All central operational tools are now part of an "EGI.eu" group, and new service types were added for each operational tool[26]. At the same time, all regional operational tools instances were transferred to NGI sites[27]. This reorganization will enable the

[23] https://wiki.egi.eu/wiki/IPv6

[24] http://metrics.egi.eu/

[25] https://wiki.egi.eu/wiki/SAM_Instances

[26] https://rt.egi.eu/rt/Ticket/Display.html?id=2587

[27] https://www.egi.eu/indico/conferenceDisplay.py?confId=549

automatic bootstrap of SAM instance for operational tools and the integration with MyEGI web interface and ACE system for A/R calculation.

The reorganization of NGI core services in the GOCDB was proposed at the October OMB[28]. This reorganization will enable the generation of NGI-level Availability/Reliability calculations, which are currently not available as NGI services are spread across multiple NGI sites.

EGI Technical Forum 2011. Several sessions related to operational tools were organized including one on "Operations Tools and Availability Calculation"[29]: the main topics were:

- Presentation of SAM and ACE architecture with discussion about NGI and EGI core services ACE profiles. This discussion was continued on dedicated session on September 30th.
- Presentation of the new SAM instance for operational tools monitoring.
- Discussion about the very high percentage of UNKNOWN status in monthly Availability/Reliability reports[30].

In addition, progress was made in other areas:

- Agreement on the integration of EMI probes and the future SAM release process.
- Integration of Desktop Grids Nagios probes into SAM and of Desktop Grid services into GOCDB in collaboration with the EDGI project[31].

Accounting repository. The production accounting repository ran with no internal problems in PQ6. There was one unscheduled network break of seven hours at RAL and a few very small firewall scheduled outages which prevented the service receiving new data. This data would all have been received the next time the affected clients tried to publish.

Much support work has been with sites who have been publishing the wrong SPECInt value for part or all of their cluster. Others needed to change the Java memory limits or required support in order to republish data after they had made configuration changes.

All the APEL team attended the EGITF11. Although our main interaction was in JRA1 workshops there was much useful networking on production issues.

There is now a test repository to receive tests from other sites developing their software against Secure Stomp Manager (SSM) the new STOMP and Python-based messaging layer which runs on the production EGI Messaging Infrastructure. SSM Transfers files between computers: one SSM is needed at each (Producer and Consumer). If SSMs are working, then files get sent reliably. With this approach the messaging is separated from storage; for example if the database is down but the consumer is still up, incoming messages are still written to disk.

The team engaged with developers from UNICORE, ARC, and IGE in a series of phone calls and meetings to discuss how they will publish accounting data to the central repository. Progress was made

[28] https://www.egi.eu/indico/conferenceDisplay.py?confId=615

[29] https://www.egi.eu/indico/sessionDisplay.py?sessionId=78&confId=452#20110920

[30] https://www.egi.eu/indico/contributionDisplay.py?contribId=395&confId=452

[31] http://edgi-project.eu/

in each of these. During the EMI All Hands Meeting the EGI Accounting Infrastructure was presented[32].

Accounting Portal. Release "Canopus" (v4.0) was deployed in production. The service ran smoothly. The new version uses a new codebase and versioning system, with GGUS referenced commits. URL management was improved. The pchart 2.0 graph engine was introduced. In addition, FQAN-based accounting views were implemented for "VO manager" and "site" views. Many bugs were fixed and minor enhancements were released.

Availability. Four sites in total were suspended because of poor availability. Information about the underperforming sites and the related incident tickets is available on wiki[33].

The first Resource infrastructure Provider Operational Level Agreement (OLA) was drafted and approved in the October OMB meeting[34]. This is a major accomplishment as for the first time a document defining NGI responsibilities and services was approved. The OLA will be incrementally expanded as monitoring and Availability/Reliability reporting evolve, to include NGI services that are currently not monitored. Together with this OLA, the template for VO Service Level Agreements involving VOs and NGIs was drafted[35]. This document will provide a guideline to define service level targets for the VO-dedicated services operated by NGIs.

Following the approval of the OLA, the first NGI Core service Availability/Reliability report was distributed. Software was developed by EGI.eu to extract results from the MyEGI portal[36] and produce summarized Availability/Reliability reports[37]. These for the moment only include top-BDII. In order to produce this report, the list of authoritative NGI top-BDII instances had to manually gathered and verified across the whole EGI.

The EGI sites availability recalculation procedure was finalized (PROC10)[38]. To support this procedure, and in general to support Resource Centres and NGIs in case of problems with the distributed performance reports, the Service Level Management Support Unit was created in GGUS.

Finally the extension of the availability profile for the generation of site-BDII Availability/Reliability statistics was approved, and will be implemented in November.

Documentation. A documentation and operations training session was held during the EGITF11. This covered procedure PROC01[39], the GGUS FAQ and Nagios from the perspective of RODs and SAM Nagios administrators (about 30 participants).

GOCWIKI was decommissioned and relevant material had been updated and migrated to the EGI wiki. Various procedures were updated or created:

[32] http://indico.cern.ch/getFile.py/access?contribId=16&sessionId=5&resId=2&materialId=slides&confId=147484

[33] https://wiki.egi.eu/wiki/Performance

[34] https://documents.egi.eu/secure/ShowDocument?docid=463

[35] https://documents.egi.eu/document/725

[36] https://grid-monitoring.egi.eu/myegi/

[37] https://wiki.egi.eu/wiki/Availability_and_reliability_monthly_statistics#Performance_reports

[38] https://wiki.egi.eu/wiki/PROC10

[39] https://wiki.egi.eu/wiki/PROC01

- PROC01 “COD Escalation Procedure” was also updated to streamline the escalation process.
- PROC02[40] “Operations Centre creation” was updated to include the approval of the Resource infrastructure Provider OLA during the establishment of a new Operations Centre.
- PROC10 “Recomputation of monitoring results and availability statistics” was approved (see above).

In addition, documentation, training and support wiki pages were significantly updated by EGI.eu:

- https://wiki.egi.eu/wiki/Operations_Manuals
- https://wiki.egi.eu/wiki/TrainingGuides
- https://wiki.egi.eu/wiki/Support

2.2.5. Tool Maintenance and Development

All the JRA1 Product Teams (PTs) attended the EGITF11 where various JRA1 sessions were organised. These include: an OTAG meeting, an accounting tutorial, an accounting development workshop, an Operations Tools and Availability Calculation workshop and the “tools marketplace” held to advertise NGIs internally developed tools. Many side meetings were organised in particular on the topic of integration of new middlewares (UNICORE and DesktopGrids) in the monitoring infrastructure, involving developers from SAM, GOCDB and Operations Portal PTs. PQ6 also saw the involvement of JRA1 representatives in the activities of the EGI Federated Cloud Task Force which will continue during the next PQs.

GOCDB

The main activity of the GOCDB PT during the quarter is summarised in the following points:

- GOCDB v4.1 was released on 01-11-2011. This is now production and is available as a tagged download. This is a major release which includes some significant code changes; including a new MVC view architecture and an updated atomic PROM database API. These developments have constituted the majority of work in PQ6.[41]
- New ‘View Site’ and ‘View Service Endpoint’ pages to address user issues. These interfaces also support entity scoping for the pending v4.2 release (not currently deployed).
- New Downtime interface much improved, moved to single page and can now select all endpoints under one site.
- Continued development for the data scoping/tagging facility in the central GOCDB.
- Added current UTC time to New Downtime page[42]
- Added context sensitive page titles[43]
- Added "All" button to table view[44]

[40] https://wiki.egi.eu/wiki/PROC02

[41] https://wiki.egi.eu/wiki/GOCDB/Regional_Module_Technical_Documentation#Download

[42] https://rt.egi.eu/guest/Ticket/Display.html?id=1210

[43] https://rt.egi.eu/rt/Ticket/Display.html?id=1109

[44] https://rt.egi.eu/guest/Ticket/Display.html?id=974

SAM

During PQ6 there were many improvements in the development and deployment of the Service Availability Monitoring (SAM). We have extended the central services for EGI, contributed to the handover of the probes to EMI and performed three major releases. Update 13 and 14 are already released in production, while update15 is currently in staged rollout. The details of each update:

SAM Update 13

- Failover Nagios instance has been introduced in a configurable hot-standby mode [45]
- Improvements in the sanity checking of the ATP VO feeds
- Performance limits were introduced for the Web services part of MYEGI portal
- SAM administrators can switch on notifications to subset of sites. Also, it is possible to enable multiple contacts per site or per host. Enabling contacts per host is useful for core services.
- Gathering performance statistics of the metric results store (MRS)
- Removing metric from an alias on host with multiple aliases was enabled
- Clean-up of dependencies in the metapackages was performed

SAM Update 14

- New metapackages were introduced to improved deployment of the SAM instances
- MyEGI gridmap has introduced displaying summary of Logical CPUs, Physical CPUs and HSPEC06 numbers
- Support for multiple regions in NGI installations was added
- The old gridmap interface has been decommissioned
- Improvements in the logging and bookkeeping of the Aggregated Topology Provider (ATP) were introduced
- Metric Results Store will now reject results older than seven days
- UNICORE probes were integrated[46]
- The old SAM CA probe[47] was removed from SAM. The new CA probe is used for checking CA version and is included in sites' availability calculation. The main advantage of the new probe is that it does not require release of SAM probes with each IGTF CA release.

SAM Update 15

- Decreased delay in availability computations (now between 15 and 75 minutes)
- Improved scheduling and logging mechanism in the Availability Computation Engine (ACE)
- Support for EGI operational tools in the Aggregated Topology Provider (ATP)
- Improved validation of ATP synchronizers' input data

[45] Failover configuration

[46] SAM setup for UNICORE services

[47] https://tomtools.cern.ch/confluence/display/SAM/WN#WN-org.sam.WNCAver

- Automatic retrieval and synchronization of service flavours from GOCDB
- New probes monitoring entries in Metric Results Store (MRS) were introduced
- GLUE 2 publication in Nagios GlueService
- Reduced browser cache time to 10 minutes in MyEGI Portal
- MyEGI filters are now visible by default
- Improvement of error messages and error handling in MyEGI web services
- The first testing version of Profile management system (Poem) is distributed in this release.
- Added access statistics to the central MyEGI portal
- ARC metrics moved to the default NGI/ROC profile
- Improved NCG concurrency behaviour (new configuration stored to temporary directory, locking mechanism introduced, stopping ncg service cleans all remaining processes)
- Improved uncertified sites setup for CREAMCE metrics
- Introduction of the eu.egi.sec probes (support for both gLite and ARC probes in security monitoring)

In addition, we have made progress on improving the authentication and authorization to the central EGI message brokers and participated at the EGITF11 and gave presentations on SAM overall status, Availability Computation Engine (ACE) and plans for the future. A joint meeting with EMI and EGI on the technical details of the probes handover was organised.

GGUS

Support Units: Some new support units have been introduced during PQ6. They are

- NGI_UK
- NGI_ZA
- StratusLab
- EGI Software Provisioning Support (interfaced to the EGI.eu RT system)
- SLM

Support units decommissioned in PQ6 are:

- NUST
- R-GMA
- ROC_UK/Ireland

All decommissioned support units have been moved to the list of former support units. The "Operations" support unit was moved from category "Other" to category "EGI" in the support unit drop down list.

VOs: The VO “mice.gridpp.ac.uk” was added to the list of VOs which provide support via GGUS.

Outreach: The documentation on GGUS interfaces has been moved from PDF files stored at the GGUS server to the EGI wiki[48]. A "Did you know?" page was introduced directing people’s attention to the latest or not widely known GGUS features. For user’s convenience a downtime check in GOC

[48] https://wiki.egi.eu/wiki/Category:FAQ_Interfaces_%28GGUS%29

DB was introduced notifying in case of downtimes of a site specified on ticket submit form. The search results have been extended by a column "Type of Problem" which can be ticked for displaying it. User's submitting TEAM or ALARM tickets can select a "Problem Type" now. "Problem Type" values are a sub-set of the "Problem Type" values available for USER tickets. The search engine was extended by searching for user DNs. Workshop with the representatives of EGI (Operations, DMSU, Software Provisioning and Metrics Portal), WLCG and EMI took place, requirements were collected and defined[49].

GGUS – SNOW interface: SNOW is the ticketing system of CERN. Besides support unit "ROC_CERN" a lot of the EMI 3rd level middleware support units located at CERN are using SNOW. A big effort has been made for defining the processes and implementing ticket synchronization between GGUS and SNOW. Nevertheless further enhancement is needed.

Operations Portal: The Operation Portal PT worked mainly in the components of the tool: the security dashboard and the VO Module. These resulted in two releases to production on 2011-09-28 and 2011-08-05. Details are provided in the following.

1) **Security Dashboard:** Complete documentation of this new module is available[50] [51] and described below:
   - **Authentication:** Authorization is applied based on GOC DB and EGI SSO in order that security staff access only data in their own scope (EGI / NGI or site). The list of sites / NGIs provided is dependent on the scope.
   - **Overview: S**ecurity problems can now be visualised by NGI or site and summarized also by tests. Historical details are provided within a chart and it is possible to sort problems by any columns. Permalinks are provided to access directly to the desired information. It is also possible to create or update notepads:
     • with a mail to Site Security Officer
     • with a template adapted to the current problems on the site
     • with the possibility to visualize the status of the related problems
   - **Metrics:** Generate dynamically metrics with the choice of format (table or charts), NGI or site, testname and type of metric (number of issues or sites). The resulting data can be saved as a chart (csv, pdf , jpg).
   - **Events:** A prototype that allows events to be declared or deleted such as rotation shift, monitoring downtimes, etc. was released mid-September. The CRSIT team is currently reviewing the different features and will give feedback for an implementation in December.

2) VO Module

- Added permalinks for consultation of VO ID Card (by name, or alias, or serial)
- Different improvements in the UCST VO Management section responding to the feedback of UCST

[49] https://www.egi.eu/indico/conferenceDisplay.py?confId=655

[50] https://forge.in2p3.fr/projects/csidashboard/wiki

[51] https://rt.egi.eu/guest/Ticket/Display.html?id=636

- VOMS declaration and update: the registration / update process of the VOMS server has been reviewed to propose a better quality of information.

Work has been initiated with UCST to complete missing information about VO Members.

Accounting Repository: The maintenance of the tool continued during PQ6 and developments were performed to introduce new features. In particular the migration to a new method of publishing: the Secure Stomp Messenger (SSM) which uses the production EGI Messaging Infrastructure. Before the existing database could be migrated, all the systems which currently insert directly to the database will need to migrate to using SSM to publish. The window for this is planned to be December 11 to February 12. SSM transfers files in a secure and reliable manner between sites. SSM acts as a producer and consumer, taking files from a source directory at the publishing site, signing them, encrypting them, and sending them as messages to the receiving site where they are unencrypted and placed in a target directory. The necessary handshaking is also done by messaging to confirm the delivery. By taking and placing files in a filesystem, SSM is disconnected from the system producing the accounting records so there are no issues around language, operating system, release synchronisation, etc. SSM has been deployed as a test system at RAL and a record loader deployed to read the received messages and ingest the records into a database. The code had been circulated to all interested parties - existing and potential new publishers of accounting records. A training workshop was organised during the EGITF11 where the current accounting architecture and the planned roadmap were presented[52].

Accounting for new resource types: During PQ6 work focused on identifying what is currently available for the accounting of new resource types in the community by identifying overlaps and possible collaborations in the work performed by various stakeholders and trying to bring many of them together. This activity culminated in an accounting development workshop held at the EGITF11. The types of accounting considered, and the stakeholders were:

- CPU (inc OGF UR) (EGI, EMI, OGF)
- MPI (EGI, EMI)
- Storage (inc StAR) (EMI, OGF, EGI)
- Virtualisation (EGI, other projects)
- Applications (EGI)
- Data Use (EU-DAT, PaNData)

Details about each of the previous points can be found in the agenda[53] and minutes[54] from the workshop.

Accounting Portal: In addition to many bug fixes the following new features were released to production:

- New Graph engine

[52] https://www.egi.eu/indico/sessionDisplay.py?sessionId=71&confId=452#20110922

[53] https://www.egi.eu/indico/sessionDisplay.py?sessionId=89&confId=452#20110922

[54] https://www.egi.eu/indico/getFile.py/access?contribId=361&sessionId=89&resId=0&materialId=minutes&confId=452

- FQAN data on VO adm and site adm views.

Metrics Portal: The following new features were released to production for the metrics portal:

- More development on Automatic Metrics.
- New User action log, historic and in-place editing of old versions.
- Connector refactorization, temporization system.
- Fixed BDII Metrics
- New report views.
- Internal refactorization and decoupling.
- Many metric fixes and modifications.

The Metrics Portal PT attended the GGUS Reporter F2F Karlsruhe (26 Oct 2001) and were presented with a detailed series of requirements for the reporter interface to GGUS.

2.3. Issues and Mitigation

2.3.1. Issue 1 (JRA1 PQ6): GGUS – SNOW interface

The GGUS-SNOW interface needs further enhancements and fine tuning for having a reliable synchronization. This will entail ongoing analysis with CERN staff.

2.3.2. Issue 1 (SA1 PQ5): 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.

Update. The list of *Very large* and *Large* NGIs not participating will be approached to require participation to Staged Rollout components having a single EA team. Several products (FTS, LFC/Oracle, VOMS/Oracle) will NOT be included in UMD due to the limited deployment scale. This was discussed and agreed with WLCG the main users of these products.

2.3.3. Issue 2 (SA1 PQ5): 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 EGITF11 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.

Update. A workshop dedicated to this topic is scheduled in Amsterdam on the 1st of December[55].

2.3.4. Issue 3 (SA1 PQ6): Underperformance

During PQ6 the performance of several NGIs significantly dropped: NGI_ARMGRID (Armenia), NGI_ME (Montenegro) and NGI_MARGI (FYR Macedonia). In addition, the performance of Asia Pacific significantly dropped for almost all sites.

Mitigation. The status of these NGIs needs to be assessed with the respective operations managers to understand the root cause and assess the current level of sustainability.

2.3.5. Issue 4 (SA1 PQ6): Integration of Albania and Moldova

To date the plans and timeline for the integration of Albania and Moldova into EGI are unknown. According to the last assessment, Albania has no plans and Moldova has been shifting its timeline since January 2011. Neither Albania nor Moldova provided a NGI report for QR6.

Mitigation. The technical reasons for not proceeding with the NGI integration are unknown. The issue has to be escalated at a political level.

2.4. Plans for the next period

2.4.1. Operations

2.4.1.1. Security

- The problem of the current usage of long-lived proxy certificates and of Certificate Revocation Lists propagation, which are both problematic during containment of security incidents caused by compromised user credentials, will be discussed at the TCB.
- EGI SVG will continue improving co-ordination of fixing and release of advisories, in collaboration with EMI and the EGI DMSU. EGI CSIRT will continue improving the Security Dashboard and will address any identified issue. EGI CSIRT will explore the possibility to integrate the current Security Dashboard with a ticket handling system, and will define an alert handling workflow.
- A procedure for handling of compromised certificates (short-lived proxies as well as long-lived certificates) will be also defined. A NGI Security Service Challenge run is planned by the Spanish NGI in November 2011.

2.4.1.2. Staged Rollout

- Discussion of deployment of a web form for the staged rollout reports, that has the capability of performing updates, and auto generation in pdf.
- Collaboration between EGI TSA1.3 EAs and OSG for the testing of UMD candidate products with a focus on those of interest to WLCG.

[55] https://www.egi.eu/indico/conferenceDisplay.py?confId=654

2.4.1.3. Operational Tools

- High availability of central operational tools will be improved. For GOCDB a dynamic load balancing DNS setup is currently provided for the address goc.egi.eu. A secondary instance in is still being deployed. The delay is caused by the development and deployment of the new GOCDB version. Monitoring of underperforming sites will continue.
- The manual follow-up of underperforming sites by COD needs to be automated by enabling Availability/Reliability monitoring. In case of decreased performance an alarm would be raised against the site. Such approach would enable sites to undertake corrective measures before the end of the month. Discussions have started on defining the implementation details.
- ActiveMQ broker is not fully packaged and the corresponding Yaim module is missing. Also EGI has no support unit for ActiveMQ broker software. Discussion with EMI messaging product team started in order to agree on package format. Once the package format is agreed, AUTH partner will provide additional documentation and secure SVN repository for storing configuration files. This approach will be used only for the broker network used by operational tools.
- Decommissioning of the old CIC portal (cic.egi.eu).
- Track and perform planned tests of failover configurations of centralized tools.
- Deployment of the new SAM instance dedicated for monitoring operational tools with the new probes provided by operational tools developers.
- Integration of Desktop Grids resources into EGI infrastructure.

2.4.1.4. Helpdesk

- LHCOPEN TTS: opening LHCOPN TTS towards standard GGUS tickets.
- Security: Assessment of adaption of GGUS access model to meet the needs of CSIRT.
- Report Generator: Planning of the technical design and implementation of the requirements.
- Integration of new NGIs: If requested, new NGIs will be integrated in the GGUS support structures.

2.4.1.5. Support

- Continue investigation of the impact on operations support model related to new middlewares in EGI.
- Continue the investigation on how to improve availability and reliability metrics. In this respect work on the automation of Availability/Reliability follow-up procedure will continue.
- Evaluation of upcoming new releases of the operational dashboard.
- Review of ROD metrics (ongoing).
- Definition of an EGI IPv6 plan in collaboration with EMI and IGE, and complementing HEPiX IPv6 activities.

2.4.1.6. Availability and Documentation

- Work will start on the EGI.eu OLA.

- Possibilities to obtain availability/reliability monitoring for more core services will be explored.
- The availability profile used for EGI sites will be separated from WLCG sites.
- The refactoring of NGI services configuration in GOCDB will be considered for approval.
- Further clean up the operations wiki.

2.4.1.7. Accounting

A production service will be established that receives summaries from other accounting services over SSM before inserting them into the old summary system. Once all systems have migrated, the old database will be migrated to a new one and the old clients piped into that. This second step is likely to be in PQ8.

2.4.2. Tool Maintenance and Development

GOCDB

- Carried over from last quarter; Complete data scoping/tagging implementation 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[56].
- Release and deploy GOCDB v4.2 into production during PQ7.
- Work with Christian Peter (Fraunhofer Institute) to install GOCDB web portal failover (delayed until v4.1 was released since this involved considerable changes to the database setup).
- Re-prioritise and plan next major developments (Virtual Sites and/or finer grained GOCDB roles).
- Carried over from last quarter; Review and update the Regional-Publishing GOCDB plan.

SAM

- Complete the SR and release to production of SAM-Update15
- SAM Update 16: The major improvements planned are the integration of the Profile Management System (POEM), extended synchronization of external source in Aggregated Topology Provider (ATP) and improvements in the configuration and deployment of SAM-Nagios. In addition, new SAM instance for monitoring operational tools will be provided. The new instance will rely on operational tools information defined in GOCDB. Once released, the new instance will be deployed on the current monitoring server ops-monitor.cern.ch.
- Participation in the planned Information Workshop in Amsterdam.
- Decommissioning of the entire old SAM infrastructure including Gridview, Gridmap and the old SAM database and Web interface is planned at the end of this year following successful deployment and transition to the new SAM/Nagios infrastructure.

GGUS

- Converting LHCOPN TTS towards standard GGUS tickets.
- Discussion with CSIRT to see if the GGUS access model could be adapted to the needs of CSIRT.
- Planning the technical design of the report generator.
- Integration of new NGIs into the GGUS support structures.

[56] https://wiki.egi.eu/wiki/GOCDB/Release4/Development#Data_Scoping_in_the_Central_GOCDB

Operations Portal

During PQ7 the Operations Portal PT will be focused on two components:

1. The Security Dashboard with the implementation of a prototype feedback mechanism and the implementation of the workflow for the creation of tickets.
2. The 1st phase of development of the VO Dashboard as approved by the OTAG at EGITF11.

Accounting Repository

Work will be mainly performed to complete the migration to SSM.

Accounting Portal

- Implementation of ActiveMQ interface with repository.
- Foreign user - VO scope computation.

An updated roadmap for the Accounting Portal is available[57].

Metrics Portal

Work will be performed on:

- Permission model.
- Scripts for stylesheet creation.
- Aggregated metrics (sum of all NGI predicted metrics + entered metrics).
- Improvement on estimations, possible use of per-NGI BDIIs

2.5. NGI Reports

NGI Reports for QR6 are available at: https://documents.egi.eu/document/869

[57] https://documents.egi.eu/secure/ShowDocument?docid=517

3. USER SUPPORT

3.1. Summary

PQ6 marks the end of NA3 as an independent work package. Henceforth the tasks will be incorporated into a new outreach-focussed work package to be called NA2. The focus of the NA3 management was to work with the EGI dissemination team and the EGI-InSPIRE management to finalise the goals and activities of the new NA2 task and worked on the migration of the existing NA3 structure to the new NA2 structure. This involved changes in the structure of UCST and in the management of the EGI Global Tasks.

In parallel with the restructuring the NA3 activity made good progress within all of its four tasks. The activity had a strong presence at the EGITF11, organising topical workshops (one on Data Management, one on Portal Technologies) and three sessions (VRCs, NGI User Support Teams and the NGI-EGI Roadshows). Working with SA1, SA3 and JRA1 the activity made progress in technical fields of user support, particularly improving the user number calculation methods in SA1 and JRA1 and improving the management and visibility of MPI within SA3 to the NA3 user community. These joint activities will be completed in PQ7.

The technical services have been coming to the end of their 6 month development cycle and released updated services at the EGITF11 for dissemination and feedback from the community. A focus across all of the technical services is th
e gadgets which enable the technical services to be easily embedded into other webpages. The UCST setup a central section in the EGI webpage to collect and report about gadget-related activities[58]. These latest releases include the Requirement Tracker system (one gadget to list requirements and one gadget to submit new requirements) and Training Marketplace – both of which have proven to be useful and popular.

3.2. Main Achievements

3.2.1. User Community Support Team

During this reporting period the User Community Board (UCB) met three times: twice as teleconferences (23 August & 31 October 2011) and once as an open session at the EGITF11. The minutes from the telcons are available in Indico[59] and summary reports were also posted on the EGI Blog site. It is worth noting that communities such as WeNMR have started re-publishing community-filtered blog posts on their web site as an RSS feed

The UCST also participated in the two TCB meetings that took place in PQ6 presenting requirements collected through the EGI Helpdesk and the NGI User Support Teams. The current status of high-level requirements[60] and solved user requirements[61] are visible for all. During PQ6, 19 user requirements

[58] EGI Gadgets: http://www.egi.eu/user-support/gadgets

[59] https://www.egi.eu/indico/categoryDisplay.py?categId=21

[60] Open user requirements: https://wiki.egi.eu/wiki/Track_User_Support_Requirements



were solved. Seven new requirements[62] were discussed with technology providers through the EGI Helpdesk and got accepted as either as bugs, requests for small improvements or request for additional documentation. These are promised to be fixed in forthcoming middleware releases. UCST keeps track of through the Open requirements page.

Experts in the EGI Helpdesk helped us identify five requirements[63] as features related to multiple middleware products. These are more difficult to be integrated into product development plans. UCST will elaborate the details of these requirements with the requestors and will then submit these as Statements of Requirements to technology providers.

UCST participated in the EGITF11 through four workshops: VRCs, Data management, NGI/EGI Roadshow model and Portal technologies for EGI communities. The notes of the two other workshops (Data Management & Portal technologies) are available in Indico[64]. A session including presentations from a selection of NGI support teams was organised.

UCST updated and extended the support-related wiki pages with technical information where required. This included MPI information, API data and the automated reporting paged for emerging requirements was refined on the basis from the target audience of users, project partners and other stakeholders.

In addition to the ongoing discussions and activities to cultivate new user communities a comprehensive investigation into the funded ESFRI projects that were considered relevant to distributed computing was conducted. The goal of this investigation was to match the individual partners within a project by discipline within each country. In terms of user communities, progress remains slow in terms of attracting, formally, significant new user communities. Furthermore, some of the existing known Heavy User Communities have yet to fully engage with EGI. One of the target communities is the Virtual Physiological Human community who are currently being targeted through our connections with the MAPPER project. For the future, in addition to the ESFRI projects, the flexibility of the new gadgets and other mechanisms will enable EGI to tailor resources to an increased number of smaller communities. One of the target communities is the Virtual Physiological Human community who are currently being targeted through our connections with the MAPPER project.

UCST worked to review and provide feedback to the Technical services by acting as the 'first' customer to any newly developed features. The Training Marketplace was regularly reviewed and new and refined requirements provided to the team in the UK. In order to promote the Training Marketplace it was decided that a brochure was not essential at this time as it is largely self-explanatory and intuitive to use. Therefore, it was decided to produce a bookmark as a more efficient promotional tool.

UCST supported the AppDB provider team in reviewing the quality of stored application profiles, particularly by:

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[61] Solved user requirements: https://wiki.egi.eu/wiki/Solved_user_requirements

[62] RT ticket numbers: 923, 722, 1742, 909, 2968, 2024, 2491

[63] RT ticket numbers: 910, 2023, 926, 2969, 2985

[64] Data Management: https://www.egi.eu/indico/sessionDisplay.py?sessionId=14&confId=452#20110919; Portal Technologies: https://www.egi.eu/indico/sessionDisplay.py?sessionId=64&confId=452#20110920

- Identifying entries with broken links, inform owners and update
- Changing the names of application/tool entries for uniqueness where necessary.

Surveys were produced for the EGITF11 however these did not prove to be greatly utilised at the event. However, the main purpose for the surveys was to attach them to the Technical Services online sites to ensure that users have easy access to a communication should they wish to provide feedback.

UCST was represented in EGI's Federated Cloud Task Force of in order to communicate with the User Communities. WeNMR elected to accept the invitation and also contribute to the trails run by the Task Force. Collaborative activities possibilities between ELIXIR-EBI and EGI were explored and will be followed up in the new project structure within the NA2.5 task. UCST continued to work closely with the Life Sciences Grid Community and instances of the new technical service gadgets were created for this community. We continued to pursue the broad spectrum of users within the Astro community. A steady trickle of activity continued as we moved towards the long-planned for Astro VRC meeting in early November.

Towards the end of PQ6 preparations began for both the transition to the merged NA2 & NA3 work package and that of the newly created International Liaison role that was another outcome of the first project review. A meeting was held with representatives of IGTF and Terena Certificate Service to agree on a joint strategy to achieve the wider availability and more informed usage of various certificates in NGIs.

The EGI-Earth Science Grid Federation system interoperability study for SA3 was reviewed. Collaboration possibilities with the ScalaLife project and with the SHIWA project in the field of user support were investigated through discussions. The topics are (for ScalaLife) and will be (for SHIWA) described in MoUs.

Collaboration with SA1 and JRA1 on correcting the methods and tools by which the number of EGI users is counted took place.

3.2.2. User Support Services

VO Services:

The activities in PQ6 are aligned with the plans defined at PM12[65] with some minor change on priorities and inclusion of new actions in response to UCST proposals. Also, at the end of the Quarterly period, some major discussion took place as a consequence of the redefinition of focus and strategies of the whole project after the 1st year review.

- Operation of the VO Services Support Unit included dealing with 6 tickets concerning the registration of the VOs: mice.gridpp.ac.uk (and GGUS support unit), vo.voms.pierre.fr, vo.france-asia.org, dream.hipcat.net and ukmhd.ac.uk.
- The set-up of the VO SAM instance for Fusion community was completed and operation of the existing VO SAM instances for phys.vo.ibergrid.eu, life.vo.ibergrid.eu and ict.vo.ibergrid.eu continued. Consultancy has been also provided for the Biomed VO concerning this topic, specially

[65] https://documents.egi.eu/document/527

the implementation of a VO SAM instance using VO feeds and the configuration of the MyEGI instance.

- Version 3.0 of the VO Admin dashboard has been released[66] and described elsewhere[67]. The aim of the tool is to provide to VO Administrators a dashboard which aggregates VO views from different (EGI and non EGI) applications allowing them to easily navigate between different sources of information and correlate events. The present release consolidates available functionalities and improves usability. In terms of new functionalities it introduces the recognition of users roles and a VO Admin management panel where the VO manager can change the VO profile and main page, add new applications or links to already existing applications. A new central application was also added allowing XML data from the accounting portal to be read and to produce several graphics for the VO.
- Include the VO SAM instances and the VO Admin Dashboard in the central EGI monitoring system[68] Detailed information in the GGUS ticket[69].
- The workplan for the VO operational portal[70] has been finished including feedback from JRA1 and the Life Sciences Grid Community. The VO Operations portal is a tool foreseen to empower VOs with a service necessary to deliver the best possible availability for end users. The proposal is to make it accessible as a module of the EGI Operations Portal, with a central instance with an entry point per VO. The development for this portal has already started on October 2011. This was one of the actions not originally included in the VO Services Workplan and consumed considerable amount of time.
- During the first year, ticket RT #1802 requesting a consolidated view of the accounting of different VOs to be integrated as a service was created, asking for providing a method to query the accounting portal for an aggregated view of different VOs (e.g. VOs associated to a VRC). This ticket has been followed up and next release of the accounting portal will incorporate this feature.
- Development of a prototype tool for assisting on the process of SE interventions[71]. The operations when a SE needs to be decommissioned or if it becomes full were identified and a prototype tool was developed to support users. This tool, along with the documentation has been made available through the wiki link shown above. This prototype tool exemplifies the usage needs and had led to the creation of RT requirement #2712 for the Quick identification of users affected in an SE intervention.
- Preparation of a report on the guidelines for decommissioning a VO. This report is on an advanced stage, but not yet released, including workflows and communication among main actors. A section on the backup of files in SEs has been prepared with an extensive analysis of

[66] https://vodashboard.lip.pt/

[67] https://wiki.egi.eu/wiki/VO_Services/VO_Admin_Dashboard

[68] https://ops-monitor.cern.ch/nagios/

[69] https://ggus.eu/ws/ticket_info.php?ticket=73901

[70] https://documents.egi.eu/document/862

[71] https://wiki.egi.eu/wiki/Services_and_Tools_Portfolio#SE_intervention:_LFCBrowseSE

alternatives and technique, considering also the requirement RT #881 "Requirement for VO renaming / migration".

- Start defining a VO deregistration procedure for the removal of obsolete VOs from the infrastructure. This was one of the actions not originally included in the VO Services six monthly Workplan and consumed considerable amount of time.
- Finally, a proposal for a plan of activities after the restructuring of the NA3 has been prepared focused on fostering the inclusion of new communities on EGI. The plan is under discussion at the level of NGIs and EGI.

As a final remark, one of the actions defined in the VO Services workplan was not accomplished (S8: iFrame and portlet technologies for services (Evaluation and documentation of new tools) due to the fact that the effort was spend by other new tasks introduced along the period (VO operation portal workplan and VO deregistration procedure). Because of the new WP structure the PMB has agreed that the primary scope of the VO Services team from November will be the support of the NA2 work package in engaging with new user communities. The setup and operation of a CRM system (Customer Relation Manager) for lead recording is planned by the team. The responsibilities of providing the existing VO-related software services will be gradually transferred to SA1 during PQ7.

Applications Database:

Development activities of the EGI Applications Database (AppDB) were focused on the following key areas during the last three months:

- Improving the quality of information in AppDB
- Information retrieval
- Notification / Dissemination
- Cross-browser compatibility
- EGI User Support Platform
- Architecture

Effort on these areas was split into fourteen distinct sprints, of which six – S1, S2, S3, S5, S6, and S7 (as referred to in the workplan[72]) – were delivered before the EGITF11, marking the 2.0 release.

Activities during the first month of PQ6 were focused on delivering the remaining pre-EGUTF11 sprints – S5, S6, and S7 – namely the user comment/ranking system, the entry problem reporting system, and the broken link detection and notification system. Following activities comprised of implementing sprints S4, and S8 through S12, as well as fixing minor bugs and providing several enhancements, such as better HTTPS support, and improvements in the graphical user interface, as part of the team's ongoing effort on the project. Sprints S4 and S8, related to the application entry tagging mechanism, and the application entry revocation mechanism (for managers) were delivered with the minor release 2.1 in the end of October. The remaining sprints, related to application name uniqueness, notification services via e-mail and RSS, and IE9 compatibility are nearing completion and are to be delivered with the imminent 2.2 release, in mid-November.

[72] AppDB six month workplan: https://documents.egi.eu/document/510

Finally, sprints S13 and S14, which relate to extending gadget support and providing write-access through the REST API, have been moved to the next term, PY2B, as it has been mentioned that it could be the case.

Training Marketplace:

During the PQ6 the Training Marketplace has undergone a major release plus some smaller updates. The major release was timed to coincide with the EGI Technical Forum and involved development and production of the Training Marketplace gadget. The gadget works in a similar way to the AppDB gadget in that it generates specific code that a user can embed into their own website to display elements of the Training Marketplace. It allows the map view to be customised to display user-chosen colours and to default to pointing at a specific region on start up. Also released in PQ6 is a admin interface to allow TM administrators to see events waiting for approval in a central place and to identify when admin need to login to view restricted parts of the website. Since these releases work has been underway to integrate new Drupal modules into the TM website. These will vastly improve the events display and allow greater modifications in future. Another new module has been deployed to capture user input when advertising, and a new resource type "Online resources" has been added. Early in PQ7 these modules will be enabled in the live site in a new release.

3.2.3. 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 existing support services and the development of new tools and services. Particularly:

- Cyprus: During PQ6, NGI-CYGRID user support has continued to work with national users providing them with help and support on porting and using applications. Particularly, we now work on enabling a parallel implementation of R, to satisfy the request of a new user.
- Czech Republic: After several months of negotiations with the Czech local ELIXIR site (institute of Organic Chemistry and Biochemistry of the ASCR, Prague) there was agreed that CESNET would support the local ELIXIR's site integration to the whole ELIXIR infrastructure by providing a starting computing and necessary network equipment. We continued with support of the local part of ICOS project – Global Change Research Centre AS CR. User support team help with their SW optimization to improve computing efficiency. We gained a new user community from RECETOX centre (integrated to the large infrastructure project CETOCOHEN), their special application SW has been installed and tested for Grid usage. Preparation of the 4th Grid Computing seminar has started (https://www.egi.eu/indico/conferenceDisplay.py?confId=661). MetaCentrum Annual report 2010 with user's contributions was published[73]. Continuous VO user support to AUGER, VOCE, BELLE and other VO.
- Finland: FGI/CSC has been implementing some new functionalities for the FGI customers: A www-based certificate repository was taken in use in the Scientists User interface. This repository helps registered users to store, convert and install X.509 certificates. New grid interfaces were

[73] https://www.metacentrum.cz/export/sites/metacentrum/cs/about/results/yearbooks/Rocenka2010_web.pdf

created for tree application software. The Autodock command line grid interface was fitted to the WWW based SOMA2 molecular modelling workflow environment. Command line grid interfaces were created for two next-generation-sequencing aligners: BWA and SHRiMP. These new tools are now at test usage and they have been promoted to potential pilot user groups through focused e-mail messages and on site visits. Information about these tools has been added to the EGI Application Database.

- France: France Grilles co-organized the EGITF11 with the EGI.eu team which was co-located with the first France Grilles scientific grid day. . The France Grilles booth featured 10 presentations, 10 posters and several demonstrations based on work done in different disciplines on the grid by the French research teams. The France Grilles scientific committee awarded the first France Grilles prize.
- Georgia: Support users in solving their problems, regular meetings with NGI_GE users to clarify and identify issues in the users support and to inform them about new services and procedures. All the problems could be solved within the NGI. Regular updates of the NGI development plan in Georgia.
- Greece: The main achievements of NGI _GRNET during PQ6 were:
    - NGI GRNET has installed the WS-PGRADE portal (www.guse.hu) for HellasGrid users[74]. The portal supports the SEE virtual organization and is now in pilot mode to check its correct operation. Our plans for PQ7 include the opening of the WS-PGRADE portal to HellasGrid users.
    - Update of HellasGrid site with information regarding HellasGrid access procedure.
    - Solution of problems concerning the interface between NGI GRNET regional helpdesk and GGUS.
- Hungary: SZTAKI has launched the NGI_HU Roadshow called e-Science Café with the help of other members of the NGI, namely with BME and KFKI RMKI. The first event will be held on 14th November. The event will address infrastructures like: Grids, Desktop Grids, GPGPU, Cloud and HPC. In the preparation phase, the e-Science Talk team has been involved in creating press materials to attract more potential users. DuringPQ6 SZTAKI finished the porting of the KOPI application (online plagiarism search) and started disseminating it (also was presented at the EGITF11). A new, highly data intensive application is being ported to Grid (from the Laboratory of Engineering and Management Intelligence of the Hungarian Academy of Sciences). The Hungarian NGI will host an EGI workshop on “e-Science Workflows” in February. Preparations for the workshop already started with EGI.eu. The user support team released the 3.3.3 version of WS-PGRADE / gUSE tools. This tool is used in several NGIs for application porting and grid application development. User support for the HunGrid VO continues.
- Ireland: Grid-Ireland as the Irish NGI has continued to work with existing grid users particularly in mathematics and astronomy/astrophysics. Grid-Ireland continues to provide a support helpdesk for Irish grid users. Grid-Ireland has begun deployment of web portals (general purpose and

[74] http://ui01.kallisto.hellasgrid.gr:8080/

application specific, e.g. for solar physics users) to replace a number of under-used command-line user interface services.

- Italy: The NGI_IT user support activities are being reorganised within IGI (Italian Grid Infrastructure). New staff was hired to work in the IGI "Training and user support unit" which is now composed of two sub-units, one devoted to training events and the other one to support Grid activities of new users communities. The support to existing users was moved to SA1 reflecting the schema that is in place in EGI-InSPIRE from November. A survey of the past and current Grid activities by regional VOs is ongoing. A review of the user oriented tools developed within regional VOs and the review of Italian components of international, non-LHC VOs is also ongoing. The outcome of those reviews will be available in PQ7. The VOID cards information of regional VOs are being updated. Other user support activities in the quarter include:
    - The porting of the LHCf application on the GRIDIT infrastructure. LHCf is the smallest one of the six official LHC experiments. The application requires community-specific software that have been successfully installed on the infrastructure: Cosmos (ver.7.49); Epics (ver.8.81); Intel(R) Fortran Compiler 10.1.022; WatchDog[75] (ver. 3.8.0)
    - Installation on the COMETA Grid infrastructure OpenFoam (ver. 2.0.1) software package with OpenMPI support. This software will be used by researchers of the Instituto Mario Negri of Milan to perform computational fluid dynamics studies applied to diseases that affect the human arteries.
- Latvia: The Latvian NGI is currently migrating workflows of several users from gLite middleware to ARC middleware, since all sites in Latvian NGI currently plan to migrate to ARC during next year. In PQ6 we have acquired two new user groups in theoretical mathematics and quantum chemistry. Also we plan to streamline creation of workflows in grid for new users in the future once we have enough know-how in working with ARC based infrastructure and WS-based grid clients.
- Poland: The publishing of technical materials about grid access and have been postponed to PQ7. The main reason for such a change is the increasing cooperation with the CTA ESFRI project (Cherenkov Telescope Array). Basic porting procedure of CTA "simtelarray" and "hess" codes has been completed during PQ5. During PQ6 our team has updated existing ports to the new versions and started to integrate both codes with InSilicoLab work environment. For now basic interface for simtelarray have been added and ongoing efforts focus on post-processing of batches of CTA jobs on EGI. The preliminary results will be presented at future CTA conferences (4-XI Warsaw, XI Annesy, XI/XII Madrid) A sample movie presenting execution of CTA jobs have been recorded for the above events. We plan to continue the cooperation with CTA during PQ7.
- Portugal: The User Support team has been working on addressing needs from a local community running an open source parser[76] from Standford University over English soap operas retrieved from the Gunterberg project[77] . The community is interested in analysing more than 2000 books

[75] WatchDog: https://grid.ct.infn.it/twiki/bin/view/EELA2/WatchDog

[76] http://nlp.stanford.edu/software/tagger.shtml

[77] http://www.gunterberg.org

with 150000-200000 words each. Books are processed word by word. A framework has been developed to provide the computing resources required by the community to process their data. At the same time, the Portuguese NGI has received a request from We-NMR community to support the Portuguese users under the national infrastructure. The request has been evaluated, and the infrastructure will be reconfigured to support the eNMR VO.

- Romania: The RO-01-ICI site has deployed Matlab with Distributed Computing Server toolkit for 16 workers in a private cluster and it is testing its integration with the grid middleware. Other activities include updating the NGI_RO portal to disseminate information and provide user support by the operation team.
- Serbia: Together with Grid users from Serbian engineering community, OpenFOAM (Open Field Operation and Manipulation) software, an open source CFD software package, was deployed at the AEGIS01-IPB-SCL Grid site. Beside support for already installed software packages, plans for porting and deployment to Serbian Grid infrastructure of additional computational chemistry applications were made with the Serbian chemistry community users. NGI_AEGIS Helpdesk portal was regularly maintained in cooperation with KIT (site certificate update, portal customization, etc.).
- Slovakia: During PQ6 the Slovakian NGI continued supporting the researchers in the development and upgrading of their applications (particularly, simulations of the spread of fire in tunnels using the FDS model). Effort was concentrated on porting the advanced types of applications (MPI, OpenMP, Parametric) on the multicore clusters and grid, studying new functionalities provided by the gLite components of the EMI-1 middleware, and analysing and examining some Cloud environments on a cluster (OpenNebula, Eucalyptus, Amazon EC2, a.o.). The support team also organized the "7th International Workshop on Grid Computing for Complex Problems" (GCCP2011) in Bratislava, and several other meetings, consultations and online demonstrations with potential cluster/grid/cloud computing users. In PQ7 the team will continue the operation and extension of the present NGI-SK infrastructure; support of scientific communities in developing and running their applications on the cluster, grid, and cloud; and developing a new platform supporting cloud interoperability.
- Slovenia: Main NGI activity in PQ6 was setting up the new NGI site at www.sling.si. The site has just a Slovenian version at the moment and will be extended with English sections in PQ7. Environment on our clusters for new users from biochemistry and civil engineering have been arranged, the necessary support to run their first jobs on the grid has been provided. In PQ7 an xGUS instance for the user support team will be installed in collaboration with the German NGI and several events will be organised: ARC middleware school for end users; EU PMA conference (16.01.2012); NGI meeting for site administrators.
- Switzerland: Collaborated with two computational chemistry groups from University of Zurich and ETH Zurich to understand and implement high throughput use cases that could then be easily enabled on the EGI. The Swiss user support team reported at the EGITF11 on the experiences in providing community support.
- Turkey: The Turkish team enriched the existing wiki and blog pages for supporting users. Furthermore, there was a national workshop where the majority of the user community in

molecular dynamics field have been attended in Turkey. EGI-InSPIRE project was introduced to the researchers who need scientific computing and storage e-Infrastructure and represented how it might be useful for their study. Also, the AppDB gadget has been enabled in the official web page.

- UK: The UK has continued to provide support to new and existing communities through its two national helpdesks. During PQ6 we have received and answered approximately 125 national user support queries through the helpdesks. Authentication/certificate issues are still the most predominant support request, followed by general queries, applications, using the UK's NGS cloud, and Authorisation/VOMS. We also held a workshop at the UK's e-Science All Hands Meeting entitled "Meet the Champions" where champion e-Infrastructure users gave talks to the community describing how they've used e-infrastructures and the benefits they derived, and different community experts came together to share best practice in how to engage with new communities (UK_NGI, XSEDE from USA and EGI from Europe). In September the UK held a 4 day summer school for 30 PhD students, giving them training in using local, national and international e-infrastructures. Experiences with Roadshow events in the UK were presented at the EGITF11.

3.2.4. Shared Services & Tools

3.2.4.1. Dashboards

The Life Sciences Grid Community (LSGC) dashboard is expected to integrate, into a single portal, various VO management services. The goal is not to redo what others have already done but reuse, possibly adapt, and integrate existing tools. Therefore during this period, a large effort has been put into the assessment of state of the art existing tools and portals:

1. SAM topology generation solutions (BDII vs. VO Feeds).
2. MyEGI SAM visualization portal.
3. Reliability of CESGA accounting data regarding VOs.
4. Reliability of GSTAT monitoring data regarding VOs, understand GSTAT vs. lcg-infosistes inconsistencies.
5. VO Operations Dashboard.

This study also led to discussions with tools development teams, bug fixes and eventually request for changes or evolutions (using Requirement Tracker).

Based on this assessment study, a tuned and more accurate list of services to be covered by the LSGC dashboard has been drawn. The following services are currently considered:

1. VO users management tools: VO users database, users life-cycle, Acceptable Usage Policy (AUP), robot certificates.
2. Communication channels: mailing-lists, focused advertisement of decommissioning / downtimes.
3. Community files management: SE decommissioning, file migration, cleaning procedures.
4. VRC-wide accounting.
5. Monitoring of resources availability and quality of service: statistics on elements availability, monitoring of free storage space.

The "VO Operations Portal" has been discussed along several exchanges and meetings. In particular, the physical meeting organised with UCST at the EGITF11 in Lyon has come up with a specification of the way the existing "EGI Operations Portal" and its derived "EGI Security Dashboard" should be adapted to VO specific needs. This portal shall cover VO operations support needs to a large extend.

3.2.4.2. Tools

3.2.4.2.1. Ganga & HammerCloud

PQ6 has seen significant improvements to the Ganga testing framework, a core element of the release-procedure which is intended to identify bugs or inconsistencies introduced into Ganga prior to a new release has been deployed. Aside from the improvements to the individual tests and development of new test cases, the reporting interface has had additional features added such as the classification of test results as a function of the time taken for the test to complete. In addition, aspects of the test framework have been parallelised; thereby reducing the overall time required to run the full suite of tests, thus reducing the turnaround time of a new release.

Furthermore development has continued on migrating community-specific applications into the Ganga core from where they can be exploited by a wider user base. For example, the Prepare() method, which was previously only available within the GangaATLAS package, has been implemented for a range of applications. Thus, users of GangaLHCb applications, plus the generic applications (e.g. Executable, Root), now have access to a mechanism which allows them to 'prepare' their application in such a manner that it remains in a known state indefinitely. The benefits of this are twofold, firstly, the user is able to re-run an application in the future (against a different set of input data, if desired) in the knowledge that the options selected and environment defined will be exactly the same as when they originally prepared the application. Furthermore, many jobs can utilise the same prepared application and associated configuration files, which results in a more efficient use of available disk space on the Ganga client.

Finally, improvements to the documentation for the end user have been made; in addition to re-writing the internal Python document strings for some modules, a new feature was introduced which presents the user with the latest release notes the first time a new version of Ganga is executed.

The ATLAS and CMS experiments were actively tuning the v4 HammerCloud instances during PQ6. During the ATLAS instance migration from v2 to v4 a number of performance issues were discovered; some sub-optimal database queries were found and the VO-agnostic model layer was found to hurt overall performance of the web interface and backend logic. Some Django optimizations were applied (including adding related-table hints) and in some cases the number of database queries required to generate a page view decreased by 3 orders of magnitude. At the end of PQ6 the ATLAS migration is nearly complete, with all functional tests running on v4 except the ATLAS Auto-Exclusion Service which has the highest criticality and is still running on v2. In addition, a new error table view was developed to show the error counts and statistics summaries for each site tested; this was an added requirement from the CMS experiment. Finally, the LHCb integration with LHCb DIRAC is still stalled due to other high priority developments by that experiment.

3.2.4.3. Services

3.2.4.3.1. DashboardDB & GReIC

During PQ6, the pre-production release of the DashboardDB registry has been tested. Two major issues regarding the authorization and the user profile management have been discovered and solved. These two problems have shortly delayed the issue of the official DashboardDB release, which is now expected to be online by November 15 at the latest.

As part of the user support activity, the LS UNIPROT use case has been improved. The UniProtKB/Swiss-Prot Release 2011_05 of 03-May-2011 has been completely imported into a new relational database (about 13GBs, 30 relational tables) to support this use case. A simple set of test queries (which extends the simpler one prepared in PQ5) will be provided by the bioinformatics group at the University of Salento to test the new database and do some comparisons with the formerly adopted flat-file based approach.

Making the UNIPROT data bank available in grid to the LS community through the GRelC Grid-database service interface has been part of PQ6. The security step needs to be finalized in terms of authorization tuning. The ETL tool described in the PQ5 report has been improved as well. Some bugs related to the memory allocation of the XML file entries have been fixed. The core library of the ETL tool has been also improved creating new interfaces that should enable an easier adoption of the same tool for different biological databases. This strongly addresses reusability and it will speed up the process of porting in Grid new LS databases (which is in the roadmap of our LS user support).

During PQ6, the user support has been provided both in terms of service and data hosting for the LS community. One of the major goals regarding the support for the LS community is to create in Lecce (Italy) "*a Grid database node hosting several data banks addressing LS needs*". By concentrating in the same place, many biological databases could be relevant for the LS community and could be also crucial to attract new users.

Another important activity carried out during PQ6 is related to the porting of the GRelC service to SL5.x and gLite 3.2. This activity is almost completed (the software has been successfully compiled on a gLite UI 3.2) apart from the final rpms that still need to be packaged and released.

A major issue related to this task which prevented us to finalize it earlier, has been the need to build an older Globus release (4.0.3) to find some needed libraries not available in the gLite 3.2 UI and formerly available for the gLite 3.1 UI.

The gLite 3.2 compliant release of GRelC will now be issued during PQ7 and will soon be available for preliminary tests.

Finally, the status of the current activity (user support, DashboardDB, porting, etc.) has been presented during the SA3 at the EGITF11.

3.2.4.3.2. Hydra

Hydra is a file encryption/decryption tool developed at CERN as part of the gLite middleware, enabling encryption of sensitive files stored on storage resources.

During PQ6, a first beta-release of the Hydra server software compatible with gLite release 3.2 has been provided by experts from the EMI project in September. In October, close collaborative work has been carried out with EMI experts to adapt, tune and/or fix the installation and configuration

procedures. As a result, an experimental Hydra service has been successfully deployed with gLite release 3.2. Some questions are still being investigated as to some configuration issues, in particular the way the service should be published in the Service Discovery (BDII). 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).

3.2.4.4. Workflow & Schedulers

During PQ6 the work has been focused on keeping developing use cases. As indicated in previous reports, this use case is the FAFNER+ISDEP one, which allows studying the movement of particles in plasma. It follows a parametric+parametric model. The results from the first parametric scan (FAFNER) are collected and used then to run a parametric study using ISDEP. While FAFNER generates the initial positions of neutral particles, ISDEP will follow the trajectories of those particles. This code is a Montecarlo orbit code devoted to study the particle transport in 3D fusion devices. It has been successfully applied to several fusion devices: TJ-II, LHD and ITER, studying both thermal and fast particle transport. The applications have been ported to the Fusion VO and now the workflow is being created in Kepler. This is an important use case with several articles published in peer reviewed journals in recent years and with great impact in the fusion community[78] Documentation concerning the new type of the generic use case scenario has been updated.

During PQ6 we have also been working on improving the performance of Kepler running on gLite. Specifically, we have focused on directly interacting with the Logging and Bookkeeping services instead of dealing with WMS when asking for job's status. This helps improving the performance and stability of the execution of workflows in real grid infrastructures. Also the UNICORE module in Serpens now allows submitting and monitoring jobs using Basic Execution Services (BES). The new actors are smoothly cooperating with the existing ones. This allows designing complex workflows which integrate service discovery, file transfer, job submission and job monitoring via either standard UNICORE or BES solution. Part of the work has been focused on installing the required infrastructure for starting the development and deployment of services related to GridWay metascheduler.

Improvements in PQ6 were also made for SOMA2. SOMA2 is a versatile modelling environment for computational drug discovery and molecular modelling. SOMA2 is operated through a WWW-browser and it offers easy access to third-party scientific applications.[79] The SOMA2 environment offers a full scale modelling environment from inputting molecular data to visualization and analysis of the results and includes the possibility to combine different applications into automatically processed application workflows.[80] The main outcome of PQ6 is a working Autodock 4 integration in

[78] Workflow - A. Bustos, F.Castejón, M. Osakabe, L.A. Fernández and V. Martin-Mayor, Nuclear Fusion **51**, 83040 (2011) and Workflow - A. Bustos, F.Castejón, L.A. Fernández, J. García, V. Martin-Mayor, J.M. Reynolds, R.Seki and J.L. Velasco, Nuclear Fusion **50**, 125007 (2010).

[79] SOMA2 - http://www.csc.fi/soma

[80] SOMA2 - Kinnunen, T., Nyrönen, T., Lehtovuori, P., SOMA2 - Open Source Framework for Molecular Modelling Workflows, *Chemistry Central Journal*, 2(Suppl 1):P4 (**2008**)

SOMA2. Currently this will provide a virtual screening service facilitating distributed resources. In addition, new release of SOMA2, including the Grid support and more, is almost finalized. Basic setup for the SOMA2 service, which would be provided to other user communities as well and not only for current CSC users, is also proceeding. However, this has been slowed down by SOMA2 release not being ready yet. Also, CSC has maintained and operated CSC's SOMA2 service.[81]

3.2.4.5. MPI

As per the CCMST/UNIPG workplan, UNIPG UNIPG has also continued to work on:

- MPI analysis of selected linear algebra routines,
- MPI analysis of selected quantum reactive scattering code
  - Implementation on Grid and GPU
- Started analysis of Chimere - a multi-scale model for air quality forecasting and simulation.

An outcome of this work is to help other users and communities benefit from the experience and best-practices developed by the well-established MPI user communities.

TCD has deployed 32 Nvidia based GP-GPUs into production, offering over 5000 GP-GPU cores. Work included an upgrade to latest Nvidia drivers and Cuda 4.017 and an investigation of OpenCL integration, which supports non-Nvidia resources. There are several outstanding issues in offering fully integrated production GPU support. These include I) lack of GPU resource support in some batch schedulers (such as the popular open-source MAUI scheduler), and II) no schema or standard method to describe and advertise GPU resources and their capabilities on the Grid. Exploratory Grid/GPU/StratusLab work seeks to address some scheduling issues and GP-GPU resource security issues on multi-core systems which offer multiple job slots.

CSIC has produced input and provided feedback for the MPI accounting effort by participating in the Development Accounting Workshop at the EGI Technical Forum. We performed a review and analysis of the current specification of the accounting records from OGF and the current proposal of EMI for the compute accounting record that will be implemented for their next major release. As a result of this analysis, a minimum set of fields for proper accounting of MPI applications was proposed. In addition, several extra fields that would improve the accounting information, such as non-aggregated utilisation of resources and network topology, were presented. We also evaluated different site configurations and MPI implementation interactions and identified those that produce correct accounting records in the batch system.

Productive feedback was received from users at the EGITF11including suggestions on ways to improve MPI support. These suggestions include:

- Allocating new queue(s) at the resource centres devoted to MPI.

[81] SOMA2 - Lehtovuori, P. Nyrönen, T., SOMA - Workflow for Small Molecule Property Calculations on a Multiplatform Computing Grid, *J. Chem. Inf. Model.*, 46(2) (**2006**) 620-625.

- Work with resource administrators and middleware providers to define and implement common approaches and solutions that help to identify and advertise the best available sites resources that can run a user's MPI applications.
- Better identification of problematic resource centres supporting MPI beyond the using the standard Nagios probes. Maintaining a repository of known good and bad resources to help identify, isolate and fix broken resources. The CompChem VO has performed such an evaluation, and this has shown some improvements. However, feedback from the Biomed VO still shows problems with over 30% of sites supporting both MPI and Biomed.
- Better support for MVAPICH, FT-MPI and commercial MPI products.
- Better support for hybrid OpenMP/MPI code and other Parallel Processing frameworks.

Production of MPI input for SA3 Month 16 Software Roadmap. This roadmap identifies longer term plans and future work of the MPI effort, and addresses some of the sustainability issue regarding long term MPI support.

3.2.5. Domain Specific Support

3.2.5.1. High Energy Physics

3.2.5.1.1. 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. It has been developed in a very generic way and with a modular architecture that has made it suitable for serving other VOs as well. The LHCbDIRAC 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 started in EGI in October 2010. The progress during PQ6 is summarized in the following items:

- As reported in previous documents[82] the running of consistency checks between Grid storage elements and files catalogues has continued. In PQ6 particular effort has been put in to the development of the LHCb specific system to keep accounting of space usage at sites and to detect possible data stored at sites that is not registered in the central file catalog of the experiment. In order to verify consistency, sites have been asked to produce full lists of files that they have on their storage, including some metadata like file size and creation date. Comparison with the central file catalog will allow us to spot any data resident on the sites storage, but not accounted in the catalog. A standard format has been adopted for the storage dumps, in coordination with other LHC experiments, in order to reduce the maintenance cost for the sites.
- The implementation of some new accounting tools for space usage has been completed, and the new system is currently in production. It provides 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

[82] D6.3 Annual Report on the Tools and Services of the Heavy User Communities
https://documents.egi.eu/document/312

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. The activity during PQ6 has focused on the improvement of the performance of the agent which populates the accounting database. Several optimizations have been implemented, bringing a significant improvement of the execution time (around 30%).

- Some improvement applied to the LHCbDIRAC module which acts as interface to the LFC (the central file catalogue hosting all LHCb files replicas and their metadata). The new development fixes a problem related to the authorization for accessing the data, on the basis of the proxy presented for the request.

3.2.5.1.2. 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 using resources across heterogeneous interoperable Grids worldwide and being 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 during PQ6 has been focused on preparing a new release of DDM Site Services, which are the set of agents responsible for the ATLAS data discovery and placement using the underlying EGI middleware (mainly FTS, LFC and SRM). Improvements for this component include:

- Finalization of the first version 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 the *uberftp* library. The usage of this library, in particular the session handling, has been improved in order to reduce the look-up time.
- Optimized usage of temporary storage areas (SCRATCHDISKs), which are used to store intermediate hops for cross-cloud transfers.
- Pinning of source replicas to ensure their availability.
- Clean-up of legacy configuration options.
- Implemented new policies for tape staging according to latest operational experiences.
- General support is provided for a variety of DDM components.

3.2.5.1.3. CMS Data Management

Building on the previous experience acquired by the ATLAS experiment, the CMS Popularity Service has been developed to monitor the experiment's data access patterns (i.e. frequency of data access, access protocols, data tiers, users, sites, CPU usage). The understanding of this framework provides a crucial step ahead towards the automation of data cleaning and data placement.

In addition, a fully automated popularity-based site-cleaning agent has been deployed in order to scan the Tier2 sites that are reaching their space quotas and suggest obsolete, unused data that can be safely deleted without disrupting analysis activity. The implementation of this agent is based on the initial ATLAS code, which has been re-factorized to a plug-in architecture with a common core for the CMS and ATLAS experiments.

The results have been presented to the CMS Computing management and used during the CMS Physics week to demonstrate the transition to analysis object data (AOD), to show the speed with which the collaboration can migrate to a new software version, and to indicate the dynamic range in popularity of CMS datasets. The project now enters the commissioning and validation phase before being used in production.

3.2.5.1.4. CRAB Client

During PQ6 a new release of CRAB2 Client has been produced to support the EOS migration which is going on in CMS. Various bug fixes have been applied too.

On the development side, the existing CRABRest interface has been extended with 2 new functionalities: Kill and manual resubmission. The Crab Client has been extended accordingly. It is now implementing the support for the CRAB2 to CRAB3 configuration file. Moving to CRAB3 the user configuration file will be python based instead of the previous text based approach.

A complete review of the unit test has been done and all broken tests have been fixed.

The AsyncStageout RPMs are now available and this allowed the refinement of the deploy/manage infrastructure for the CRABServer. The operators can now deploy and manage all the stacks all together amend user documentation is now available. This is a first pass to be extended in PQ7.

A lot of effort has been spent to consolidate a beta version in order to support the first multi user integration test. This is expected to start around the middle of October and the scope of the test is to collect user feedback needed to consolidate the tool and decide the priorities in order to move from development to production quality.

Stress tests were performed using a MockPlugin, a component which emulates the behaviour of an ideal grid: no latencies and no failures are inserted. The results of this test showed that a single instance of the agent has no problem in handling 400k jobs per day.

3.2.5.1.5. Persistency Framework

The first topic in PQ6 was the maintenance and the development of the Coral Monitoring for the Frontier plug-in aimed at a general review of the global Coral monitoring. The work evolved across distinct phases. First, the present version was tested in order to fix a few bugs identified by the CMS group. A meeting with the CMS group was then organised, as one of the main Frontier client, to outline the requirements and the strategy for the future Frontier monitoring developments. The CMS groups required more details in the report concerning connections, sessions, transactions and statements along with a different report structure that highlight the hierarchy among them. This would be very helpful to analyse complex situations where many parallel sessions are contemporaneously open by a multithread job. Furthermore a cache system as source of a detailed “a posteriori” analysis of the monitoring results was also requested. The implementation of the new hierarchy structure has been recently accomplished by means of major changes in several classes and packages. A study about

the possible cache strategy is on-going. A possible solution, developed in agreement with the CMS group, might be the implementation of a SQLite report storage such as a simple table object, where fields such as SessionID and TransactionID enable the users to reconstruct the suited hierarchy.

The second topic of PQ6 was fixing a potential CORAL bug that affected CMS during the last four weeks when using Coral application against the CMS online database. The errors appeared with an "ORA-25408 cannot safely replay call". Apparently the cause, as descried on the Oracle site, should be the connection lost during a specific call. For this reason, the issue seemed belonging to the category of the network glitch. Since the CMS group is currently using a very old version release of CORAL without the network glitch fixes, the first idea was to create a test able to generate a network glitch and raise the observed error in the old version in order to demonstrate that the new version is able to successfully cope with it. However, later it became clear that the configured set-up was not adequate to reproduce the error because of disabled failover option on test service name. The log-file of CMS clarified indeed that the error was raised by a crash of a server process that unsuccessfully triggered the failover, generating the message ORA-25408 on the client side. In order to reproduce the error, a service name configured as similarly as possible to CMS one has been provided by the IT database experts, along with a PL/SQL procedure that allows to kill the session process during the pycoral test running in order to trigger the failover and hopefully generate the suited error. The error has been successfully reproduced in both SQL environment, using a very simple PL/SQL script, and in CORAL, just killing the session during the insert of a huge array as blob object. At the moment an exception to handle the error has been added in CORAL in the OCI statement execution function. However a discussion will be open with the experiments in order to evaluate other reactions able to fulfil their needs.

3.2.5.2. Life Sciences

In addition to the monthly phone meetings organized to coordinate the Life Sciences Grid Community (LSGC), the technical team set up during the first project year is now having regular phone meetings (every one or two weeks). This proved very useful to improve the team coordination and disseminate good practices as well as knowledge of tools used / developed. Many standard monitoring procedures have been strengthened, including the use of the Nagios monitoring server dedicated to Life Sciences. Based on the experience gained by the technical team, improvements of the Nagios monitoring probes are being discussed with operations and implemented.

3.2.5.3. Astronomy and Astrophysics

The activity of A&A focused on three different aspects: Visualization tools and services, Grid and Supercomputing and access to Databases and interface with Virtual Observatory.

For what regards visualization, A&A activity focused on the first prototype of the VisIVO service MPI version on gLite grid. The work done aims at verifying the performances of some VisiVO visualization filters, in particular we focused on the most heavy filter classes: randomizer, cut, select and swap operations on huge user data tables.

In order to increase visualization and image manipulation performances, A&A is working on the integration of VisIVO with grid worker nodes equipped with GPUs. To provide a service able to take

advantage of GPUs on the Grid, A&A acquired a new system (funded by the Astrophysical Observatory of Catania). It is an hybrid server CPU-GPU, with 2 quad-core processors Intel(R) Xeon(R) CP E5620 at 2.40GHz, 24 GB RAM DDR3-1333 NVIDIA TESLA C2070, 448 Cuda core and 6 GB of RAM. The server is configured as a grid computing node. A preliminary study on the use of GPU in the grid for visualization has been started focusing on the heavier VisIVO Filter: Multi-Layer Resolution. This filter provides the possibility to inspect very large user files (hundreds of gigabytes) and to create data for the visualization of the entire dataset with different levels of resolution: starting from a fixed position, that represent the center of inner sphere, concentric spheres are considered. Different levels of randomization can be given, creating more detailed tables in the inner sphere and less detailed in the outer regions, or vice versa. The region that is external to the last sphere represents the background. The CUDA optimization process is already started and preliminary tests are in progress.

For what regards Grid and Supercomputers A&A identified the following applications as key codes widely used by the A&A community to produce cosmological numerical simulations: FLY (INAF-OACT Cosmological code) and Gadget + Flash.

The FLY code (a tree N-Body code) was executed on the gLite grid and we are still studying a workflow to run the code for challenging simulations with data files having several tens of gigabytes. Some tests are also in preparation phase for FLASH and P-Gadget2.

A&A is defining some use-cases to test cosmological simulation, in particular our activities focused on preparing the environment, the input file, the watchdog procedure to verify the run and the results. Test results will be available for the next periods.

A&A integrated in Grid the BaSTI (A Bag of Stellar Tracks and Isochrones) Astronomical Database and its feeding FRANEC code. The integration was done using a grid application portal based on P-Grade. During this Quarter, the portal has been modified to better suit the user needs. Moreover A&A is working on the implementation of a portal based on the new version of P-Grade based on WebServices that could allow a low level integration with the Virtual Observatory services.

During PQ6 sometime 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 and to involve a larger part of the community into the use of e-Infrastructures. In particular we organized a workshop in Paris the 7th November 2011. This workshop aimed at strengthening the connection between the A&A community and the e-Infrastructures, making researchers and developers from the different fields meet and discuss. In particular we invited A&A scientists and developers that contribute to the suite of standard facilities, tools, services and legacy software used by the A&A community and by projects and experiments (e.g. the FASE project and the CTA and E-ELT ESFRI projects, Virtual Observatory etc.) and that are interested in the use of the e-Infrastructures.

3.2.5.4. Earth Sciences

Earth Science (ES) applications cover various disciplines like seismology, atmospheric modelling, meteorological forecasting, flood forecasting, climate change and many others.

The presence of Earth Science in SA3 is centred in the implementation and maintenance of interfaces or tools to provide access to Earth Science specific resources from the grid, in particular to large data

infrastructures; for example resources within the infrastructure of the Ground European Network for Earth Science Interoperations - Digital Repositories (GENESI-DR), or climate data within the Earth System Grid. The community is supported independently by organisations and NGIs, and additional effort is put into fostering the community and to provide value-added services around EGI. The Services for Earth Science task covers the implementation of data access scenarios, to permit the utilization of Earth Science data resources in Grid jobs.

Regarding access to the GENESI-DR infrastructure, the following progress has been made. The gsearch toolkit provides easy access over either a terminal application or a web front end to the GENESI-DR opensearch interface. Both front ends take a set of different search parameters to generate and transmit the search request to a central opensearch site, customizable by the user. The received results will be processed and displayed. The command line tool also offers the possibility to download a selection, or all of the found datasets to the local computer or respectively it can create a script containing all necessary information to download the dataset, which can be used directly in job-scripts for Grid jobs.

Concerning the terminal application, the development of a generic library for accessing the interface has been started. The user currently has two methods to define search parameters and presentation of the incoming results. For simplicity, a pure console mode lists the available datasets. The user is able to narrow down the search to specific datasets, which then can be downloaded, storing a list of resulting files for further use. Secondly, a Text User Interface (TUI), based on ncurses, provides a fully interactive application featuring a comfortable search form, more detailed selection interface and a detailed information screen about a single selected dataset.

In addition to the user interface, there was also the development of a background application started for directly downloading the dataset into the Grid storage. In order to test the different parts of the solution, an example scenario was created. As a symbolic search dataset the XBT_XXX data series, containing temperature measurements in the Mediterranean Sea, was used. After selecting the datasets, the toolkit creates a JDL file with the given test application and downloads the data directly onto the worker node, where it is used to create graphs of temperature profiles. The tests have proven the efficiency of the framework in that it is able to save the user a considerable amount of time for finding the right dataset, downloading it to the workstation and manually uploading it again into the Grid. For the future it is planned to include more functionality into the ncurses front end, improve the handling of non-conforming results, implement more protocols for data transfer, and to carry out broader testing.

Additionally, a flexible web GUI was designed, which accesses, among other sources, GENESI-DR indirectly. It uses the OpenSearch interface provided by a running GI-cat instance. GI-cat acts as a broker for catalogue services and can thus serve and search various existing ES data catalogues (e.g. GENESI-DEC or SeaDatanet). The web interface accepts search parameters such as: a keyword, lower and upper time limits, a geographical bounding box (see figure 1) and more. The interface leverages the OpenLayers capabilities for defining the geographical bounding box. The list of results is subsequently being used to generate search queries for the respective datasets such as AIRS, MODIS, GOMOS or GOME (mainly depends on the catalogues that are managed by GI-cat). Mostly, these datasets provide OpenSearch interfaces as well. The user defined search parameters from the first steps

are then delegated to these second layer interfaces. The found data is presented to the user, who is able to select the required files. Based on this step, a JDL template will be generated. This script can subsequently be submitted to a Grid compute resource. It will contain the list of results (with full URL) and depends on the functionalities provided by the gsearch download tool, which handles the transfer of ES data to the respective CE site. The development of this component and the corresponding tools is still in the starting phase.

The team that works on Earth System Grid (ESG) interoperability has made considerable progress. A document was written that describes the Secure Token Service (STS) testbed to solve the problem of different authentication schemes for EGI and Earth System Grid (ESG), which was submitted to EGI. A telephone conference between representatives of EGI (Gergely Sipos), SA3.6 (J. Raciazek) and Earth System Grid Federation (Philip Kershaw) was carried out, to clarify and discuss the situation and future plans. The implementation of the testbed following specifications described in the document is on-going.

The intelligent data transfer tool that facilitates the command line, bulk oriented access to ESG CMIP5 data by model information and parameters has been improved (better HTTP error handling, easier data node configuration) and the following new features have been added among further improvements: fine grained priorities for transfers, support for CMIP5 "ensembles", installer, and watchdog for wget errors.

In an activity meeting following up on the latest progress, a preliminary discussion of a computational challenge based on CMIP5 data was discussed, which will carry out statistical analysis and comparisons of model output data based on the STARDEX diagnostic extremes indices. A description of work and work plan is currently in preparation.

3.3. Issues and Mitigation

3.3.1. Issue 1: Finding adequate resources for users in Switzerland

Swiss NGI: The main issue was to find adequate computing and storage resources to cope with the specific requirements from the user groups. Sometimes the need of a tightly coupled solution (like being attached to their own storage system or to integrate their own local computing facilities) makes the integration effort even harder. We leveraged heavily the GC3Pie framework[83] to abstract even further the access details of the underlying computing and data infrastructure; this gave us the possibility of developing end-to-end solutions that are better tailored with the end-user needs.

EGI.eu UCST project is currently in discussion with the Swiss user support team about the possibilities of extending the national VO into an international VO and inviting sites from EGI to support the VO members with computing and storage resources. The agreement of the Swiss partners of the VO is needed and they will be consulted with in November.

3.3.2. Issue 2: Hydra packages delivery

[83] http://appdb.egi.eu/?p=L2FwcHMvZGV0YWlscz9pZD00OTk

The dependency on software developed by EMI slowed down the planned deployment of a file encryption service. A close collaboration is on-going with the EMI team in charge of Hydra development and packaging. The EMI team has on-going actions in order to clarify deployment questions. For the time being, the installation of the service does not allow the server (either physical of virtual machine) to be shared with other gLite services. Consequently, some changes have been made in the choice of the three servers initially identified for production deployment.

3.3.3. Issue 3: HealthGrid situation

The precise development roadmap of the LSGC dashboard, as well as the overall design task, has been partly delayed by the financial problem of the HealthGrid association and the questions it raises as to its participation in the development effort. The work is being reorganized inside CNRS to face this problem.

3.3.4. Issue 4: Redundant LFC

The provisioning of a redundant LFC server has been discussed with UCST. Two show-stoppers are identified: (i) TSA1.8 can help in catch-all solutions, where the LFC node is currently dedicated to biomed; (ii) TSA1.8 can push for MySQL-based solutions, but the current LFC node is Oracle-based.

Two options remain:

1. Find a site that owns Oracle licenses (like the LHCB), willing to host the redundant node for us.
2. Migrate the LFC node to MySQL: this is not recommended by IN2P3 (that host the node for the time being) for some MySQL replication policy issues.

The action is put in stand-by for now.

3.3.5. Issue 5: MPI

UCST reported significant issues in scaling up MPI code at several sites. TCD is investigating these issues. Feedback was provided by CSIC/TCD/UNIPG on how to address some of these issues. However, there is a clear need to improve the communication channels between SA3 MPI and the UCST. John Walsh and Gergely Sipos (NA2) have had some discussions regarding this.

The delivery of UMD gLite-WMS 3.3 is late. This should have support for user-defined allocation of processes per node and will allow for better allocation of resources for MPI and other parallel jobs. The EGI MPI user and site administrator survey has been delayed andshould go out to users and site administrators in PQ7.

3.4. Plans for the next period

Preparations continued for the next topical EGI workshops which included Workflows[84] (9-10 February) and Science Gateways for Life Sciences. (23-25 May)[85].

[84] Workshops on e-Science Workflows: http://go.egi.eu/workflowworkshops

[85] Workshop on Science Gateways for Life Sciences: https://sites.google.com/site/iwsglife2012/

3.4.1. GReIC

The official release of the DashboardDB application will be available online in production mode in November (this task has been delayed from September to November, due to some major bugs that have been discovered and fixed during the test phase in PQ6). A tutorial titled "*Grid Database Management: the GRelC Middleware and Its Applications in the Environmental Context*", will be presented at the Parallel and Distributed Computing and Systems conference Participation to the American Geophysics Union (AGU2011) conference in S. Francisco (5-9 Dec 2011) is also foreseen as relevant for the user support related to the ES and Environmental domains.

It is also expected to issue the gLite 3.2 compliant release of GRelC during PQ7 (November 2011).

Further support to the heavy user communities will be provided, addressing the requirements highlighted in the current use cases.

3.4.2. Hydra service

The deployment of the keystore service to the three target servers will take place in PQ7.

Investigate the way the Hydra client commands can be installed and published on all sites where Worker Nodes may be required to access the Hydra service.

3.4.3. LSGC dashboard

Clarify the role of HealthGrid in the development effort and set up a development schedule.

3.4.4. Workflow management service for Life Science Users

This task did not progress since the beginning of the project. The EBI partner is discussing with University of Manchester (Taverna development group) to hand over the delivery of workflow management to the Life Science community.

3.4.5. MPI

- EGI MPI user and site administrator surveys
- UNICORE and ARC MPI documentation,
- Offer/Propose an MPI Users workshop at EGI Community Forum 2012,
- Call for participation announced November 2011.
- Continued work on the MPI cookbook,
- Preparation for UMD gLite-MPI and glite-WMS 3.3 releases.
- Develop efficient communications between NA2 and SA3

4. SOFTWARE PROVISIONING

4.1. Summary

The EGI Software provisioning unit continues maturing in delivering its services, while gradually entering into continuous service improvement mode. During PQ6 the Software Provisioning unit delivered three UMD releases through established and reviewed provisioning processes. UMD 1.1.0, UMD 1.2.0 and UMD 1.3.0 are available in the UMD Repository (http://repository.egi.eu). Regular review and feedback collected from stakeholders and actors (e.g. at the EGITF11) ensures that the delivered services remain adjusted to satisfy the requirements of the EGI communities.

The established process for continuous improvement of Quality Criteria produced the second release of Quality Criteria for UMD software, while the third release is already drafted, and scheduled for publication in 6 months time.

Out of 33 products 31 were verified against Quality Criteria, and accepted for StagedRollout and further provisioning for UMD releases. The detailed verification processes are continuously refined, and integrated with the support infrastructure.

The post-provisioning support for middleware provided by the DMSU continued following established processes allowing team members to focus on gaining experience in supported Grid middleware. Consequently the DMSU's ratio of solving tickets increased to 20% of all tickets processed by the DMSU, thus improving overall service quality and reducing support load on the 3rd level support units. Additionally, the DMSU contributes documentation for specific product configuration, as well as general platform-specific documentation for UMD.

The support infrastructure matures towards a useful tool for organising software provisioning activities. Integrating GGUS, RT, a repository backend, DocDB and EGI SSO allows re-using this infrastructure (with necessary modifications) for any type of software endorsement beyond provisioning software into UMD releases.

4.2. Main Achievements

4.2.1. Quality Criteria

The Quality Criteria Task has produced the final version of the second release of the Quality Criteria documents during the first week of August. With the introduction of this release, a complete review of the mapping of products and criteria was performed in collaboration with the Criteria Verification teams. Several tools for automation of the creation of the mapping and the verification templates were also developed.

The process for publication of the third release of the documents was started as soon as the second release was made final and currently a first draft is publicly available for review for quality managers of the different Quality Assurance task force. The draft adds the following capabilities: VM Management (based on OCCI and common features of VM management systems), VM Image Format (based on OVF) and Client Tools. The Quality Criteria definition team continues with the definition of

the missing capabilities and plans to have complete coverage of the UMD Capabilities for the second public draft of the documents.
Apart from the coverage of new capabilities, the Quality Criteria definition team is analysing any issues found with the UMD distribution products now that they are beginning to be deployed at the Infrastructure. Documentation of all the changes in the documents and sources of these changes is available at the Quality Assurance wiki[86]. In particular, two incidents resulted in a new quality criterion (INFOMODEL_SCHEMA_2) and a major revision of an existing quality criterion (JOBSCH_WMS_BUG_1).
TSA2.2 keeps improving the existing and providing new sets of Quality Criteria. During PQ6 Quality Criteria for the following EGI Capabilities became final with the second Quality Criteria Documents release:

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

4.2.2. Criteria Verification

EGI Verification process has started using the new Quality Criteria release (v2). All the new products released by the TPs are currently assessed using this new QC version. To synchronize the verification reports templates and the latest QC version it were developed different scripts. These scripts are able to generate an excel cheat sheet per product using the current QC service mapping[87]. A new set of Verification cheat sheets and a new executive summary are now available using this new procedure[88].
The verifier's guideline and testing procedures were also modified in the last months (https://wiki.egi.eu/wiki/EGI_Verifier_Guideline), resulting in one verification report (merging the previously two reports into one document) facilitating easier external reviews. Apart from that Metrics are now more accurate because RT "Time Worked" field must be filled by the verifiers to evaluate the effort expended during EGI software provisioning process. The new procedure was used to verify the software provided by IGE; with the release of UMD 1.2.0 also the Globus platform is available in the UMD repository.
The team has started to produce an inventory of middleware expertise among its members to proactively mitigate any lack of knowledge that may threaten the verification performance of quality. The verifier skill matrix is available[89].
Out of 31 products that were verified against the current set of Quality Criteria, two had to be rejected:

- WMS 3.3.2 was rejected since it failed to interact with the MyProxy credential delegation service[90].

[86] http://wiki.egi.eu/wiki/EGI_Quality_Criteria_Dissemination
[87] https://documents.egi.eu/document/418
[88] https://documents.egi.eu/document417
[89] https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Verification#Verification_engineer_skill_matrix
[90] WMS 3.3.2 Verification report, https://documents.egi.eu/document/761

- SAM Update 13 was rejected for UNICORE monitoring probes missing in the release, causing the installation of SAM Update 13 to fail[91].

4.2.3. Deployed Middleware Support Unit

The following summarises the DMSU's activity in PQ6:

- Tickets assigned to DMSU: 183
- Tickets re-assigned back to TPM: 18
- Tickets forwarded to 3rd level support: 140
- Tickets solved by 3rd level support: 133
- Tickets solved by DMSU: 37

The following average ticket solution times for the DMSU and the 3rd level support units:

- DMSU: 17.3 days (mean), 11 days (median)
- 3rd level support: 2.7 days (mean), 0 (median)

Regular daily work of DMSU follows the established procedures. In this quarter even more care was paid to not reassigning tickets, which can be solved in DMSU, to 3rd support. This is visible in the ticket statistics: 183 tickets were assigned to DMSU (less compared to PQ5 due to top holiday season), out of those 37 were solved, which is 20%, up by 2% compared to PQ5. The fraction of tickets returned to TPM remains at 10%.

The mean and median time to solve a ticket are 17 and 11 days; those high numbers reflect the holiday season again, the statistics include "waiting for user's reply" state of the tickets, and we experienced even two or more weeks without user's reaction rather frequently.

DMSU produced two requested "best practices" documents on VOMS and WMS high-availability setup. The documents were reviewed internally and they were made available to EGI Operations team. DMSU also produced tentative "known problems" documentation. It was strongly appreciated by EGI Operations, and an exact form of this documentation was agreed.

Besides the work visible through GGUS DMSU members also handle middleware issues coming through traditional channels for non-gLite middleware support (NGI-DE and NDGF helpdesk). DMSU also collaborates with EMI and IGE in final pre-release tests, bringing in the experience from production scale deployment, and helping to proactively fix issues that could have disturbed the production otherwise.

The original DMSU processes described in MS502 include negotiation of ETA (Estimated Time of Arrival) for each ticket. This process was discussed with EGI's Technology Providers (TP). At the TCB-7 meeting (http://go.egi.eu/TCB-7) it was agreed that a specific ETA for each ticket is not required; instead DMSU will monitor the progress of tickets of two highest priorities to be fixed within one week and one month respectively. This process is in place for EMI and other TPs are expected to follow the same approach. Tickets of lower priorities will be addressed by TPs according

[91] SAM Update 13 Verification report, https://documents.egi.eu/document/760

to available effort. It was also agreed that DMSU is the authoritative body for setting the ticket priority.

DMSU also participated in discussion with the GGUS team on redesign of GGUS reports. The new reports will support monitoring project metrics related to DMSU work as well as SLAs with TPs.

4.2.4. Support Infrastructure

In support of the other SA2 activities the following changes and activities were carried out for the support infrastructure, grouped by module:

Repository Backend

The admin-repo composer module has been extended in such way in order to be capable of deploying Release Candidates for a given UMD release prior to the official deployment of a UMD release into the production. In particular:

- Only one test release per UMD major version should be available on request during a specific UMD release composition lifecycle (e.g. UMD 1.3.0 RC 1), where the creation of a new release candidate would remove the previous one
- Release Candidates appear in a separate space in the UMD repository and only as long as there are release candidates available to test. StagedRollout early adopter sites are approached to test the RCs.

Also, several modifications were applied to the communication between the repository admin module and the Wordpress frontend instance for RSS feed synchronisation:

- The publication date of the post has been changed in order to indicate the actual UMD release date and not the lastUpdateDate,
- A new RSS field (the 'updated' field) has been introduced,, providing the lastUpdateDate of a given UMD release.

Repository frontend

- Bug fixes and enhancements (release posts have a fixed release date and a last updated date) for the software developed (rss plugin)
- Extended the rss plugin to include release candidate posts in the portal in order to support publication of Release Candidates as defined in the paragraph above.
- Automatic updates for the production site

Request Tracker

- Created mechanism to calculate the Verification effort metrics in the sw-rel queue
- Provided a guest access to the EGI RT, this included reconfiguration and refinement of the RT access rights as well as quite heavy modifications of RT code as the RT was never designed for guest access.
- Implemented minor bug fixes in the requirements workflow
- Tuned the EGI RT/RT-IR for the EGI CSIRT
- User groups and group rights redefinition

- User rights tuning
- Performed maintenance of the EGI RT - GGUS interface as there was a couple of changes in the GGUS WSDL

IT Support

- Created CSS for print versions of the www.egi.eu pages
- Created support for rotating images on the www.egi.eu home page
- Created support and test site wwwtest.egi.eu for new navigational structure
- Performed regular monthly updates of the inspire-members group from PPT Excel table
- Added support for IFRAME widgets
- Solved various user problems with Indico and other systems
- EGI Wiki/Indico/Jabber/DocDB, SSO groups and mailing lists administration

4.3. Issues and Mitigation

4.3.1. Issue 5: UMD Capabilities not yet defined

TSA2.2 is continuously improving the quality and coverage of the EGI Quality Criteria. The current public draft[92] includes the definition of the following capabilities, that will become definitive when the final version of the documents are released:

- VM Management (based on OCCI and common features of VM management systems)
- VM Image Format (based on OVF)
- VM Image Distribution (based on the StratusLab Marketplace)
- Client Tools
- Workflows (based on Taverna, Kepler and Triana)

4.3.2. Issue 11: Requirements reported as support requests

No requirement-type tickets coming from the user community itself appeared in the reporting period (there were several ones initiated by the EGI support team only), therefore no further validation of the defined process was done. However, since the process is defined the issue is resolved.

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

The ratio improved from 18% in the previous period to 20% as recorded in the metrics witnessing the deployed DMSU processes address the issue. Therefore this issue is considered resolved.

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

The Verification process has changed during PQ5. Now verifiers must fill the "Time Worked" field in the respective RT ticket when finishing the Verification and updating DocDB and RT. This change will help to generate accurate reports in the future about the real time worked. Together with TSA2.4 the reports for verification effort metrics will be automated, thus resolving this issue.

[92] http://go.egi.eu/qualitycriteria-draft



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

After the new UMD releases and the verification process consolidation we expect that the time effort will decrease the next months. The new RT reports to check SA2 metrics and the inclusion of new verifiers will help to solve this issue. Meanwhile this issue should remain open.

4.3.6. Issue 15: Distorted DMSU statistics when waiting for a user reply

Some users take long time to provide additional information requested in tickets, yielding distorted statistics of ticket processing. The issue was discussed with GGUS team, and support for automated state transitions as well as reports excluding the "waiting for reply" time will be provided.

4.3.7. Issue 16: GGUS does not provide sufficient reporting for DMSU

The GGUS service desk infrastructure in EGI does not provide sufficient reporting capabilities for the DMSU. To assess the adaptability of Technology Providers to changing ticket load it is necessary to provide a series of reports and SLA metrics that are more detailed that what GGUS currently provides. KIT hosted a F2F meeting on extending the GGUS report generator on 26/27 October 2011[93] . Requirements were recorded and the GGUS development team will provide a roadmap when the requested reports will be available.

4.3.8. Issue 17: Non-gLite tickets are still not routed through GGUS

Despite most ARC and UNICORE components having been released through EMI and having entered UMD, the production sites tend to be conservative and to use traditional repositories. Also full integration of pure UNICORE sites into EGI has not been achieved yet. Consequently also traditional support channels are used, indicating that further education of EGI users of those platforms is necessary.

The DMSU observed this problem occurring locally, mostly in Nordic countries and Germany, because this software is not so widespread as gLite; issues are reported and handled through local helpdesks mimicking the deployment patterns of the various middleware platforms (bypassing UMD, and even EMI repositories). With the reported issues eventually arriving with the software maintainers being planned into software updates it is perceived difficult convincing the local support staff not to take in the issues and divert the users to the GGUS based Service Desk.

4.4. Plans for the next period

PQ7 will see a split in the activity's theme. Existing processes and infrastructures are maintained and followed in operational mode, with regular reviews and resulting changes being implemented and deployed into SA2 provisioning activities. As the Quality Criteria and the surrounding processes mature, TSA2.2 will continue conducting regular Quality Criteria reviews and publications of final documents. TSA2.3 in turn will use those to verify software delivered by Technology Providers for provisioning onto the EGI. The support infrastructure will be prepared for provisioning software based on Debian based Linux distributions well in advance of EMI expanding their platform support to

[93] https://www.egi.eu/indico/conferenceDisplay.py?confId=655

Debian 6 with EMI-2 in April 2012. 2nd level support for deployed middleware keeps following established processes, while the DMSU will further integrate and improve documentation for specific middleware configuration issues, and contribute these to a general platform-oriented set of documentation for UMD.

At the same time SA2 will start exploring its own sustainability by investigating how to scale out the implemented processes and infrastructure into a service offering embedded in the overall EGI service landscape for its worldwide users. By gradually transforming into more generalised versions of themselves, existing processes and artefacts will start separating themselves from the provisioning activities for regular UMD releases while continuing to serve the UMD software provisioning activities all the same. Once this separation is accomplished, the provisioning infrastructure will be ready to be opened up and advertised as a service for almost any kind of provisioning activity.

More specifically,

- TSA2.2 will investigate how to transform the current review and release process for Quality Criteria into a product orientated process. Through this the overall Quality Criteria development process gains more flexibility while retaining the established infrastructure for criteria change management and dissemination. This allows generalising the process into supporting any types of quality criteria management beyond Grid middleware.
- TSA2.3 will improve the verification test-bed so that the verification officer is able to self-service the necessary infrastructure for individual purposes facilitating the growth of the verification test-bed beyond Grid middleware verification.
- TSA2.4 will start investigating the necessary changes to support provisioning software encapsulated in Virtual Machine images leveraging the know-how accumulated by the StratusLab Project.

5. EXTERNAL RELATIONS

5.1. Summary

The main activity for the External Relations team in PQ6 has been targeted towards the organisation of and dissemination for the EGITF11. The event was held from 19-23 September 2011 in Lyon, France, organised in collaboration with local hosts CC-IN2P3 and France Grilles. In total, 655 participants registered for the event, the largest attendance at an EGI event to date. The event was collocated with the Open Grid Forum, Grid2011, GlobusEUROPE, a French Grid Day and the 9th e-Infrastructure Concertation meeting.

The outreach for the event was led by the EGI.eu Dissemination team, which included setting up a co-marketing agreement with the publishers of HPCwire, HPCinthecloud and Datanami, hosting a journalist from HPC in the cloud at the event, running EGI dissemination booths, establishing the social media channels and blogging from the event. In the run up to the EGITF11, the team updated the website with content about sponsors, added poster and presentation templates for delegates and also printed booth materials such as posters and banners. The team also created promotional materials for distribution on the booth to advertise the EGI Community Forum in Munich in March 2012, and participated in the Programme and Organising Committee.

During PQ6, 5 MoUs were signed: MAPPER, ScalaLife, SIENA (Project), MERAKA (infrastructure provider) and HMRC (VRC) – 2 of these were signed and announced at the EGITF11. The PDT also organised two workshops at the event, including a workshop on Horizon2020 and a sustainability and business models workshop. Seven more MoUs are under active negotiation: DANTE (Organisation), SHIWA, EDGI, DC-NET, e-Nventory (Project), BCC/Ukraine (infrastructure provider), UVACSE (TP) and WLCG (VRC). Four articles on policy were published in the EGI blog during PQ6..

Articles about EGI were published in Supercomputing Online, HPC in the Cloud, International Innovation, Public Service Review: European Union 22 and there were 3 EGI items in iSGTW. The sixth issue of the EGI Inspired was prepared during PM18, and distributed on 1 November and three Director's letters were published.

5.2. Main Achievements

5.2.1. Dissemination

The redevelopment of the EGI branding is still to be completed, including a new design for the project website in response to the first year project review comments. A full review of the website was carried out in the light of the review comments and a new structure for the navigation is being developed, together with reworked and additional content. The new structure will be based on a dynamic two tier menu, and will pull out strands of content for new users, existing users, the general public, policy makers and others.

Further use cases have been developed for http://www.egi.eu/results/success_stories/, including a use case on research into dinosaur movement which was also published as a news item, and in iSGTW[94]. The blog has continued to be active, and there are now 69 blog posts in total. The EGI team worked with CESNET to publish the feed from the most recent blog posts on the home page of the website during the quarter, and this was achieved in time for the EGITF11. Members of the dissemination team have also blogged for the GridCast blog[95] at events such e-Challenges event in Florence in October.

The sixth issue of the EGI *Inspired* was prepared during PM18, and distributed on 1 November. The project team also produced three Director's letters in August, September and October. Articles about EGI were published in *Supercomputing Online*, *HPC in the Cloud*, *International Innovation*, *Public Service Review: European Union 22* and there were three EGI-related items in *iSGTW*.

A co-marketing agreement was signed between EGI, GlobusEUROPE and Tabor Communications to cover the EGI Technical Forum and GlobusEUROPE conference. A joint press release was issued "Tabor Communications announces co-marketing partnership for the European Grid Forum and GlobusEUROPE conference" on 13 September, and also released via the EGI news and Twitter feed. The US *HPC in the cloud* Editor attended the conference and posted several articles in *HPC in the Cloud* based on interviews at the event, including videos. A separate media invitation was issued to 2,600 journalists through the AlphaGalileo press service, submitted to the Cordis press page and was also published on the EGI website and sent to the media contacts list and the dissemination mailing list.

NA2.2 ran an outreach campaign during the EGITF11 event which included supporting the journalist from *HPC in the cloud*, running an EGI dissemination booth, establishing the social media channels and blogging from the event. During the event, there were 250 Tweets from 27 people, 20 photos on Flickr, 27 blog posts on GridCast, including 9 videos. Before the event, the website received 3000 unique visitors, spending nearly 3 minutes on the pages. Nearly 1000 of these visitors went to the website during the event and 25% of these were new visits. In the run up to the event, the team updated the website with content about sponsors, added poster and presentation templates for delegates and also printed booth materials such as posters and banners. The team also created promotional materials for distribution on the booth to advertise the EGI Community Forum in Munich in March 2012, and participated in the Programme and Organising Committee. NA2.2 planned to run a session in Lyon, a "Birds of a Feather" event focusing on shared dissemination experiences with members of NA2.2, but due to clashes with other sessions on the programme, the session was cancelled. A bookmark was designed and printed to advertise the training market place in collaboration with NA3.

NA2.2 attended a number of additional events during PQ6, including the TERENA communications meeting in Belgrade, Serbia in September, the UK All Hands Meeting, York, in September, and a booth at eChallenges in October.

[94] http://www.isgtw.org/feature/how-fast-could-t-rex-run?

[95] www.gridcast.org

Partners in NA2.2 from IPB attended LMC8 -8th Liquid Matter Conference in Vienna and the TEDx event in Belgrade. ILSAS organised the 7th International Workshop on Grid Computing for Complex Problems GCCP2011, October 24-26, 2011, Bratislava. CESNET published a year book for 2010 and hosted a workshop on campus network monitoring.

5.2.2. Policy

EGI.eu worked on several aspects through the Policy Development Team (PDT). As regards the establishment of external collaboration[96], 5 MoUs were signed: MAPPER, ScalaLife, SIENA (Project), MERAKA (infrastructure provider) and HMRC (VRC). Seven more MoUs are under active negotiation: DANTE (Organisation), SHIWA, EDGI, DC-NET, e-Nventory (Project), BCC/Ukraine (infrastructure provider), UVACSE (TP) and WLCG (VRC) (). Concerning the advancement of the already signed MoUs[97], the achievement of milestones was tracked through direct engagement with the partners. In the area of the SLA with the technology providers, requirements for enabling SLA monitoring were fed to the GGUS development team.
The PDT organised two workshops at the EGI Technical Forum:

- The EGI Policy Development workshop focused on disseminating of the latest developments in the area of Horizon 2020 and Structural Funds through two hand-outs[98], presentations and discussions.
- The EGI Sustainability and Business Models workshop offered a discussion forum for the sustainability aspects of the EGI ecosystem entities (user communities, technology providers, NGIs). An analysis document based on a survey was given to the attendants while a summary report was written afterwards[99]

In terms of message delivery, the PDT authored four articles published in the EGI blog (http://www.egi.eu/blog/categories/policy/): 'Understanding costs of e-Infrastructures', 'Exploring Business Models to Sustain EGI' and 'Report from e-IRG Workshop'; an article for the autumn e-IRG newsletter; an article for the summer Inspired newsletter; an article for the autumn Inspired newsletter.
The PDT contributed to the EC survey on cloud computing and updated the lists of actions to be monitored about the Digital Agenda for Europe (https://wiki.egi.eu/wiki/PDT:DA) and the Innovation Union (https://wiki.egi.eu/wiki/PDT:DA).
The PDT also provided review/moderator support for a number of deliverables/milestones and also supported the activities of the various EGI policy groups through secretarial support. The deliverable D2.12 (EGI Standards Roadmap, http://go.egi.eu/721) was also published. In the area of strategic planning, the PDT started a market segments analysis to understand what is the size and categories of the research community in Europe. Furthermore it started a value network analysis of the EGI ecosystem to better understand the value creation activities in each interaction among the various

[96] https://wiki.egi.eu/wiki/PDT:Agreements
[97] https://wiki.egi.eu/wiki/PDT:MOU_advancement
[98] https://documents.egi.eu/document/799 and https://documents.egi.eu/document/800
[99] http://go.egi.eu/egitf11-sustainability-workshop

entities. The Policy Development Manager attended the DCI Projects meeting and provided with the minutes.

The TUBITAK ULAKBIM Technical Deputy Director attended the Research Infrastructure Workshop (28 June – 1 July 2011) organised by Ministry of Development. The workshop goal was to provide a wide range and high level discussion and study environment for the research infrastructure of Turkey considering these main topics: Investigation of national research centres in terms of management, sustainability, openness, performance monitoring, employment and funding, Modelling for Industry-university-public collaboration, Policy discussion. The TUBITAK ULAKBIM Technical Deputy Director provided information about FP7 infrastructure projects including EGI-InSPIRE at national level. In July 2011, the TRUBA (Turkish Science e-Infrastructure) Advisory met to draw the main frame of the national science e-infrastructure policy roadmap. The Advisory Board representatives are from TUBITAK, Ministry of Development, Undersecretaries for Defence Industries, Disaster and Emergency Management Presidency as well as 4 main universities and two main industry companies. The representative of NGI_TR was participated EGITF11.

UISAV was represented at the EGITF11 through Ladislav Hluchy. Furthermore, UISAV participated in the panel discussion at the workshop GCCP2011 (accounted 1 hour) where problems within SlovakGrid infrastructure were discussed with workshop participants, guests from Slovak ministry of education and other guests.

INFN contributed to the new SPG document on the endorsement and operation of virtual machines (see https://documents.egi.eu/document/771). An extensive work has also been performed on the study of the EUGridPMA policies and their requirements for the design of an Online Certification Authority, which will possibly be used for a general-purpose grid portal which is being developed in the Italian NGI. The NA2.3 INFN participant also attended the EGITF11.

CSIC through Jesus Marco participated in the regular EGI-InSPIRE PMB discussions and also in the F2F meetings that took place in Lyon. He has also attended the Council meeting in Lyon as invited expert. In the context of the PMB he has provided input on cloud infrastructure developments and policies. Isabel Campos has worked in the context of the Executive Board following up the development of EGI.eu. During PQ6 there has been work related to the evaluation of the participation of EGI.eu in European proposals of the upcoming call on 23rd of November. There has also been an analysis about the methodology of dealing with of defaulting partners both at the foundation level, and at the level of EGI-InSPIRE. In particular a document with the implications and procedures for switching off services to defaulting partners is currently under consideration at the EB.

TCD provided comments and participated in meetings related to the SPG Virtual Machine Endorsement policy, with a particular emphasis on matching the policy to the StratusLab Marketplace for virtual machine images and related tools.

STFC has continued to lead the Security Policy Group (SPG). Four meetings of SPG were organised and chaired. A major activity during this quarter was the completion of two security policy documents. Firstly, the "Service Operations Security Policy" was finalised. Feedback from the agreed wide consultation process was addressed and this is now ready for approval and adoption (see https://documents.egi.eu/document/669). Secondly, a new security policy related to the "Endorsement and Operation of Virtual Machine Images" was finalised. Feedback from the wide consultation was

addressed and this is now ready for approval and adoption (see https://documents.egi.eu/document/771). Work also started on the revision of the old top-level Security Policy. The general trust of changes required was discussed and agreed during EGITF11 and work will continue in PQ7.

The SPG Chair also worked on the following topics: 1) Attended several TAGPMA (International Grid Trust Federation) phone conferences. He also attended the TAGPMA face to face meeting at ORNL in Tennessee, USA (11-12 Oct) representing the interests of EGI and WLCG as a relying party of the PKI; 2) Continued work on the activity called "Security for Collaborating Infrastructures" which is collaboration between EGI, WLCG, OSG, PRACE, and XSEDE to build a standard framework for security policy for interoperation. A face to face meeting was organised and held at FNAL (Chicago, USA) by the SPG chair on 20-21 Oct. Good progress was made on draft text; 3) Planning was carried out for the 2nd workshop on Identity Management for Scientific Collaborations which will be held at RAL in early November 2011. The SPG chair was on the organising committee for this both as a local host and as a Security architect/contact person for the HEP community.

5.2.3. Events

The EGI Technical Forum was held from 19-23 September 2011 in Lyon, France. The event was organised in collaboration with local hosts CC-IN2P3 and France Grilles. In total, 655 participants registered for the event. Unfortunately about 80 persons registered or paid on site. This makes planning and budgeting very difficult. There were 132 contributions from 296 speakers and 34 session conveners. Women made up 9% of speakers and 21% of session conveners. The event was collocated with the Open Grid Forum, Grid2011, GlobusEUROPE, a French Grid Day and the 9th e-Infrastructure Concertation meeting, which was organised by the e-ScienceTalk project in collaboration with the EC. Of the total number of delegates, 120 attended the Concertation meeting.

The outreach for the event was led by the dissemination team, who set up a Twitter hashtag for the event (#egitf11), a Flickr tag and provided blog posts on the EGI.eu and GridCast blogs. Videos were also posted on YouTube from the event. The event website received 7500 visits in the run up to the event with nearly 30,000 pages viewed. During the forum, a number of MoU's were signed and announced, between EGI and SAGrid, EGI and SIENA and EMI and EDGI.

A feedback survey was launched at the end of the event and received 114 responses, a response rate of 17%. Nearly 90% of respondents found the conference website quite or very useful, tying in with the high hit rate for the site. Around 75% found the registration process quite or very easy to use and around the same percentage found the EGI staff helpful (with 23% responding 'I don't know'). Over 80% referred to the online programme for the event, and 69% found the short programme provided in the badges useful. Only 40% reported that they used the printed programme provided in the conference bags. About 10% found the registration fees good value for money, with 46% finding them acceptable and 39% higher than average for similar events. For the social media channels, around a quarter referred to the EGI blog, 14% to iSGTW, 43% read the GridCast blog, 19% looked at the FaceBook group and 45% used Twitter.

As a result of the media partnership with HPCwire and HPC in the cloud, several articles about the event were published in these two publications and future events will be advertised as banner adverts and featured events.

5.3. Issues and mitigation

There are no new issues to report.

5.4. Plans for the next period

In PQ7, the work packages NA2 and NA3 will merge. This will lead to some restructuring of the joint teams and adjustments in planning for outreach activities. In particular, a new collaborative events team will be formed between TNA2.2 and TNA2.4 to jointly plan outreach and attendance at events. This will streamline the planning processes and ensure that marketing materials such as brochures and posters can be targeted very closely to their target audiences. The emphasis will be on bringing new users on board, and will include planning for attendance at events such as the EGI Community Forum 2011 in Munich, Cloudscape-IV in Brussels, ISC2012 in Hamburg and the EGU General Assembly 2012. The marketing team will also assist with the roadshows planned by TNA2.4.

The team will continue work on the restructuring of the main EGI website, including populating the website with content and working with the new NGI International Liaisons to contribute organisational and people profiles, success stories via a virtual team.

NA2.2 will also continue to participate in the Programme Committee for the ISGC2012 event in Taiwan in March 2012 and the PC and LOC for the Community Forum in March, contributing to the website, the exhibition and sponsorship guides and the marketing materials.

NA2.2 will work with Public Service Review to produce a dedicated 8 page booklet about EGI, which will include an article about the Digital Agenda Commissioner, Neelie Kroes by the *Public Service Review: European Union* Editor, for distribution to 140,000 contacts by email and in printed form at the SciTech Europe event in Brussels in November.

The marketing team will attend and prepare for a number of additional events during PQ7, including a booth at SC11, Seattle, US in November and an information stand, masterclass and articles at SciTech Europe in Brussels, Belgium in November. The team will also attend the eScience 2011 event in Stockholm in December.

EGI.eu will focus on continuing the MoU negotiation and advancement, contributing to the setting up of the NGI International Liaisons role and some of the related virtual projects. Activities will also cover the planning for the next EGI Community Forum and the support to the strategic planning of EGI including the sustainability aspects. The EGI Glossary will be also finalised and published as part of the new website.

STFC: The two new/revised security policies mentioned in the report section will be taken through the approval process. Work will continue on the revision of the top-level main Security Policy document. Work will also hopefully start; time permitting, on a new updated policy on the security aspects of Data Privacy. A full face-to-face meeting of SPG will be organized for January 2012 to plan the work for the next year. Work will also continue on the IGTF Attribute Authority Profile and on the text of



the document for "Security for Collaborating Infrastructures". A workshop on Identity Management for Scientific Collaborations will be hosted at RAL and the SPG chair will speak and chair a session.

EGI.eu is currently organising the first EGI Community Forum, which will be held on 26-30 March at the Leibniz Supercomputing Centre (LRZ) in Garching near Munich, Germany. The event will be held in partnership with Munich Network Management, a consortium of four German research institutions and will be held jointly with the EMI 2nd Technical Conference. The Community Forum will be held in conjunction with the 2nd EMI Technical Conference.

The key goal of the Community Forum is to showcase the role that EGI plays in enabling innovation across the European Research Area. The forum will highlight the services, technologies and tools available to scientific communities to better support their research.

6. CONSORTIUM MANAGEMENT

6.1. Summary

PQ6 saw the preparation of the first phase of the changes proposed by the EC Reviewers' Recommendation within the project in the form of a new Description of Work. This followed extensive consultation and discussion in the run up to and after the EGITF in Lyon in September within the project as to the best way to respond to the review recommendations.

6.2. Main Achievements

6.2.1. Project Management

The main focus during PQ6 was responding to the recommendations that had come from the First EC Review. The review recommendations on the work done in the first year and their proposed changes for future work were classified into three areas:

- Structural changes in the project
- Work that could be undertaken with the existing project structures
- Work that would be undertaken with the new project structures

The most significant change was the movement of the work to support the existing user communities to SA1 (specifically task SA1.7) and the merger of NA3 (User Community Support) with NA2 (Eternal Relations). The motivation behind these structural changes was to provide a renewed focus within the project on developing the strategic direction of the project around attracting new communities and communicating this work to the these new communities and to generally raise the profile of the project's activities.

The new merged NA2 would provide a flexible structure using a *Virtual Team* model. Virtual teams provide the means to dynamically bring together experts from within and outside the project to a particular task for a period of up to 6 months. It was felt that such a structure would provide the best approach to meeting the wide ranging topics that the Reviewers felt needed to be addressed, yet did not lock the project into a particular grouping for an activity in case that activity proved to not work. NGI International Liaisons from each NGI would provide the coordination point within that NGI to identify the relevant experts (if any) that the NGI could contribute to a virtual team. The virtual teams within the NGIs would be supported by the central teams in EGI.eu in areas such as Communications and Marketing, Strategic Planning and Policy Support, Community Outreach and Technical Outreach to New Communities.

The existing services in TNA3.4 enabling user communities to discover community training resources (through the training marketplace) and ported applications (the AppDB) where retained to support the technical outreach to new communities as part of the new TNA2.5. The work providing VO Services

was split with the focus on supporting existing user communities transferred to SA1 and with that effort services would be provided to support the work of the NGI International Liaisons in the new NA2.

6.2.2. Milestones and Deliverables

Id	Activity No	Deliverable / Milestone title	Lead partner	Original Delivery date(*)[100]	Revised delivery date(*)	Status (**)
D6.4	WP6	Capabilities offered by the HUCs to other communities https://documents.egi.eu/document/472	CERN	16	18	PMB approved
MS220	WP2	Review of the website content https://documents.egi.eu/document/601	EGI	16	16	PMB approved
MS413	WP4	Deployment plan for the distribution of operational tools to the NGIs/EIRO https://documents.egi.eu/document/704	EGI	16	17	PMB approved
MS414	WP4	Integrating resources into the EGI Production Infrastructure https://documents.egi.eu/document/650	EGI	16	18	PMB approved
MS509	WP5	Service Level Agreement with a Software Provider https://documents.egi.eu/document/615	EGI	16	16	PMB approved
MS612	WP6	HUC Software Roadmap https://documents.egi.eu/document/684	EGI	16	18	PMB approved
D2.12	WP2	Standards Roadmap https://documents.egi.eu/document/721	EGI	17	18	PMB approved
D4.3	WP4	EGI Operations Architecture https://documents.egi.eu/document/763	EGI	17	19	PMB approved
MS221	WP2	EGI Technical Forum	EGI	18	18	PMB approved

[100] *(*) Dates are expressed in project month (1 to 48).*
(**) Status = Not started – In preparation – Pending internal review – PMB approved

Id	Activity No	Deliverable / Milestone title	Lead partner	Original Delivery date(*)[100]	Revised delivery date(*)	Status (**)
MS222	WP2	EGI Newsletter https://documents.egi.eu/document/878	EGI	18	18	PMB approved

6.2.3. Consumption of Effort

Selected period: PM16 to PM18 (August 2011 to October 2011)

Report extracted on 29 November 2011

Type	Work Package	Worked PM Funded	Committed PM	Achieved PM %	Achieved PM PQ5 %	Achieved PM (YEAR1) %
MGT	WP1	20,2	20,6	98%	98%	77%
COORD	WP2	42,2	117,5	36%	93%	80%
COORD	WP3	60,4	160,0	38%	105%	86%
SUPPORT	WP4	306,1	296,3	103%	107%	98%
SUPPORT	WP5	28,8	31,4	92%	101%	81%
SUPPORT	WP6	63,3	61,0	104%	98%	102%
RTD	WP7	20,9	23,8	88%	81%	76%
	Total	542,1	710,6	76%	103%	93%

The detailed breakdown of effort contributed to each work package by each partner is provided in the following tables for PQ6. 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.

Selected period: PM16 to PM18 (August 2011 to October 2011)
Report extracted on 29 November 2011

Project Quarter 6

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	9,9	8,9	111%
Total:	9,9	8,9	111%

WP1-M - WP1 (NA1) - NA1 Management

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	10,1	11,2	91%
Total:	10,3	11,7	88%

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	21,9	51,3	43%
26A-FOM	0,5	0,8	58%
34A-STFC	1,3	3,2	41%
Total:	23,7	55,3	43%

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
2-UPT	0	2,0	0%
5A-IICT-BAS	0,0	1,3	2%
7C-SWITCH	0	1,2	0%
8-UCY	0,6	1,3	44%
9-CESNET	0,6	1,3	46%
10B-KIT-G	0,9	2,3	38%
10E-BADW	0	0,5	0%
12A-CSIC	1,4	3,8	37%
12D-UPVLC	0	2,0	0%
13-CSC	0,1	2,8	3%
14A-CNRS	1,2	2,3	52%
14C-HealthGrid	0,4	1,2	33%
18B-BME	0,3	0,3	86%
18C-MTA SZTAKI	0	0,3	0%
19-TCD	0,4	1,0	37%
20-IUCC	0,2	0,7	30%
21A-INFN	0,9	3,3	27%
22-VU	1,5	3,5	43%
26A-FOM	0,2	0,5	43%
26B-SARA	0	0,7	0%
27A-SIGMA	0	1,0	0%
28A-CYFRONET	0,9	2,7	33%
29-LIP	0,5	2,0	24%
30-IPB	0,8	2,0	39%
31-ARNES	0,3	3,0	9%
31B-JSI	1,3	1,7	77%
32-UI SAV	0,4	1,3	26%
33-TUBITAK ULAKBIM	1,0	2,7	39%
34A-STFC	1,1	4,0	28%
36-UCPH	0,8	2,0	40%
38-VR-SNIC	0,3	0,3	89%
38A-KTH	1,4	1,0	138%
39-IMCS-UL	0,1	3,7	2%
40A-E-ARENA	1,1	2,3	47%
Total:	18,6	62,2	30%



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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	12,9	33,5	38%
12A-CSIC	0,3	2,0	16%
16A-GRNET	2,7	5,7	47%
16E-IASA	0	2,2	0%
29-LIP	0,5	2,0	25%
34A-STFC	2,9	3,0	95%
34B-UE	0	0,8	0%
Total:	19,3	49,2	39%

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
2-UPT	0	5,2	0%
3-IIAP NAS RA	0,1	1,0	7%
5A-IICT-BAS	0,0	1,3	2%
7A-ETH ZURICH	0	0,7	0%
7B-UZH	0,3	1,3	21%
8-UCY	0,5	1,3	36%
9-CESNET	1,1	4,7	25%
10B-KIT-G	2,6	7,0	38%
10C-DESY	0,7	1,5	47%
10D-JUELICH	0	0,5	0%
10G-FRAUNHOFER	0,9	2,0	43%
12A-CSIC	0,3	0,5	66%
12D-UPVLC	1,3	4,0	32%
13-CSC	3,4	4,0	86%
14A-CNRS	2,7	4,8	56%
14B-CEA	0	1,8	0%
14C-HealthGrid	1,4	2,3	60%
15-GRENA	0,4	1,0	41%
18A-MTA KFKI	0,6	1,5	42%
18B-BME	0,3	1,5	23%
18C-MTA SZTAKI	1,9	2,3	81%
19-TCD	0,9	2,3	37%
20-IUCC	0,7	2,2	32%
21A-INFN	1,8	6,7	26%

22-VU	0	2,5	0%
23-RENAM	1,1	1,5	76%
26A-FOM	0,1	0,7	9%
26B-SARA	3,1	0,8	373%
27A-SIGMA	0	0,7	0%
27B-UIO	0	1,2	0%
27C-URA	0,8	2,7	29%
28A-CYFRONET	0,1	1,1	9%
28B-UWAR	0	2,4	0%
28C-ICBP	2,3	2,3	98%
29-LIP	2,5	4,7	54%
30-IPB	1,1	2,7	39%
31-ARNES	0,4	1,8	19%
31B-JSI	0,7	1,3	51%
32-UI SAV	1,4	6,3	23%
33-TUBITAK ULAKBIM	2,9	6,0	48%
34A-STFC	1,2	2,7	44%
34C-UG	0,6	0,7	94%
34D-IMPERIAL	0	0,7	0%
34E-MANCHESTER	0	0,7	0%
36-UCPH	0,5	3,3	15%
38A-KTH	0	1,5	0%
40A-E-ARENA	0,6	1,2	47%
Total:	41,2	110,8	37%

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	2,4	2,3	107%
10B-KIT-G	4,9	4,4	112%
12A-CSIC	1,1	1,1	102%
12B-FCTSG	0,5	0,8	69%
13-CSC	0,1	1,4	5%
14A-CNRS	1,0	0,8	131%
16A-GRNET	1,8	4,4	41%
17-SRCE	0,7	0,7	106%
21A-INFN	3,0	2,3	131%
21B-GARR	0,1	0,8	13%
26A-FOM	1,9	0,4	442%

26B-SARA	2,9	1,4	201%
28A-CYFRONET	1,3	1,4	90%
29-LIP	1,1	1,1	102%
34A-STFC	5,0	4,2	120%
35-CERN	4,7	3,7	128%
38A-KTH	1,6	1,4	110%
Total:	34,1	32,4	105%

WP4-N - WP4 (SA1) - SA1 Operations

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
2-UPT	0	2.0	0%
3-IIAP NAS RA	0.8	1.2	63%
5A-IICT-BAS	1.0	6.8	15%
5B-IOCCP-BAS	0.2	0.5	44%
5C-NIGGG-BAS	3.7	0.5	743%
6-UIIP NASB	1.5	1.9	80%
7A-ETH ZURICH	1.6	2.1	77%
7B-UZH	1.1	1.1	101%
7C-SWITCH	2.6	2.1	122%
8-UCY	1.5	3.0	49%
9-CESNET	6.6	8.0	83%
10B-KIT-G	7.0	8.5	82%
10C-DESY	2.1	1.6	128%
10D-JUELICH	1.6	1.6	98%
10E-BADW	2.3	2.8	82%
10G-FRAUNHOFER	1.2	1.3	100%
10H-LUH	2.4	1.6	146%
11-UOBL ETF	3.5	4.7	74%
12A-CSIC	1.8	2.8	66%
12B-FCTSG	3.8	4.5	84%
12C-CIEMAT	3.2	2.4	134%
12D-UPVLC	1.6	1.8	89%
12E-IFAE	3.3	2.9	114%
12F-RED.ES	5.8	3.3	180%
12G-UNIZAR-I3A	3.0	3.3	92%
12H-UAB	2.6	2.5	105%

13-CSC	3.9	4.2	93%
14A-CNRS	21.1	15.8	134%
14B-CEA	4.2	4.0	105%
15-GRENA	1.4	1.2	114%
16A-GRNET	8.4	7.7	109%
16B-AUTH	1.5	0.8	179%
16C-CTI	1.1	0.8	136%
16D-FORTH	2.6	0.8	319%
16G-UI	0.3	0.5	62%
16H-UP	1.1	0.6	183%
17-SRCE	4.8	4.5	106%
18A-MTA KFKI	4.2	4.1	104%
18B-BME	2.5	1.8	137%
18C-MTA SZTAKI	1.1	1.5	75%
19-TCD	4.5	5.9	77%
20-IUCC	1.4	1.6	91%
21A-INFN	26.0	22.9	114%
21B-GARR	0.4	0.8	48%
22-VU	1.9	1.4	138%
23-RENAM	1.7	1.3	129%
24-UOM	3.2	4.4	71%
25-UKIM	6.1	4.4	137%
26A-FOM	2.7	2.0	135%
26B-SARA	5.7	8.0	72%
27A-SIGMA	1.9	2.5	77%
27B-UIO	2.0	1.8	112%
27C-URA	1.2	0.9	134%
28A-CYFRONET	8.7	7.2	120%
28B-UWAR	0	0.4	0%
28C-ICBP	4.0	1.1	355%
28D-POLITECHNIKA WROCLAWSKA	1.6	1.0	163%
29-LIP	5.6	6.7	84%
30-IPB	7.3	7.4	99%
31-ARNES	3.2	2.7	119%
31B-JSI	5.0	3.2	156%
32-UI SAV	4.5	6.0	75%
33-TUBITAK ULAKBIM	7.2	8.2	88%
34A-STFC	5.5	6.5	86%
34C-UG	3.6	3.6	99%
34D-IMPERIAL	5.0	3.6	139%
34E-MANCHESTER	1.6	3.6	44%
36-UCPH	1.9	5.1	37%

38A-KTH	0.6	0.4	158%
38B-LIU	1.9	1.9	101%
38C-UMEA	3.3	3.0	108%
39-IMCS-UL	1.5	3.3	46%
40B-SINP MSU	2.6	1.3	207%
40C-JINR	1.0	0.8	126%
40D-RRCKI	1.0	0.8	126%
40F-ITEP	0.9	0.8	126%
40G-PNPI	0	0.8	0%
51A-ICI	6.1	1.4	433%
51C-UPB	0	0.8	0%
51D-UVDT	0.1	0.6	18%
51E-UTC	3.4	0.6	610%
51H-INCAS	0	0.2	0%
51J-UB	2.0	0.1	1,582%
Total:	272.1	263.9	103%

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	2.0	2.3	90%
9-CESNET	6.3	8.2	77%
10D-JUELICH	1.5	1.5	101%
12A-CSIC	2.9	3.3	87%
12B-FCTSG	2.6	1.1	245%
16A-GRNET	2.3	3.5	67%
16B-AUTH	1.8	0.8	220%
16E-IASA	0	0.8	0%
16F-ICCS	1.2	0.8	150%
21A-INFN	3.2	2.9	110%
29-LIP	3.5	4.4	79%
38B-LIU	1.5	1.5	98%
41-NORDUNET	0	0.4	0%
Total:	28.8	31.4	92%



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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
10G-FRAUNHOFER		2.3	139%
12A-CSIC	2.5	2.3	112%
12C-CIEMAT	2.3	1.5	154%
13-CSC	2.2	1.5	150%
14A-CNRS	9.8	3.8	254%
14B-CEA	0	0.7	0%
14C-HealthGrid	0.2	2.4	6%
19-TCD	1.7	1.8	100%
21A-INFN	0	5.0	0%
21C-INAF	1.1	2.5	45%
21D-UNIPG	0.5	0.8	66%
21E-SPACI	1.2	2.3	53%
28C-ICBP	2.6	0.5	515%
31B-JSI	0.3	0.3	117%
32-UI SAV	0.9	1.5	62%
35-CERN	34.9	28.4	123%
37-EMBL	0	3.7	0%
Total:	63.3	61.0	104%

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
10B-KIT-G	3.2	2.9	108%
12B-FCTSG	1.2	0.8	162%
14A-CNRS	0.8	0.8	102%
16A-GRNET	0.4	0.8	53%
17-SRCE	0.9	0.8	116%
21A-INFN	1.6	1.5	106%
34A-STFC	1.5	1.5	101%
35-CERN	1.7	0.8	224%
Total:	11.2	9.7	116%

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

	Q6		
Partner	Worked PM Funded	Committed PM	Achieved PM %
10H-LUH	2.6	1.5	175%
12B-FCTSG	0.5	1.9	25%
14A-CNRS	4.1	4.8	85%
17-SRCE	0	0.4	0%
21A-INFN	0.5	2.2	22%
34A-STFC	2.0	2.6	76%
35-CERN	0	0.8	0%
Total:	9.6	14.1	68%

6.2.4. Overall Financial Status

Selected period: PM16 to PM18 (August 2011 to October 2011)

Report extracted on 29 November 2011

Project Period 2

	Q6				
Partner	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
1-EGI.EU	59,3	109,4	54%	526.387	308.210
2-UPT	0	9,2	0%	0	0
3-IIAP NAS RA	0,8	2,2	37%	2.437	804
5A-IICT-BAS	1,1	9,4	11%	6.483	2.139
5B-IOCCP-BAS	0,2	0,5	44%	1.352	446
5C-NIGGG-BAS	3,7	0,5	743%	22.685	7.486
6-UIIP NASB	1,5	1,9	80%	5.815	1.919
7A-ETH ZURICH	1,6	2,8	59%	14.109	4.656
7B-UZH	1,4	2,5	57%	9.886	3.262
7C-SWITCH	2,6	3,3	79%	36.292	11.976
8-UCY	2,5	5,7	45%	22.000	7.260
9-CESNET	14,7	22,2	66%	96.726	38.967
10B-KIT-G	18,6	25,1	74%	165.032	66.661
10C-DESY	2,8	3,1	89%	24.677	8.143

10D-JUELICH	3,1	3,6	86%	27.619	11.400
10E-BADW	2,3	3,3	69%	20.431	6.742
10G-FRAUNHOFER	5,2	5,5	95%	46.598	17.328
10H-LUH	5,0	3,1	160%	44.432	16.299
11-UOBL ETF	3,5	4,7	74%	14.268	4.709
12A-CSIC	10,4	15,7	66%	81.192	33.873
12B-FCTSG	8,6	9,0	96%	67.471	28.299
12C-CIEMAT	5,5	3,9	142%	42.973	15.442
12D-UPVLC	2,8	7,7	37%	22.175	7.318
12E-IFAE	3,3	2,9	114%	25.521	8.422
12F-RED.ES	5,8	3,3	180%	45.616	15.053
12G-UNIZAR-I3A	3,0	3,3	92%	23.332	7.700
12H-UAB	2,6	2,5	105%	20.596	6.797
13-CSC	9,8	14,0	70%	100.743	34.989
14A-CNRS	40,6	33,1	123%	351.009	126.749
14B-CEA	4,2	6,5	65%	36.362	12.000
14C-HealthGrid	1,9	5,9	33%	16.761	5.624
15-GRENA	1,8	2,2	81%	4.349	1.435
16A-GRNET	15,6	22,0	71%	121.095	49.442
16B-AUTH	3,2	1,6	199%	25.057	10.619
16C-CTI	1,1	0,8	136%	8.551	2.822
16D-FORTH	2,6	0,8	319%	20.080	6.626
16E-IASA	0	3,0	0%	0	0
16F-ICCS	1,2	0,8	150%	9.435	4.718
16G-UI	0,3	0,5	62%	2.418	798
16H-UP	1,1	0,6	183%	8.846	2.919
17-SRCE	6,4	6,3	101%	31.680	11.801
18A-MTA KFKI	4,9	5,6	87%	19.091	6.300
18B-BME	3,1	3,7	86%	17.349	5.725
18C-MTA SZTAKI	3,0	4,2	73%	18.476	6.097
19-TCD	7,5	11,0	68%	72.840	25.227
20-IUCC	2,3	4,4	53%	29.987	9.896
21A-INFN	37,0	46,8	79%	272.376	99.882
21B-GARR	0,5	1,5	30%	3.335	1.220

21C-INAF	1,1	2,5	45%	8.249	3.299
21D-UNIPG	0,5	0,8	66%	3.627	1.451
21E-SPACI	1,2	2,3	53%	8.834	3.533
22-VU	3,4	7,4	46%	28.234	9.317
23-RENAM	2,8	2,8	100%	8.379	2.765
24-UOM	3,2	4,4	71%	7.541	2.489
25-UKIM	6,1	4,4	137%	24.257	8.005
26A-FOM	5,4	4,4	121%	55.142	22.401
26B-SARA	11,7	10,9	107%	120.024	44.636
27A-SIGMA	1,9	4,2	46%	19.312	6.373
27B-UIO	2,0	2,9	67%	19.483	6.429
27C-URA	1,9	3,5	55%	19.306	6.371
28A-CYFRONET	10,9	12,5	88%	93.728	32.813
28B-UWAR	0	2,8	0%	0	0
28C-ICBP	8,9	4,0	224%	75.823	26.564
28D-POLITECHNIKA WROCLAWSKA	1,6	1,0	163%	13.875	4.579
29-LIP	13,7	20,8	66%	74.906	29.405
30-IPB	9,1	12,1	76%	49.900	16.467
31-ARNES	3,8	7,5	51%	22.948	7.573
31B-JSI	7,2	6,4	112%	43.362	14.432
32-UI SAV	7,2	15,2	48%	57.963	19.645
33-TUBITAK ULAKBIM	11,1	16,8	66%	77.993	25.738
34A-STFC	20,6	27,6	74%	211.163	89.860
34B-UE	0	0,8	0%	0	0
34C-UG	4,2	4,3	98%	43.414	14.327
34D-IMPERIAL	5,0	4,3	117%	51.761	17.081
34E-MANCHESTER	1,6	4,3	37%	16.432	5.423
35-CERN	41,5	34,1	121%	597.129	249.793
36-UCPH	3,2	10,4	31%	35.244	11.630
37-EMBL	0	3,7	0%	0	0
38-VR-SNIC	0,3	0,3	89%	3.390	1.119
38A-KTH	3,6	4,3	82%	40.676	16.506
38B-LIU	3,4	3,4	100%	38.472	15.563
38C-UMEA	3,3	3,0	108%	37.286	12.304

39-IMCS-UL	1,6	6,9	23%	12.544	4.140
40A-E-ARENA	1,7	3,5	47%	6.534	2.156
40B-SINP MSU	2,6	1,3	207%	10.266	3.388
40C-JINR	1,0	0,8	126%	4.043	1.334
40D-RRCKI	1,0	0,8	126%	4.041	1.334
40F-ITEP	0,9	0,8	126%	3.734	1.232
40G-PNPI	0	0,8	0%	0	0
41-NORDUNET	0	0,4	0%	0	0
51A-ICI	6,1	1,4	433%	37.001	12.210
51C-UPB	0	0,8	0%	0	0
51D-UVDT	0,1	0,6	18%	601	198
51E-UTC	3,4	0,6	610%	20.846	6.879
51H-INCAS	0	0,2	0%	0	0
51J-UB	2,0	0,1	1.582%	12.026	3.969
Total:	542,1	710,6	76%	4.605.432	1.830.927

6.3. Issues and mitigation

The Review Recommendations required considerable amount of management effort across the community to absorb and prepare a response to its actions. This will have meant that other issues will have taken a lower priority during this time.

6.4. Plans for the next period

The main focus for PQ7 will be establishing a number of virtual teams across the areas mentioned in the Review Recommendations – in particular around developing a strategic plan for EGI. These will then be reviewed by the PMB in its role of the project's strategic advisory board and then presented to the EGI Council for their endorsement.

7. PROJECT METRICS

7.1. Overall metrics

Project Objectives	Objective Summary	Metrics	Value PQ6	Target Y2
PO1	Expansion of a nationally based production infrastructure	Number of production resources in EGI (M.SA1.Size.1)	348	330
		Number of job slots available in EGI (M.SA1.Size.2)	364 500	350000
		Reliability of core middleware services (M.SA1.Operation.5)	94,5%	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)	16	60
		Number of jobs done a day (M.SA1.Usage.1)	1 331 525	525 000
PO3	Sustainable support for Heavy User Communities	Number of sites with MPI (M.SA1.Integration.2)	91	100
		Number of users from HUC VOs (M.SA1.Size.7)	9861 HEP(7603) LS(1073) CC(210) AA(586) ES(325) Fusion (94)	5500
PO4	Addition of new User Communities	Amount of desktop resource (M.SA1.Integration.3)	0	5
		Number of users from non-HUC VOs (M.NA3.9)	6413 Computer Science and Mathematics (42); Multidisciplinary (2961); Other (3410)	1000

Project Objectives	Objective Summary	Metrics	Value PQ6	Target Y2
		Public events organised (M.NA2.6)	18 events 1465 patrticipants 48 days	2000
PO5	Transparent integration of other infrastructures	MoUs with resource providers (M.NA2.10)	1	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)	38	3
		Amount of virtualised resources (M.SA1.Integration.4)	6	1

7.2. Activity metrics

7.2.1. NA1 - Project Management

Metric ID	Metric	Task	Value for PQ6
M.NA1.1	Number of NGIs actively contributing resources into the production infrastructure	TNA1.2	
MNA1.2	Time to review deliverables & milestones (from entering External Review to exiting PMB Review)	TNA1.4	33 DAYS

7.2.2. NA2 - External Relations

Metric ID	Metric	Task	Value for PQ6
M.NA2.1	Number of press releases issued	TNA2.2	2
M.NA2.2	Number of media contacts sent press releases	TNA2.2	127
M.NA2.3	Number of press cuttings relating to EGI, EGI.eu or EGI-InSPIRE	TNA2.2	10
M.NA2.4	Number of interviews given to media organisations	TNA2.2	3

M.NA2.5	Number of papers published by users of EGI	TNA2.2	19
M.NA2.6	Public events organised by EGI.eu & NGI teams	TNA2.2	19
M.NA2.7	Events with EGI presence (stand, presentation, or literature)	TNA2.2	18
M.NA2.8	Number of unique visitors per month on the main websites	TNA2.2	22088
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	1
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	3
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	2
M.NA2.15	Number of policies or procedures recorded by EGI.eu that apply to Technology Providers	TNA2.3	0

7.2.3. NA3 - User Community Coordination

Metric ID	Metric	Task	Value for PQ6
M.NA3.1	Number of GGUS tickets CREATED (grouped by submitting community – where available)	TNA3.2/3	users: 1904 operational: 653
M.NA3.2	Average and Median Solution time to resolve tickets	TNA3.3	average: 22.7 median: 16.3

M.NA3.3	Uptime of User Support websites: • Training • Application Database • VO Support Services	TNA3.4	Training: 99% AppDB: 99% VO Services: • 99%: LIP VO SAM • 99%: UPV VO SAM • 99%: VO Admin Dashboard
M.NA3.4	Visitors to User Support websites: • Training • Application Database • VO Support Services	TNA3.4	Training: 324 AppDB : 212 VO Services: • 347 (unique views: http://www.egi.eu/usersupport/services) • 93 (unique visitors: https://vodashboard.lip.pt)
M.NA3.5	Number of VO Support Services	TNA3.4	Evaluated: 2 Supported: 7 Offered as a services: 4
M.NA3.6	Number of Applications in the AppDB	TNA3.4/3	Applications: 368 Tools: 36 Personal profiles: 643
M.NA3.7	Number of Training Days delivered through NGI Training events	TNA3.4/3	65
M.NA3.8	Number of: • New/decommissioned VOs • Low/Medium/High Activity VOs • International VOs	TNA3.1	• New/decommissioned : 2/6 • L/M/H activity VOs: 8/28/27 • International VOs:

M.NA3.9	Number of users (grouped by community and VO)	TNA3.1	Total: 19,053 • HEP : 7584 • Infrastructure : 2772 • LS : 1071 • CC : 210 • AA : 586 • ES : 325 • Computer Sci. and Math. : 42 • Fusion : 94 • Multidisciplinary : 2959 • Others : 3410

7.2.4. SA1 –Operations

Metric ID	Metric	Task	Value for PQ6
M.SA1.Usage.1	Average number of jobs "done" per day for all VOs (excluding OPS and DTEAM)	None	1,331,525
M.SA1.Usage.2	Normalised consumed computing capacity	None	2,437,626,376
M.SA1.Usage.3	Normalised Computing power consumed outside of a user's home country	TSA1.1	0
M.SA1.Size.1	Total number of production resource centres that are part of EGI	TSA1.1	348
M.SA1.Size.2a	Total number of job slots available in EGI – Integrated and peer	TSA1.1	364 500
M.SA1.Size.2b	Total number of job slots available in EGI – Project	TSA1.1	247 000
M.SA1.Size.3	Installed Capacity in HEP-SPEC 06 in EGI	TSA1.1	2,671,075

Metric ID	Metric	Task	Value for PQ6
M.SA1.Size.4	Installed disk capacity (PB) in EGI	TSA1.1	122
M.SA1.Size.5	Installed tape capacity (PB) in EGI	TSA1.1	127,9
M.SA1.Operational Security.1	Number of Site Security Challenge (SSC) made	TSA1.2	0
M.SA1.Operational Security.2	Number of Sites passing one Security Challenge	TSA1.2	0
M.SA1.Operational Security.3	Number of suspended sites for security issues	TSA1.2	0
M.SA1.Integration.1	Number of production HPC clusters	TSA1.3	38
M.SA1.Integration.2	Number of production sites supporting MPI	TSA1.3	91
M.SA1.Integration.3	Amount of integrated desktop resources	TSA1.3	0
M.SA1.Integration.4	Amount of virtualised installed capacity accessible to EGI users (HEP-SPEC 06)	TSA1.3	6 sites offering 21330.00 HEPSPEC 06 of installed capacity
M.SA1.Service Validation.1	Total number of components tested/rejected in staged rollout	TSA1.3	30/3
M.SA1.Service Validation.2	Number of staged rollout tests undertaken	TSA1.3	49
M.SA1.Service Validation.3	Number of EA teams	TSA1.3	52
M.SA1.Accounting	Number of sites adopting AMQ messaging for Usage Record publication	TSA1.5	none
M.SA1.Support.1	Overall average number of GGUS tickets in EGI per month CREATED	TSA1.7	342/456

Metric ID	Metric	Task	Value for PQ6
M.SA1.Support.2	Average/Median monthly ticket solution time (hours)	TSA1.7	16,41/6,1
M.SA1.Support.3	Assigned ticket monthly Average RESPONSE TIME (hours)	TSA1.7	N/A
M.SA1.Support.4	Number of tickets SOLVED by TPM (1st line support)	TSA1.7	14,53
M.SA1.Support.5	Average-Median ticket assignment time by TPM (1st line support) per month (hours)	TSA1.7	8
M.SA1.Support.6	COD Workload per month	TSA1.7	0,3043
M.SA1.Support.7	EGI ROD Workload per month	TSA1.7	356/348/65
M.SA1.Support.8	EGI ROD Quality Metrics per month	TSA1.7	1161/1727/250
M.SA1.Operation.1	NGI monthly availability and reliability	TSA1.8	N/A
M.SA1.Operation.2	Number of sites suspended	TSA1.7	2/0/2
M.SA1.Operation.3	NGI monthly availability and reliability of core operations tools	TSA1.8	N/A
M.SA1.Operation.4	NGI Monthly availability and reliability of core middleware services	TSA1.8	N/A
M.SA1.Operation.5	EGI monthly reliability [availability] of site middleware services	TSA1.8	N/A

Metric ID	Metric	Task	Value for PQ6
M.SA1.Operation.6	EGI monthly availability and reliability of central operations tools	TSA1.8	N/A

7.2.5. SA2 – Software Provisioning

Metric ID	Metric	Value for PQ6
M.SA2-1	Number of software components recorded in the UMD Roadmap	30
M.SA2-2	UMD Roadmap Capabilities coverage with Quality Criteria	92% (25)
M.SA2-3	Number of software incidents found in production that result in changes to quality criteria	2
M.SA2-5	Number of new Product releases validated against defined criteria	29
M.SA2-6	Mean time taken to validate a Product release	10.52h
M.SA2-7	Number of Product releases failing validation	2
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	1184
M.SA2-10	Number of unique visits to the Repository backend	4556
M.SA2-11	Number of tickets assigned to DMSU	183
M.SA2-12	Mean time to resolve DMSU tickets	Mean 7.3d Median: 11d

7.2.6. SA3 – Support for Heavy User Communities

Metric ID	Metric	Task	Value for PQ6	Comments
M.SA3.1	Number of users of deployed dashboard instances	TSA3.2.1	8826	Unique IP addresses.
M.SA3.2	Number of unique users of GANGA	TSA3.2.2	560	
M.SA3.3	Number of unique users of DIANE	TSA3.2.2	12	
M.SA3.4	Number of sites using GANGA	TSA3.2.2	59	
M.SA3.5	Number of sites using DIANE	TSA3.2.2	6	
M.SA3.6	Number of users of GReIC	TSA3.2.3	100	Most of the users are from the ES and environmental domain. Other domains: LS.
M.SA3.7	Number of users of Hydra	TSA3.2.3	N/A	
M.SA3.8	Number of users of SOMA2	TSA3.2.4	27/2	Under development.
M.SA3.9	Number of users using Taverna to access EGI resources	TSA3.2.4	N/A	
M.SA3.10	Number of users using RAS	TSA3.2.4	10	
M.SA3.11	Number of users using Kepler (MD)	TSA3.2.4	10	
M.SA3.12	Number of users using Gridway	TSA3.2.4	N/A	
M.SA3.13	Number of MPI support tickets	TSA3.2.5	N/A	
M.SA3.14	Mean time to resolve MPI support tickets	TSA3.2.5	1	Ticket still open.

Metric ID	Metric	Task	Value for PQ6	Comments
M.SA3.15	Number of HEP VO alarm tickets	TSA3.3	N/A	
M.SA3.16	Mean time to resolution of HEP VO alarm tickets	TSA3.3	47	
M.SA3.17	Number of Life Science Users of provided services	TSA3.4	N/A	
M.SA3.18	Number of databases integrated and/or accessible from EGI resources.	TSA3.4	12	Metadata DB in the context of the climate – G testbed (harvester and local indexes). Some DB for training purposes. (In the context of GILDA). 1 DB in the LS context (UNIPROT data bank).
M.SA3.19	Number of unique users of VisIVO	TSA3.5	15	
M.SA3.20	Number of data sets accessible from EGI resources	TSA3.6	N/A	

7.2.7. JRA1 – Operational Tools

Metric ID	Metric	Task	Value for PQ6
M.JRA1.1	Number of software release	TJRA1.2 & TJRA1.5	8
M.JRA1.2	Number of software issues reported with deployed operational tools	TJRA1.2	46
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	1

Metric ID	Metric	Task	Value for PQ6
M.JRA1.5	Mean time from approval to release for approved enhancement requests	TJRA1.2	114 days
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

7.3. Main Project and Activity Meetings

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
19-23/9/2011	Lyon	EFI-TF2011		https://www.egi.eu/indico/conferenceDisplay.py?ovw=True&confId=452
3/10/11-5/10/11	IPGP Paris, France	VERCE Kickoff	-	Collaboration with VERCE FP7 Seismology project
5/10/11	IPSL Paris, France	EGI/ESG meeting	-	Status of the actions, further actions, organization, time schedule.

7.4. Conferences/Workshops Organised

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
19-20/8/ 2011	Frankfurt, Germany	Workshop "NMR applications on the Grid"	Around 20 participants	The workshop gives an introduction, overview and practical training on how to use some of the widely used and state of the art biomolecular NMR applications.
5-9/9/ 2011	Karlsruhe	Swiss Grid School 2011	80	http://www.swing-grid.ch/event/285525-swiss-grid-school-2011
5-9/9/ 2011	Karlsruhe, Germany	GridKa School	About 100 participants from different countries	Education in Grid, virtualization, storage, Cloud, user support; Grid and Cloud security, presentation of projects and achievements in Grid
7-9/9/ 2011	Savona, Italy	13th Plinius Conference on Mediterranean Storms, Disasters and Climate Change	-	- Presentation of a set of 6 hydrological applications running on EGI and published in the Journal of Hydrology (June 2011) Interest of the FP7 EU DRIHM
11-24/9/ 2011	University Kinshasa, Democratic Republic of Congo	School on GIS, GPS and New Technologies (International Space Weather Initiative, University of Kinshasa)	-	- Contribution: Organisation of a day about intensive computing (Grid, HPC...) - Presentations of EGI & its applications, of first tests of Deskstop-Grid by RDC RDC project for Grid
12-15/9/2011	Abingdon, UK	Using e-Infrastructures for Research Summer School	27	http://www.ngs.ac.uk/seiuccr/summerschool Summer school for 30 students to learn about what tools are available to them and how to use them within the field of e-infrastructures. From local resources to grids, clouds and international e-infrastructures.
19/9/ 2011	Lyon, France	Premières rencontres scientifiques France Grilles	80	Presentation of the scientific work done in France with the help of the grid. First France Grilles prize awarded by the scientific committee http://france-grilles-2011.sciencesconf.org/
27/9/2011	York, UK	Meet the Champions workshop	~30	http://www.ngs.ac.uk/seiuccr/ahm2011workshop A workshop to promote e-infrastructure usage using "champions", researchers already strong in their usage to spread the word to other communities. Also a chance for different e-infrastructure projects to come together and learn from each other. Presentations from NGS, XSEDE and EGI. Held at UK All Hands Meeting, York.
12-13/10/ 2011	Poland, Poznan	e-IRG workshop	136	

13/10/ 2011	Prague	IT support at FZU	20	Overview of IT resources and support for the section I at Institute of Physics
13/10/ 2011	CC-CNES Toulouse, France	Grid and Cloud computing Seminar	-	Presentation of Earth Science applications and feedback
20-21/10/ 2011	Sofia, Bulgaria	2nd workshop Computing Centre "MADARA"	More than 70 participants	The workshop was organized by the Bulgarian third party in EGI-InSPIRE project – 5A-IOOCCP-BAS. 3 tutorial and 30 contributed talks were presented demonstrating achievements of the Bulgarian Grid applications in the Computational Chemistry domain. It was demonstrated how these applications run on BG08-MADARA and BG01-IPP Grid clusters. http://madara.orgchm.bas.bg/bg/
24/10/ 2011	Amsterdam, Netherlands	DCI Projects meeting	11	S. Andreozzi attended the meeting and took minutes https://www.egi.eu/indico/event/669
24-26/10/ 2011	II SAS, Bratislava, Slovakia	7th International Workshop on Grid Computing for Complex Problems (GCCP2011)	48	https://www.egi.eu/indico/conferenceDisplay.py?confId=652
25/10/ 2011	Prague	Campus Network Traffic Monitoring workshop	60	http://www.ces.net/doc/press/2011/pr111026.html
26/10/ 2011	KIT	GGUS Report Generator f2f meeting	20	https://www.egi.eu/indico/conferenceDisplay.py?confId=655

7.5. Other Conferences/Workshops Attended

Provided by each partner in each Activity and assembled by the AM.

Date	Location	Title	Participants	Outcome (Short report & Document Server URL to presentations made)
30.-31/8/ 2011	NDGF HQ, Kastrup, Denmark	NDGF All-Hands-meeting	31	https://portal.nordu.net/display/ndgfwiki/Meeting-2011-08-30+NDGF+All+Hands+Meeting
6-10/9/ 2011	Vienna, Austria	LMC8 -8th Liquid Matter Conference	2	Igor Stankovic and Milan Zezelj attended the LMC8 and presented their work during the poster sessions. The two posters were titled: 1. "Investigation of interplay between finite size scaling and aspect ratio in continuum percolating networks" by M. Zezelj, I. Stankovic, and A. Belic "Aggregation kinetics of short-range attractive particles: Brownian dynamics simulations vs. Smoluchowski equation" by I. Stankovic, A. Belic, and M. Zezelj http://lmc2011.univie.ac.at/
7-9/9/ 2011	Savona, Italy	13th Plinius Conference	M. Petitdidier(IPSL)	Presentation of a set of 6 hydrological applications-already running on EGI and published in the journal of Hydrology (June 2011) Outcome: Interest for the FP7 EU DRIHM
11-24/9/ 2011	Univ. Kinshasa, RDC	Space Weather School	M. Petitdidier(IPSL)	organisation of a day about intensive computing (Grid, HPC...), presentations of EGI & its applications, of first tests of Deskstop Grid by RDC - RDC project for Grid Outcome:Grid & HPC workshop planned
12-13/9/ 2011	Helsinki	IRISC 2011		http://irisc-workshop.org/irisc2011-helsinki/
12-14/9/ 2011	TOBB ETU, Ankara, Turkey	Molecular Dynamics Workshop II	Feyza Eryol	Researcher who runs molecular dynamics simulations were the participants of the national workshop. We had a presentation which introduced the NGI_TR, EGI and related activities.
15-16/9/2011	Belgrade, Serbia	TERENA TF-CPR workshop	40	Attended social media training session and networking meeting with NREN dissemination representatives. http://www.terena.org/activities/tf-cpr/pastmeetings/belgrade2011/agenda.html
20-22/9/ 2011	Sunny Beach, Bulgaria	Second Regional Conference " Supercomputing Scientific Applications and Industry Usage"	About 60 participants mainly from Bulgaria and SEE region	Liaison with the national representative in PRACE -1IP project, contacts with senior and young researchers, presentations and discussions about other HPC and Grid applications from domain of biomedicine, life Science and statistical physics. http://www.scc.acad.bg/

30/9/2011	Yerevan, Armenia	Workshop on National Grid Initiative in Armenia	~50	The status of the Armenian National Grid Initiative was presented and discussed.
1/10/2011	Belgrade, Serbia	TEDx Belgrade 2011 - Dare to Share	1	Professor Aleksandar Bogojevic gave a talk titled "Belgrade is the system"
5-9/10/2011	Kiev	ARC technical workshop	44	http://indico.hep.lu.se//conferenceDisplay.py?confId=1118
11-12/10/2011	Tennessee, USA	TAGPMA F2F meeting	15	Represented EGI and WLCG as relying party of the PKI (http://www.tagpma.org/node/59)
12-13/10/2011	Poznan, Poland	e-IRG workshop	136	S. Andreozzi attended the workshop and prepared a summary for the EGI blog. S. Newhouse presented and participated in the panel discussion. http://www.e-irg.eu/e-irg-events/e-irg-workshop-poznan-12-13-october.html
13/10/2011	CC- CNES Toulouse, France	Grid and cloud computing Seminar	M.Petitdidier (IPSL,FR)	Presentation Earth Science applications and feedbacks
14/10/2011	Phone conference	Discussion about Earth System Grid Federation and European Grid Initiative	IPSL:J. Raciazek & M. Petitdidier, P.Kershaw (STFC, UK),H. Schwichtenberg (SCAI, DE), G. Sipos (EGI)	Clarification of the ESGF security and discussion of possible solutions
23.29/10/2011	Barcelona	INFOCOMP 2011		http://www.iaria.org/conferences2011/INFOCOMP11.html
25/10/2011	Prague	Talks with IT professionals	100	http://www.cs.cas.cz/hsi/
26-28/10/2011	Florence, Italy	eChallenges 2011	150	Hosted a joint booth with e-ScienceTalk at the event. http://www.echallenges.org/e2011/default.asp?page=paper-repository

7.6. Publications

Publication title	**Journal/ Proceedings title**	**DOI code**	**Journal references** *Volume number* *Issue* *Pages from - to*	**Authors** *Initials*	**Authors** *Surname*
Influence of Interface Roughness Scattering on Output Characteristics of GaAs/AlGaAs Quantum Cascade Laser in a Magnetic Field	J. Phys. D: Appl. Phys.	10.1088/0022-3727/44/32/325105	44 (2011) 325105		M. Zezelj, V. Milanovic, J. Radovanovic and I. E. Stankovic
Phase Diagram, Energy Scales, and Nonlocal Correlations in the Anderson Lattice Model	Phys. Rev. B	10.1103/PhysRevB.84.115105	84 (2011) 115105		D. Tanaskovic, K. Haule, G. Kotliar and V. Dobrosavljevic
Symmetry Reduction in Multiband Hamiltonians for Semiconductor Quantum Dots: the Role of Interfaces and Higher Energy Bands	J. Appl. Phys.	10.1063/1.3631048	110 (2011) 053710		S. Tomic, N. Vukmirovic
Charge Transport in a Quantum Dot Supercrystal	J. Phys. Chem. C	10.1021/jp2065266s	115 (2011) 21409		I. H. Chu, M. Radulaski, N. Vukmirovic, H. P. Cheng and L. W. Wang
SPEEDUP Code for Calculation of Transition Amplitudes Via the Effective Action Approach	Commun. Comput. Phys.	10.4208/cicp.131210.180411a	11 (2012) 739		A. Balaz, I. Vidanovic, D. Stojiljkovic, D. Vudragovic, A. Belic and A. Bogojevic
Grid Interoperability Based on a Formal Design	Journal of Grid Computing	10.1007/s10723-011-9198-8	Volume 9 / 2011 , online first: http://www.springerlink.com/content/583056248h0w62r6/		Z. Farkas

Fostering the use of the Mediterranean e-Infrastructure with Science Gateways and Identity Federations	EUMEDGRID-Support User Forum (Lyon), France, 22-23 Sept. 2011			V. A., R. B., R. B., A. C., M. F., E. I., L. G., S. M., F. P., R. R., R. and D. S.,	Ardizzone, Barbera, Bruno, Calanducci, Fargetta, Ingrà, La Rocca, Monforte, Pistagna, Ricceri, Rotondo and Scardaci
Parallel Computing in EGI	7th International Workshop on Grid Computing for Complex Problems (GCCP2011)			1. Viera 2. Miroslav 3. Peter	Sipkova Dobrucky Slizik
The Climate-G Portal: The context, key features and a multi-dimensional analysis	Future Generation Computer Systems	doi:10.1016/j.future.2011.05.015	Vol. 28: 1-8 (2012)	S. A. G.	Fiore Negro Aloisio
SPEEDUP Code for Calculation of Transition Amplitudes Via the Effective Action Approach	Commun. Comput. Phys.	11 (2012) 739 doi: 10.4208/cicp.131210.180411a arxiv: 1105.0542			1. A. Balaz 2. I. Vidanovic 3. D. Stojiljkovic Et al.
Charge Transport in a Quantum Dot Supercrystal	J. Phys. Chem.	C 115 (2011) 21409 doi: 10.1021/jp206526s			1. I. H. Chu 2. M. Radulaski 3. N. Vukmirovic Et al.
Symmetry Reduction in Multiband Hamiltonians for Semiconductor Quantum Dots: the Role of Interfaces and Higher Energy Bands	J. Appl. Phys.	110 (2011) 053710 Selected for Research Highlights in J. Appl. Phys. + 3rd most downloaded J. Appl. Phys. paper in September 2011 doi: 10.1063/1.3631048			1. S. Tomic 2. N. Vukmirovic

Phase Diagram, Energy Scales, and Nonlocal Correlations in the Anderson Lattice Model	Phys. Rev. B	84 (2011) 115105 doi: 10.1103/PhysRevB.84.115105 arxiv: 1106.4708			1. D. Tanaskovic 2. K. Haule 3. G. Kotliar 4. V. Dobrosavljevic
Relaxation Properties in a Diffusive Model of K-mers with Constrained Movements on a Triangular Lattice	Phys. Rev. E	84 (2011) 031109 doi: 10.1103/PhysRevE.84.031109			1. J. R. Scepanovic 2. I. Loncarevic 3. Lj. Budinski-Petkovic Et al.
Influence of Interface Roughness Scattering on Output Characteristics of GaAs/AlGaAs Quantum Cascade Laser in a Magnetic Field	J. Phys. D: Appl. Phys.	44 (2011) 325105 doi: 10.1088/0022-3727/44/32/325105			1. M. Zezelj 2. V. Milanovic 3. J. Radovanovic 4. I. E. Stankovic
Globus Europe keynote	https://documents.egi.eu/document/901				
Cracow grid workshop keynote	https://documents.egi.eu/document/900				
http://www.iasted.org/conferences/speaker1-757.html	PDCS2011, 14 – 16, 2011, Dallas, USA				
Data Management	https://www.egi.eu/indico/sessionDisplay.py?sessionId=14&confId=4522011 0919				
Portal Technologies	https://www.egi.eu/indico/sessionDisplay.py?sessionId=64&confId=4522011 0920				
Cracow Grid Workshop keynote	https://documents.egi.eu/document/900				
Globus Europe keynote	https://documents.egi.eu/document/901				