EGI-InSPIRE

QUARTERLY REPORT 9

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Abstract

This report describes the activities of the EGI-InSPIRE project during PQ9 (1st May 2012 to 31st July 2012).



I. COPYRIGHT NOTICE

II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Steven Newhouse	EGI.eu/ NA1	14th August 2012
Reviewed by	AMB & PMB		21st August 2012
Approved by	AMB & PMB		31st August 2012

III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	10th August 2012	First incomplete draft for editorial work.	Erika Swiderski/EGI.eu
2	14th August 2012	Editorial pass identifying missing areas	Steven Newhouse/EGI.eu
3	16th August 2012	Update with some missing areas complete	Erika Swiderski/EGI.eu
4	21st August 2012	Complete version for internal review	Steven Newhouse/EGI.eu
5	11th September 2012	Complete version with effort and cost figures.	Steven Newhouse/EGI.eu

IV. APPLICATION AREA

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

V. DOCUMENT AMENDMENT PROCEDURE

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

VI. TERMINOLOGY

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

VII. PROJECT SUMMARY

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

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

The objectives of the project are:

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

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

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

VIII. EXECUTIVE SUMMARY

Planning around the upcoming EGI Technical Forum 2012 in Prague progressed with over 130 community contributions around tracks relating to EGI Operations, Resource Infrastructure Services, Virtualised Resources: challenges and opportunities, Virtual Research Environments and Community and Co-ordination being received, reviewed and assigned to sessions in each track.

The important role that EGI plays in supporting international research activities through distributed computing infrastructure was illustrated by the announcement of the Higgs-like discovery made in July 2012 using resources coordinated in Europe by EGI. For most of these researchers their view into the distributed computing infrastructure is through some of the tools and applications partially supported by EGI-InSPIRE such as the HEP Dashboard (which provides job and data monitoring) and Ganga. These high-level applications are complemented by software frameworks to support persistency and analysis, in addition to clients to support particular HEP experiments or capability. Similar support is provided by EGI-InSPIRE for tools critical to the individual Earth Science, Astronomy and Astrophysics and Life Science communities – in addition to tools and services that have impact across multiple research communities.

To support the data analysis undertaken by EGI's research communities, at the end of PQ9 EGI had 347 sites with over 304,000 logical CPU cores (including resources from integrated Resource Providers) including the first sites in Moldova and Ukraine. During PQ9 a retirement calendar was established for unsupported software that was still deployed and a migration plan for GLUE 2 defined. The Security Service Challenge 5 was run by NGI_NL and a new inter-NGI challenge (SSC6) is being prepared in collaboration with the CMS VO. Changes to the overall software provisioning process were approved in preparation for the UMD 2 release to reduce the lag between the time software is released and the time staged rollout starts by parallelizing verification and testing in the production infrastructure, and by simplifying the process. The integration of UNICORE probes into SAM was improved, and new probes for QCG and Desktop Grids were included into SAM to help the integration of other infrastructures into EGI. The integration of a set of operations services (helpdesk and accounting) offered by EGI and PRACE to meet requirements of user communities interested in a coupled usage of HTC and HPC resources was investigated.

The GOCDB read-write portal was decommissioned and replaced by a single read-write version. Two new versions of Operations portal were deployed during PQ9 with new features for site and NGI availability and reliability monitoring. CERN and OSG moved their production accounting infrastructure to the new Python-based STOMP Secure Messaging infrastructure (SSM). Other partners are currently testing the integration of the local accounting system with SSM (SGAS, GridSafe, ARC-JURA), and more testing activities are foreseen for the next quarter (Desktop Grids and QosCosGrid). The first version of the GGUS report generator was released in June 2012. Additional features and bug fixing are expected in PQ10 with the final being released in PQ11. COD also contributed to the revision of how testing of sites and service end-points is being handled to streamline the related procedures, and improve tool support. The implementation of a merge of all EGI support activities into a single support task encompassing 1st level support, and extended 2nd level support, ticket follow-up and SLA enforcement was discussed and implemented. The EGI community is working jointly with the HEP community through HEPiX to undertake IPv6-compliance testing. A draft plan to test ARC and gLite components is now available and UNICORE testers were appointed.

The second major release of the Unified Middleware Distribution (UMD-2) was made incorporating software from the EMI and other projects that were in immediate demand by EGI. This release provided support for multiple OS platforms and required changes to procedures and the supporting technical infrastructure to be extended. Multiple platforms supported also meant more items to be handled and a greater effort needed during the verification and staged rollout phase. EGI's federated clouds task force activities continued consolidating the nine workbenches based on as many use cases for the cloud infrastructure. This resulted in a live demo at OGF 35 demonstrating the status of the most advanced use cases.

The redesigned EGI website has seen more traffic to the news, events and media areas due to their greater prominence on the front page and the new content that has been developed. The redesign has brought other areas such as the case studies and service portfolio offered by EGI.eu into the top ten list of most viewed pages. In addition to the website and stands at both EGI and research communities events, further outreach came through articles in both printed and electronic newsletters with some articles being picked up publications including Bloomberg BusinessWeek, Discovery News and Wired. The virtual team model continued to mature with community based teams working on policy and technical issues. Strategic planning activities focused on a report describing EGI's possible transition to the ERIC legal entity to support discussions taking place within the EGI Council.

The second EC Review of the EGI-InSPIRE project took place at the end of June 2012. The consortium presented a number of alterations to the DoW that were designed to strengthen the support and coordination activities provided to the operational infrastructure while adding a dedicated focus to building a federated cloud environment using EGI's existing operational tools. As no objections were raised by the reviewers during the review to these changes these were gradually introduced during the remainder of PQ9.

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1. OPERATIONS

Summary

At the end of PQ9 EGI comprises 347 sites with a total amount of over 304,000 logical CPU cores (including resource from integrated Resource Providers). Moldova and Ukraine joined the production infrastructure during PQ9.

The main objectives during PQ9 were:

- The restructuring of staged rollout procedures and early adoption effort in preparation of UMD 2 and subsequent updates.
- The integration of a set of operations services offered by EGI and PRACE to meet requirements of user communities interested in a coupled usage of HTC and HPC resources.
- The definition of a retirement calendar for services which reached end of life, including a GLUE 2 migration plan.
- An action plan to improve EGI's readiness towards adopting of SHA-2 in its PKI.
- The preparation of the EGITF 2012 programme – Operations Track – in cooperation with the SA1 task leaders.

The production infrastructure comprises various grid services from the gLite distribution that reached end of life in 2011/2012. Reasons for this vary and depend on the service under consideration, e.g. lack of a reliable newer version of the software that could replace the one in production, the constraints introduced by service maintenance calendars that depend on end-user production activities, the lack of an upgrade path from gLite to EMI products. The gLite 3.2 retirement calendar and related policy for gLite 3.2 unsupported software was discussed and approved by the Security Coordination Group and the OMB: unsupported gLite 3.2 services will be decommissioned by 01 October 2012, and Resource Centres not planning for an upgrade will risk suspension after 01 November 2012. The Security Service Challenge 5 was run by NGI_NL and a new inter-NGI challenge (SSC6) is being prepared in collaboration with the CMS VO.

Several changes to the overall software provisioning process for staged rollout were discussed by the OMB and were approved. The approved changes reduce the lag between the time software is released and the time staged rollout starts by parallelizing verification and testing in the production infrastructure, and by simplifying the process. Early adoption resources were re-allocated to allow the phased released into UMD of EMI and IGE products according to the priorities defined by the OMB.

The integration of UNICORE probes into SAM was improved, and new probes for QCG and Desktop Grids were included into SAM.

The operations integration team engaged with the MAPPER project and PRACE to discuss the feasibility of the integration between the EGI helpdesk (GGUS) and the PRACE helpdesk (RT). The first testing results will be reported during the EGITF 2012. The integration of the EGI accounting repository (APEL) with the PRACE accounting system for the merging of accounting data across multiple infrastructures is also being investigated.

The GOCDB read-write portal[1] was decommissioned on July 31st and replaced by a single read-write version. Two new versions of Operations portal were deployed during PQ9 with new features for site and NGI availability and reliability monitoring. Update 17 of SAM was released for staged rollout.

CERN and OSG moved their production accounting infrastructure to the new Python-based STOMP Secure Messaging infrastructure (SSM). Other partners are currently testing the integration of the local accounting system with SSM (SGAS, GridSafe, ARC-JURA), and more testing activities are foreseen for the next quarter (Desktop Grids and QosCosGrid).

The first version of the GGUS report generator was released in June 2012. Additional features and bug fixing are expected in the coming quarter. The final version will be available by the end of 2012.

COD also contributed to the revision of how testing of sites and service end-points is being handled to streamline the related procedures, and improve tool support. The implementation of a merge of all EGI support activities into a single support task encompassing 1st level support, and extended 2nd level support, ticket follow-up and SLA enforcement is being discussed.

ARNES, GARR and FZU are the EGI-InSPIRE partners currently contributing to IPv6-compliance testing. A draft plan to test ARC and gLite components is now available and UNICORE testers were appointed.

HEPiX, EMI and EGI resources will be merged into a single infrastructure, supporting three VOs: net.egi.eu, ipv6.hepix.org and testers.eu-emi.eu. Initial results will be reported at the EGITF 2012.

Main Achievements

1.1.1. Security

During PQ9 the coordination of task TSA1.2 was handed to Dave Kelsey from STFC and the responsibility of the coordination of EGI CSIRT activities was assigned to Sven Gabriel/NIKHEF. The handover of these coordination duties was managed transparently in order to not affect daily security operations.

EGI CSIRT. The activity of the group concentrated on the handling of various high risk vulnerabilities that affected the production infrastructure.

The incident response team handled two security incidents during PQ9 and issued two security alerts/advisories, of which one critical[2].

Security monitoring: A proposal was made to extend the Pakiti monitoring to include all machines at a site[3]. The security monitoring team was also asked by Open Science Grid to host a Pakiti server to evaluate reports that would be sent from OSG nodes. A pilot installation of the server side that is installed next to the current EGI service was provided. A pilot operation has been started and its feasibility will be evaluated.

[1] https://gocdb4.esc.rl.ac.uk/portal

[2] https://wiki.egi.eu/wiki/EGI_CSIRT:Alerts

[3] https://wiki.egi.eu/csirt/index.php/Monitoring#Site-wide_Pakiti_monitoring

The security service challenge framework for SSC5 was extended to integrate more job-submission methods and to improve the reporting module. After this, SSC5 was performed at 4 out of 5 sites in NGI-NL. Good progress has been made on preparing for SSC6 but this will be delayed until PQ10 as integrating the CMS CRAB job management system into the SSC Framework took longer than anticipated. SSC6 will be based on the CMS job-submission framework, in order to involve other principle teams managing central services. SSC6 will involve sites that have not been challenged before.

Training: Preparations have been made for the next EGI-CSIRT security tutorial to happen at the GridKa summer school[4] (August 2012) and at the EGITF 2012. These will include hands-on forensics exercises.

Software Vulnerability Group: The Software Vulnerability Group handled 4 new vulnerabilities during PQ9 and issued two advisories.

Discussions between CSIRT, SVG, and OMB agreed the approach to sites running software for which security support has ended. A general advisory on this was issued by CSIRT and a further advisory has been drafted on the timeline for migration away from gLite 3.2 middleware components.

The EGI Security Threat Risk Assessment activity and the related final report were completed[5].

An action plan for the preparation of the production infrastructure towards a migration to SHA-2 as an algorithm for the encryption of personal certificates was prepared and submitted to SCG for comments.

1.1.2. Service Deployment and Integration

Several changes to the overall software provisioning process for what concerns staged rollout, were discussed by the OMB, and were finally approved. Purpose of the changes introduced is to reduce the lag between the time software is released and the time staged rollout starts by parallelizing verification and testing in the production infrastructure and by simplifying the process. Changes are documented in MS512[6]. New public EGI repositories containing the packages in verification and staged rollout are now available to sites if they want to update to software versions not yet in production use.

In preparation to UMD 2, effort for staged rollout was re-distributed to products identified as having high priority by the OMB.

Several new Early Adopters have committed to staged rollout, allowing the testing of products up to now not included into UMD 1 (LFC/Oracle, FTS, and some Globus products).

Early Adoption allowed the preparation of UMD 2 (containing a fraction of EMI2 products), and UMD 2.1 update (providing several other products including several IGE products). For each product all supported Operating Systems were tested (SL5, SL6 and Debian6 for some of them).

Interoperations

[4] http://gridka-school.scc.kit.edu/2012/index.php

[5] https://documents.egi.eu/document/969 (access is restricted)

[6] https://documents.egi.eu/document/1135

The OMB approved that Globus and UNICORE tests run by SAM could now also raise alarms into the Operations Portal in case of failure. Globus test results are being assessed by ROD teams to assess the impact of this change. For UNICORE the activity was put on hold waiting for SAM version Update-17 because of an issue in SAM Update-15[7].

SAM version Update-17 started software release procedure on July 3rd. SAM Update-17 contains new versions of ARC, UNICORE probes and Desktop Grids probes. In order to thoroughly test the integration three additional Early Adopters participated to staged rollout (NGI_FI for ARC probes, NGI_PL for UNICORE probes and NGI_HU for the Desktop Grids probe).

The integration of UNICORE probes was improved in SAM version Update-19: the probe package was updated, probes are configured to use the resource information system instead of a central one and two new tests were added: emi.unicore.UNICORE-Job and emi.unicore.StorageFactory.

QCG/MAPPER probes provided by NGI_PL were fully integrated with SAM in version Update-19[8]. A QCG team responsible of specialized support was appointed, and a Support Unit will be created in GGUS.

The operations integration team engaged with the MAPPER project and PRACE to discuss the feasibility of the integration between the EGI helpdesk (GGUS) and the PRACE helpdesk (RT). The first testing results will be reported during the EGITF 2012. The integration of the EGI accounting repository (APEL) with the PRACE accounting system for the merging of accounting data across multiple infrastructures is also being investigated.

1.1.3. Helpdesk & Support Activities

EGI Helpdesk: Tests were implemented to probe the interface between GGUS and the remote helpdesk systems. These tests are executed before each GGUS release. The interface with the ticketing system of NGI_FRANCE (OTRS) is being set-up and will be rolled to production in September. The implementation work on the GGUS-SNOW interface of CERN was completed. New xGUS instances were rolled to production: one instance for the French national VO vo.france-grilles.fr which is a catch-all VO for multiple communities in France, and one instance for NGI_SI. The needs of EGI CSIRT which require a specialized ticket access mode in GGUS, are still being assessed.

Grid Oversight: A ROD team newsletter was issued in July 2012 to inform ROD about relevant upcoming events and support performance.

The ROD performance index is being monitored on a monthly basis to check the quality of the support provided. Since October 2011 all NGIs with an index above 10 items in the COD dashboard are requested to provide a justification in GGUS. Currently COD are continuing to collect and investigate these metrics and also to correlate them with other metrics to see if any general operational issues affecting multiple NGIs require attention.

Availability and reliability underperformance are being manually followed up monthly for each Resource Centre. A probe measuring the availability and reliability was supplied to the Operations Portal developers. The algorithm of this probe is going to be incorporated into the portal so that the

[7] For more information see https://ggus.eu/ws/ticket_info.php?ticket=81278

[8] https://tomtools.cern.ch/jira/browse/SAM-2721

ROD teams see what the status of the RCs in their region is, in terms of availability and reliability before the end of the month. This gives RODs the opportunity to contact and help RCs with low availability and reliability in order to prevent COD tickets and ultimately site suspension.

The problem of the NGI SAM unavailability or misconfiguration causing a high percentage of UNKNOWN results is still being monitored, but the percentage has been gradually decreasing.

Underperformance of NGI services is also followed up monthly.

During PQ9 COD completed the certification of two new NGIs: Moldova and Ukraine. COD also contributed to the revision of how testing of sites and service end-points is being handled to streamline the related procedures, and improve tool support. A ROD training session during the EGITF 2012 is being organized.

TPM: Ticket triage and follow-up activities that are currently part of the TPM duties were reviewed in June and a merger between the TPM and the Deployed Middleware Support Unit (DMSU) agreed. The implementation plan for a restructuring of the current EGI first (TPM) and second (DMSU) level support activities was discussed in June[9]. A joint DMSU -TPM face-to-face meeting was held in June, where details of the work distribution and responsibilities in the new support unit were discussed and agreed. The proposal is waiting for the final approval by project reviewers to be fully deployed.

DMSU: The DMSU received 180 tickets in the reporting period with 40 tickets (22 %) solved by the DMSU and 22 tickets (12 %) returned to TPM (this is a known artifact in the statistics caused by routing tickets to batch system and accounting support units). There is as slight decrease in the ratio of solved tickets (25 % in PQ8), however, due to high oscillations of these numbers (also discussed in D5.6[10] there is no apparent trend. The ticket solution time was 18/11 days (average/median). These numbers are significantly higher comparing to previous periods. More thorough analysis shows three major reasons: 1) there was an extremely long time waiting for additional information from the user, even the confirmation that the proposed solution works; 2) problems related to 3rd party components (without support units in GGUS, e.g. MyProxy and Condor); such tickets are kept in the "on hold" status within DMSU until the solution is released; 3) low priority but difficult to analyze problems, which required many interactions between DMSU and the user, however, due to the low priority, reaction time at both ends was somewhat longer. Altogether, the analysis shows the reasons to be a coincidence, not indicating any flaw in the DMSU procedures.

Network support: ARNES, GARR and FZU are the EGI partners currently contributing to IPv6-compliance testing. A draft plan to test ARC and gLite components is now available and initial results will be reported at the EGITF 2012. HEPiX IPv6 testing activities were closely followed, and at a face-to-face meeting was held at CERN in June 2012 during which it was decided that HEPiX, EMI and EGI-InSPIRE resources will be merged into a single infrastructure, supporting three VOs: net.egi.eu, ipv6.hepix.org and testers.eu-emi.eu. Testers at for UNICORE components using IPv6 were appointed.

[9] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1091

[10] D5.6 Annual report on the status of Software Provisioning activity and the work of DMSU, https://documents.egi.eu/document/1015

As to network monitoring and troubleshooting, the idea of merging the deployment modules of HINTS probes and PerfSONAR MDM Measurement Points is being investigated. A first meeting was organized about this between GARR, FranceGrille /CNRS, DANTE and DFN/GN3 PerfSONAR. This would support the further deployment and spread adoption of both tools.

VO support: A VO support action plan for BIOMED started during PQ9 and including the following activities: the analysis of new EMI features for the synchronization between DPM and LFC catalogue, the testing of the WMS job re-planning feature for reduction of job failure and queuing latencies, and the collection of information through a OMB survey about current NGI and RC-specific resource allocation policies, which determine the success of opportunistic resource usage in EGI by VOs that do not directly own resources provisioned through EGI.

Feedback from all VO managers was solicited about the impact of a transition of the application execution environment from gLite 3.2 Worker Node to EMI 1 and 2.

Training needs were collected from all NGI operations managers in order to define the training programme that will be delivered during the EGITF 2012. Operators from Albania, Belarus, Moldova, Macedonia and Colombia will be funded to attend the conference. A training event on new VOMS features for VO membership renewal and AUP approval was delivered in June.

NGI User Support:

- Cyprus: During PQ9 CyGRID_NGI has installed and configure the R project on some new servers. The experiments that our users are running needed more computational power and parallelism. We had a meeting in order to gather the new requirements that our users have in order to run R in parallel. We are working now in accomplishing the new requirements.
- France: France Grilles received its Advisory committee recommendation after the April meeting and prepares now the France Grilles Day second edition that will be held in Paris (1-3 October 2012). The call for papers is currently closed and the review before selection by the program committee on going. This year this event is co-organised with the HPC days. Several contacts with potential users are on-going. A first contact has been taken with the Ministry for culture about cultural heritage projects.
- Georgia: Support users in solving their problems, regular meetings with NGI_GE users to clarify and identify issues in the users support and inform them about new procedures. Together with Tbilisi State University preparation and submission project: "Development of Grid Infrastructure and Services to Support Research Communities in Georgia" to the Shota Rustaveli National Science Foundation. One of the main objectives is to support Georgian research teams to fully explore and established new possibilities for their scientific work by providing easy and transparent access to the modern Grid infrastructure and services. This objective will be achieved by the strong campaign of assessment of the new user communities, training and user support activities (including support in modification of applications according to the Grid computing requirements).
- Greece: The main achievements of NGI _GRNET User Support Team during the period of reference were the following:
  - Provision of the ui-tools metapackage through the HellasGrid User Interfaces[11].

[11] http://wiki.hellasgrid.gr/wiki/bin/view/HellasGrid/GOC/UI-TOOLSUserGuide

- Replacement of the Grid_HelpDesk SOAP web service of the interface between the HellasGrid RT and the EGI Helpdesk.
- Solving the various requests coming to NGI_GRNET User Support Team.

- Hungary: NGI_HU was present with brief introductory presentations (from BME, Wigner RCP and SZTAKI) at the SZTAKI organized Summer School 2012 on the last day, 6th July. Based on the Review slides EGI-InSPIRE was also presented, showcasing Stories from the Grid videos. The summer school attracted more than 50 participants from 25 institutes and 16 countries. The WS-PGRADE/gUSE user support environment had a new release (v3.4.6) with an installation wizard as its main feature. Version 3.4.7 has also been released introducing a visual feedback for users about relative long time running processes.
- Ireland: NGI_IE (TCD) continues to provide a help desk and user support. It continues to work with Irish astronomy an astrophysics researchers to make use of grid resources.
- Italy: During PQ9 NGI_IT user support activities focused on the following main areas:
  - the definition of the grid interfaces for the EMSO project data (http://www.emso-eu.org/) , in particular for the NEMO-1 experiment offshore Catania. The work was stopped waiting for the experiment to be positioned on the sea floor and will start again in PQ10. The porting of the NEMO ocean modelling framework to gLite has started (http://www.nemo-ocean.eu/).
  - the finalisation of the porting of the ANSYS software for the INFN SPES experiment community with the creation (in collaboration with the NGI operations team) of the web portal interfaces to submit the application
  - the interaction with the CTA consortium to investigate the creation of a CTA-EGI VT
  - the collaboration with various Italian sites and user communities to setup an HPC/MPI/Multicore testbed to test the readiness of the infrastructure for porting of various small and medium coupled parallel applications, i.e. the Einstein Toolkit, NAMD[12], RegCM[13], AVU-GSR for the ESA GAIA Mission[14] and Quantum Espresso[15].
  - the support to various COMPCHEM communities and applications, in particular effort was devoted to improve the porting of CRYSTAL (http://www.crystal.unito.it/) started previously.
  - the preparation of the contributions and the participation to ICCSA12 (http://ess.iccsa.org).
  - the organisation and participation to various COMPCHEM meetings focused on the further structuring of the COMPCHEM VO, on the relationships with other VOs and on new Grid services and applications to be offered to the VO users

  During PQ10 we plan to continue the activities started in the previous quarters and we will perform actions towards the Italian Earth Science community, in particular for what concerns the porting of atmospheric models to the Grid.
- Lithuania: Lithuanian NGI work was concentrated mainly on installation of a new HPC cluster which will be integrated into EGI and support the Computational chemistry applications (GAMESS

[12] http://www.ks.uiuc.edu/Research/namd/

[13] http://gforge.ictp.it/gf/project/regcm/

[14] http://sci.esa.int/science-e/www/area/index.cfm?fareaid=26

[15] http://www.quantum-espresso.org/

and GAUSSIAN) as well as attracting new users from medicine field. In this content the grid based infrastructure is created. The users are constantly consulted on grid application for research. In the next period we continue the operation of the present NGI_LT infrastructure; testing the new HPC functionality in EGI; the continued support of scientific communities in the process of the development and running their applications on the cluster and grid; implemented Dalton, Crystal and in-house made applications to grid.

- Netherlands: In PQ9 the Dutch NGI executed several incidental and continuous support activities. We have been supporting one of our power users to start making use of the Biomed Virtual Organisation in order to explore true international grid usage. We would like to name the www.ebiogrid.nl project website that show the continuous running support projects. Additions were made to the cloud service infrastructure, including experiments with setting up a Galaxy on demand services and Matlab clusters. A 3 weeks summer school / training effort was executed at the University of Amsterdam, as well as a tutorial at the international Healthgrid Conference. Lastly we participate in a collaboratively organised monthly colloquia series.
- Portugal: The Portuguese NGI user support activity was focused on porting frameworks from researchers belonging to the Faculty of Engineering of Porto University (INESC-Porto) working in machine learning / data mining domains. The objective is the creation of an Automatic Recommendation System for optimization algorithms using Machine Learning Techniques. The research consists in using R software to analyse and study historical data for different optimization algorithms. The researchers were introduced to grid technologies and their applications were adapted so that they could execute them under the Portuguese national grid. On the other hand, the Portuguese NGI user support team was also involved in the evaluation a DIRAC portal for phys.vo.ibergrid.eu IBERGRID users and on the testing of a dedicated helpdesk for user support.
- Serbia: The AEGIS VO members continued to increase and the total number has now reached 118. Support to the Serbian chemistry community has continued with new software packages added to existing software stack of Grid enabled packages: GROMACS and MOPAC. MOPAC (http://openmopac.net/) is a semi-empirical quantum chemistry program based on Dewar and Thiel's NDDO approximation, while GROMACS (http://www.gromacs.org/) is a versatile package to perform molecular dynamics, simulate the Newtonian equations of motion for systems with hundreds to millions of particles. Also, on central AEGIS user interface machine, for convenience of researchers from chemistry community MOplot software (http://www-chem.unifr.ch/tb/moplot/moplot.html) has been installed. MOplot provides rapid inspection of the nodal properties and the general shape of molecular orbitals (MOs) from different quantum chemical calculations (e.g. selection of the active space for a MCSCF calculation). One of the important accomplishments in this period was expansion of our user support to new scientific community: in collaboration with Serbian astrophysics community GADGET code has been ported to Serbian Grid infrastructure. GADGET (http://www.mpa-garching.mpg.de/gadget/) is a freely available code for cosmological N-body/SPH simulations on massively parallel computers with distributed memory. Also, astrophysics Grid users were advised on how to perform large parallel astrophysical simulations (in computational and storage space sense) on existing infrastructure in the most efficient way. NGI_AEGIS Helpdesk (https://helpdesk.aegis.rs/) and NGI_AEGIS website (http://www.aegis.rs/) have been regularly maintained and updated. In collaboration with KIT team

certificate for AEGIS Helpdesk was renewed. Also, AEGIS user support team participated in testing of the functionality of interface from the EGI Helpdesk to the AEGIS ticketing system after each new release. NGI AEGIS successfully organized training event "Grid Training for Power Users" in which utilization of the Grid resources was introduced to Serbian researchers from different scientific communities. In the following period, NGI_AEGIS resources will be updated to latest middleware releases so users will benefit from more reliable and more efficient infrastructure. Also, there are on-going activities for porting of additional software packages to AEGIS Grid resources for all supported scientific communities.

- Slovakia: Our work was concentrated mainly on: the testing and verification of the functionality of the software (MPI, OpenMP, PBS, etc.) installed on the new HPC cluster which is planned to be integrated in the EGI infrastructure and work related to the Fire simulation VT: porting the FDS (Fire Dynamics Simulator) onto the new cluster and adapting the FDS execution support; porting the WRF (Weather Research and Forecasting) application to the HPC cluster and performance tuning; preparing parametric execution of WRF using DIANE for the purpose of finding the optimal physical model for the region of Slovakia. In the next period we continue the operation of the present NGI_SK infrastructure; testing the UMD 2 functionality with emphasis on the submission of complex parallel jobs; the continued support of scientific communities in the process of the development and running their applications on the cluster and grid.
- Switzerland: During PQ9 NGI_CH user support activities focused on enabling ARC sites to publish their accounting records to the central Apel repository. A ticket has been created in the EGI Helpdesk (https://ggus.eu/ws/ticket_info.php?ticket=84291) and a solution by NGI-FI has been deployed and initially tested.
- UK: The UK NGI helpdesk has implemented a new workflow to reduce delays in assigning helpdesk tickets. This follows updating GOCDB with email address fields that allows most tickets to be auto assigned to the relevant support unit or site. The new workflow requires the site to mark the ticket "in progress" to accurately reflect the time work begins on a ticket.Moldova: A help-desk service to support novice and experienced users with using grid was established to help explain to them how to prepare and port their applications to EGI and to find more suitable solutions for solving their applied problems and how to optimize their workload to on EGI and HPC resources. The Institute of Mathematics and Computer Science of the Academy of Sciences of Moldova in cooperation with RENAM Association organized the first session of a series of technical-scientific workshops, training events and courses. The event was aimed at research personnel and specialists from Moldova in order to raise awareness and skills in HPC, Grid and Cloud computing infrastructures utilization. The program of the first session included two presentations: Dr. P. Bogatencov: International and regional projects for computing technologies development and Mr. Nicolai Iliuha: Access to regional High Performance Computing (HPC) resources (http://www.math.md/en/news/2012/11073/).

1.1.4. Infrastructure Services

The GOCDB read-write portal[16] was decommissioned on July 31st and replaced by a single read-write version at https://goc.egi.eu/portal. This consolidated all GOCDB components (including the Programmatic Interface, used to automatically access the GOCDB data) under the same URL. The GOCDB failover instance is being upgraded to the latest service version.

Two new versions of Operations portal were deployed in PQ9: 2.9.4 on June 12th and 2.9.5 on July 3rd. The major change in the new versions is module for availability and reliability of core NGI services.

1. Site monthly Availability/Reliability is now accessible at https://operations-portal.egi.eu/availability/siteAvailabilities. This Operations Portal page provides an overview of the performance over the last months, and plots historical availability/reliability data so that trends over time can be analysed. This is a completely new feature. Through the site availability/reliability views, NGI-wide views can be also plotted.
2. https://operations-portal.egi.eu/availability/topbdiiList: this page provides similar views for "core" grid services provided by NGIs. Currently the page plots information for top-BDII. It will be extended to include other NGI services (WMS, VOMS, etc.)

Data for site or NGI core services availability/reliability views is extracted from the SAM programmatic interface. A detailed list of new features can be found in the JRA1 section.

SAM replies on messaging for the collection of monitoring results. The transition from “topic” to “virtual destination” in order to improve synchronization between SAM instances and the Operations portal is currently in progress.

One new versions of SAM was released in this quarter: SAM Update-17 on July 3rd. By the end of PQ9 SAM Update-17 was still in staged rollout. Two NGIs finalized process of creation deployed SAM/Nagios instances: NGI_MD and NGI_UA. The first testing instance of the new operational tools monitoring was deployed as part of SAM release Update 19[17].

The central accounting production repository was run with no internal problems, however there were a few very small network incidents which prevented the service receiving new data. As the central accounting repository imports data from a broker network, this data would all have been received the next time the affected clients tried to publish.

CERN and OSG moved their production accounting infrastructure to the new Python-based STOMP Secure Messaging infrastructure (SSM). For CERN’s jobs, records summaries are made which are then merged with the summaries from the old system for transfer to the CESGA Portal. OSG send summaries and these too are merged. The test repository is run to receive tests from other sites developing their software against SSM. All of the other existing and new accounting services have done some testing using SSM, now including SGAS and GridSafe. Tests were also received from CC-IN2P3, and ARC-JURA. Testing with GridSafe and MAPPER (QosCosGrid software) is being planned. Tests for Destktop Grids software should start in PQ10.

[16] https://gocdb4.esc.rl.ac.uk/portal

[17] https://tomtools.cern.ch/jira/browse/SAM-1430

The central accounting team participated in Inter-NGI Report Virtual Team, the MPI Virtual Team, and the Federated Cloud Task Force. For this latter, a test cloud accounting database is run. This quarter we have five Resource Providers who have successfully sent in cloud accounting records, this is from OpenNebula and Openstack cloud middleware, previously we had only OpenNebula accounting records (client cloud accounting scripts have been provided by CESGA for OpenNebula and IN2P3 for Openstack). As to the accounting portal, the backend querying and indexing were improved and the HTML output was enhanced. The portal was tested with several browsers, the graph engine was tuned, and other minor improvements were rolled into production. Some preparation work started to provide inter-NGI usage accounting reports.

Resource Centre and NGI availability and reliability monthly statistics are regularly distributed. A new re-computation procedure was approved at the OMB 2012-03-26 and came into force on 01 May 2012. MS418 "Operational Level Agreements (OLAs) within the EGI production infrastructure" was finalized.

The EGI overall availability monthly report was enhanced to include the number of sites that are above the A/R thresholds (EGI strategic metric). In addition the wiki pages providing information about availability and reliability monitoring profiles, the relevant service level targets defined in the RC and RP OLA and providing links to monthly statistics and on-line monitoring tools, were enhanced[18].

The operation of various EGI Catch-All Core Service was delivered as planned: WMS, LB and Top-BDII for site certification, and of a site certification Catch-All portal. The VO membership service for the DTEAM VO was regularly provided. The /dteam/uki group was removed to complete the decommissioning of the UKI EGEE ROC.

1.1.5. Tool Maintenance and Development

GOCDB

GOCDB 4.3 was released (see narrative QR7/8 objective). This included finer grained role/permissions model and support for Service Groups (i.e. Virtual Sites) and corresponding 'get_service_group' method. This release includes the functionality previously tagged for release in v4.4. Other activities for the tool include:

- Improvements to the interface, including a view all sites page with site filters.
- More integration of new Query2XML package for generating more complex XML documents.
- First release of the GOCDB failover: https://goc.itwm.fraunhofer.de/portal
- Engaged with the GLUE2 working group to refine the GLUE2 XML rendering and include GOCDB requirements (necessary to render the GODB data in GLUE2 compatible format). A number of our proposals were presented at OGF 35 and have since been accepted for inclusion in the forthcoming GLUE2 XML rendering.
- Engaged with EUDAT representatives to review their requirements and to assess the potential for GOCDB deployment and customisation within EUDAT. A number of extension points were identified and have been included as new abstractions with related refactoring.

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

- New service type additions.
- The GOCDB service was unified into a single portal instance (replacing two separate portal deployments; https://wiki.egi.eu/wiki/GOCDB/Release4/Development/CentralUnification).

Operations Portal

During PQ9, two major releases have been delivered. Improvements have been implemented for the security and VO dashboards:

- with the alarm flapping detection
- with the collection of VO shifters authorized to post "Team" Tickets
- with different minor improvements on the ticket creation and update

A new architecture based on Mysql Triggers and scheduled events has been put in place. These functionalities have been used to generate automatically and transparently the different dashboard metrics in a generic format.

Following the developments of the central portal, five patches for the regional instances have been released . Three patches are mandatory to keep the coherency with third parties tools (EGI Helpdesk, GOC DB, SAM PI) and two patches are optional. The availability / reliability module has been added into the Portal to provide information about availability / reliability of Top BDII and also sites.

Backend processing is now done to compute numbers provided by SAM Programmatic Interface. These results are displayed with different granularities: a monthly summary, or daily values (for sites) and hourly values (for the Top BDII) All these results are also available in 2 different chart formats.

These different developments were complemented by improvements on the VO Management module and the broadcast tool .In parallel an upgrade of the php version has been done (from 5.2.9 to 5.3.13).

Service Availability Monitor

The Service Availability Monitoring (SAM) framework has benefit of an important development activity during PQ9. Through the three major releases described below, we have increased the functionality of the system, and improved the deployment and stability of the central services for EGI.

SAM-Update 17 and SAM-Update 17.1: The main objective of this update was the deployment in production of the new Profile Management Database (POEM) component, which substitutes the old Metrics Description Database (MDDB). .POEM provides the interface and functionality necessary to group different metrics into profiles, and based on those profiles configure NAGIOS and the other SAM components. This release also includes the integration of Nagios probes for Desktop Grid (BOINC) middleware.

Release notes are available at:

https://tomtools.cern.ch/confluence/display/SAMDOC/Update-17

https://tomtools.cern.ch/confluence/display/SAMDOC/Update-17.1

SAM-Update 18 (internal only): This internal release aims to improve the logging and monitoring of the SAM database (and in particular of the Metrics Result Store component), the functioning of VO Nagios instances, and the re-computation of service statuses.

Release notes are available at:

https://tomtools.cern.ch/confluence/display/SAMDOC/Update-18

SAM-Update 19 (not yet released): This release is devoted to documentation and to the MyEGI component, improving many aspects of its visualization.
Release notes are available at:
https://tomtools.cern.ch/confluence/display/SAMDOC/Update-19

Messaging

Implemented the credential synchronization system, which is responsible to keep user and group records synced between the brokers of the same broker network. It is deployed and tested in TEST broker network. A new metapackage was created to ease the installation procedure.

EGI Helpdesk

The first version of the EGI Helpdesk report generator was released in June 2012. Various new support units were introduced during the last quarter: REBUS (2nd level support), EMI Common, EMI Common Data Library and LHC Experiment Dashboard (3rd level support).

The web interface was extended with extra information fields in the ticket body to track which middleware product is affected by the reported incident.

Accounting Repository

During PQ9 the accounting portal development work focused on the following main topics:

- Working with EMI to simplify the SSM protocol.
- Designing migration strategy for APEL central database.
- Creating a prototype consumer for CAR (Cloud Accounting Record) records in XML document format, rather than our own keyword format.
- Continued the activity on cloud accounting records as part of Federated Cloud

Accounting Portal

The main achievements in PQ9 were miscellaneous query improvement and index optimization, better HTML output, testing with several browsers, tweaks on the graph engine, and other minor changes. There was also preliminary work undertaken prior to the implementation of new interNGI usage features.

Metrics Portal

The metrics portal in PQ9 has been expanded with new metrics for the SA2, NA2, SA1 and NA3 tasks. Some of these metrics needed to be available only from a specific quarter, or superseded the semantics of previous metrics, so new functionality to make metrics accessible depending on several variables was implemented. These metrics will also promote the development of connectors for next information sources.

Issues and Mitigation

1.1.6. Issue 1 (SA1 PQ5): Participation to SR activities

Effort distribution for early adoption of products for UMD 2 and subsequent updates was completely reviewed, given the increasing number of OS platforms supported. UMD 2.0 was released in PQ8 and UMD 2.1 in the first days of PQ10. The issue can be now closed.



1.1.7. Issue 3 (SA1 PQ6): Underperformance

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

Update: NGI_ARMGRID performance improved and stabilized around values above the minimum requested to avoid suspension. NGI_ME (Montenegro) is still severely underperforming and the production site will be a candidate for suspension in August 2012. In NGI_MARGI (Macedonia) performance improved for two production sites (it includes three sites in total). In Asia Pacific four of the underperforming sites improved. However, the region still includes 6 sites that do not comply with the RC OLA. A training session for site managers will be organized at the EGITF 2012 and representatives from various emerging NGIs will attend.

1.1.8. Issue 4 (SA1 PQ6): Integration of Albania

Albania is still not contributing resources to EGI.

Update. Two site managers appointed by the NGI operations contact will participate to the training programme of the EGITF 2012.

1.1.9. Issue 5 (SA1 PQ8): Grid software maintenance and support

Continued grid software maintenance and third level support of software in EGI is paramount. Both will be challenged by the end of the two main projects that currently ensure provisioning of deployed software (EMI and IGE). The risks that are being faced are the discontinuation of maintenance and support of a subset of products, lower quality of the support that is currently subject to SLAs, phasing out of the external repositories, and a change in the software distribution processes that will require have to be reflected with changes in the EGI software provisioning processes.

Mitigation. SA1 will assess the impact of discontinuation of EMI/IGE services on current user communities and the EGI operations services.

1.1.10. Issue 6 (JRA1)

Missing effort issues have been identified for various tools – they are analysed in details in D7.2

Plans for the next period

1.1.11. Operations

The main objectives of operations activities during PQ10 are:

- The assessment of impact on operations services of the changes in software provisioning introduced by the end of the EMI and IGE projects in April 2013.
- The assessment of impact on operations services of an increasing adoption of virtualization as a service provisioning mechanism.
- The assessment of operations sustainability (EGI and NGI services) after April 2014.

Work will continue on the improvements of the RT/RTIR ticketing system to facilitate better incident reporting. The Site Certification Procedure will be revised to include the required security items and a

new procedure will be developed for the handling of compromised certificates. The need for a policy defining the timeline for decommissioning of retired grid software versions was discussed; the Security Policy Team will be responsible of extending existing policies as appropriate. EGI CSIRT will collaborate on the daily monitoring of the production infrastructure for the timely migration from unsupported software. Work will continue on Pakiti V3 and the move to site-wide security monitoring.

SSC6 will be performed at approximately 40 sites across EGI and more NGIs will perform the national variant of SSC5. Security training will be given at the GridKa school and the EGITF 2012. This will include hands-on training in forensics. The annual review of the SVG issue handling procedure will be performed.

The process for software testing will be further reviewed to be defined to adapt them to the changes that will be introduced with the end of the EGI and IGE projects in April 2013: packages will be distribute in community repositories such as EPEL for SL (RHEL clones) and Debian official repositories. The integration of Globus and UNICORE tests into Operations portal will be completed, while the integration of the QCG test into Operations portal will start. The site and service certification procedures will be adapted to better suite new software releases that are being deployed in production.

Monitoring of availability and reliability of sites and the automated raising of alarms in case of issues will be implemented within Operations portal. Full implementation is planned for PQ10. Deployment of failover configurations of the centralized tools will be pursued in the next quarter, and failover configurations will be tested. The new SAM instance dedicated to monitoring of operational tools with the new probes provided by operational tools developers, will be rolled to production.

Additional features and bug fixing of the first release of the GGUS report generator, are expected in PQ10. The final version will be available by the end of 2012. Two new additional interfaces to NGI helpdesk systems are expected in the coming quarter: the interface to the PRACE helpdesk (RT) and to the IberGrid helpdesk (RT).

The EGI.eu OLA will be finalized and the handling of the validation and distribution of the monthly Availability/Reliability reports will continue, together with the maintenance of the relevant wiki pages.

1.1.12. Tool Maintenance and Development

Operation Portal

A probe will be implemented to raise an alarm in case of underperforming availability for a site. The probe will use a data window of the last 30 days and raise an alarm if the availability for the last 30 calendar days is < 70%. A complete refactoring of the historical dashboard will be undertaken as part of our regular, once every two years, task of evolutionary maintenance of the operations portal backend. The general purpose of this refactoring is the homogenisation of all dashboards to improve on the global efficiency of the features of the portal and on the end-user ease of handling by enabling less work for the developer to activate a given feature.

Last but not least, this work paves the way for the integration of the portal on mobile phones by providing adapted ergonomics. To that end, we have selected the solution adopted by Tweeter based on responsive web design. We will implement this web design on to the operations portal, feature by feature, starting on with the home module and the standard dashboard.

A prototype will be released in September to check the different features with the daily users (Operators) and collect the feedback. The work needed to provide GLU2 integration and evaluate the work needed to move to SHA-2 signatures will be evaluated.

GOCDB

The release of GOCDB 4.4 is planned for PQ10. This will include a number of refinements and address a number of RT requirements.

- Refine the extensibility mechanism proposal to attach key-value pair property bags to core GOCDB entities (akin to GLUE2). In doing this, PI queries can be further parameterized with custom key-value pair query combinations. Update the wiki and present to OTAG/JRA1.
- Continue engagement with the GLUE2 working group to help finalize the GLUE2 XML rendering document. If finalized, provide a first sample rendering of the GOCDB data in GLUE2 XML format using new PI queries.
- Plan for the EGITF 2012 with the aim of a) exploring potential overlaps/differences between information system developments (e.g. EMIR) and b) subsequent reprioritisation of requirements and updating the GOCDB development roadmap (to revisit regionalisation and writable programmatic interfaces).
- Plan and present the GOCDB sustainability plans at the KIT meeting.

Service Availability Monitor

SAM Update 20 will focus on bug fixing identified during the wide deployment of Update-17 and Update-19. In addition, the migration of the existing SAM libraries to newly developed EMI messaging clients (in EPEL), which is necessary to follow the EGI messaging roadmap, will be started. The repackaging of UMD/EMI probes will start to remove dependencies on DAG and RPMForge repositories while leaving only dependencies on EPEL repository.

Messaging

Work with Operations portal and APEL teams will continue in order to satisfy their messaging requirements and complete their migration to the production broker network (for APEL) and the migration to virtual (queue) destinations (for operations portal).

Accounting Repository

During PQ10 work will focus on:

- Implementing a consumer for StAR records with relevant database.
- Updating database schema ready to receive records from next EMI client.
- Organizing and attending the accounting workshop at the EGITF 2012.

NGI Reports

NGI Reports are available at

https://documents.egi.eu/document/1315

2. DOMAIN SPECIFIC SUPPORT AND SHARED SERVICES & TOOLS

Summary

The announcement of the Higgs-like discovery made during PQ9 all referenced the important role that the distributed computing infrastructure (coordinated in Europe by EGI on behalf of WLCG) had in its discovery. For most researchers their view into the distributed computing infrastructure is through some of the tools and applications supported by SA3 such as the HEP Dashboard (which provides job and data monitoring) and Ganga which have continued to evolve in response to user feedback over PQ9. These high-level applications are complemented by software frameworks to support persistency and analysis, in addition to clients to support particular HEP experiments or capability.

Similar tools and services are in place within SA3 to support other research communities. The Life Sciences community has been continuing the evolution of its own dashboard around its community's resources in collaboration with the operations portal to help its distributed operations team provide a good service. This general maintenance of the infrastructure is supplemented by specific services such as Hydra (a distributed key store) which is now being deployed to support the Life Sciences Grid Community. Developments in Astronomy and Astrophyiscs around the development of the VisIVO visualisation tool and the use of GPGPUs has continued while in the Earth Sciences community closer integration between EGI and the data sets stored securely on community specific resources have continued.

Main Achievements

2.1.1. Dashboards

2.1.1.1. HEP Dashboard Application

One important component of the LHC Grid computing, the Experiment Dashboard, provides essential monitoring of LHC computing activities and has contributed to the success of the CERN scientific program. ATLAS presentations at the CERN Higgs seminar and ICHEP2012, a major particle physics conference held in Melbourne, Australia, included plots taken from the Experiment Dashboard illustrating the ATLAS job processing activity on Grid infrastructure.

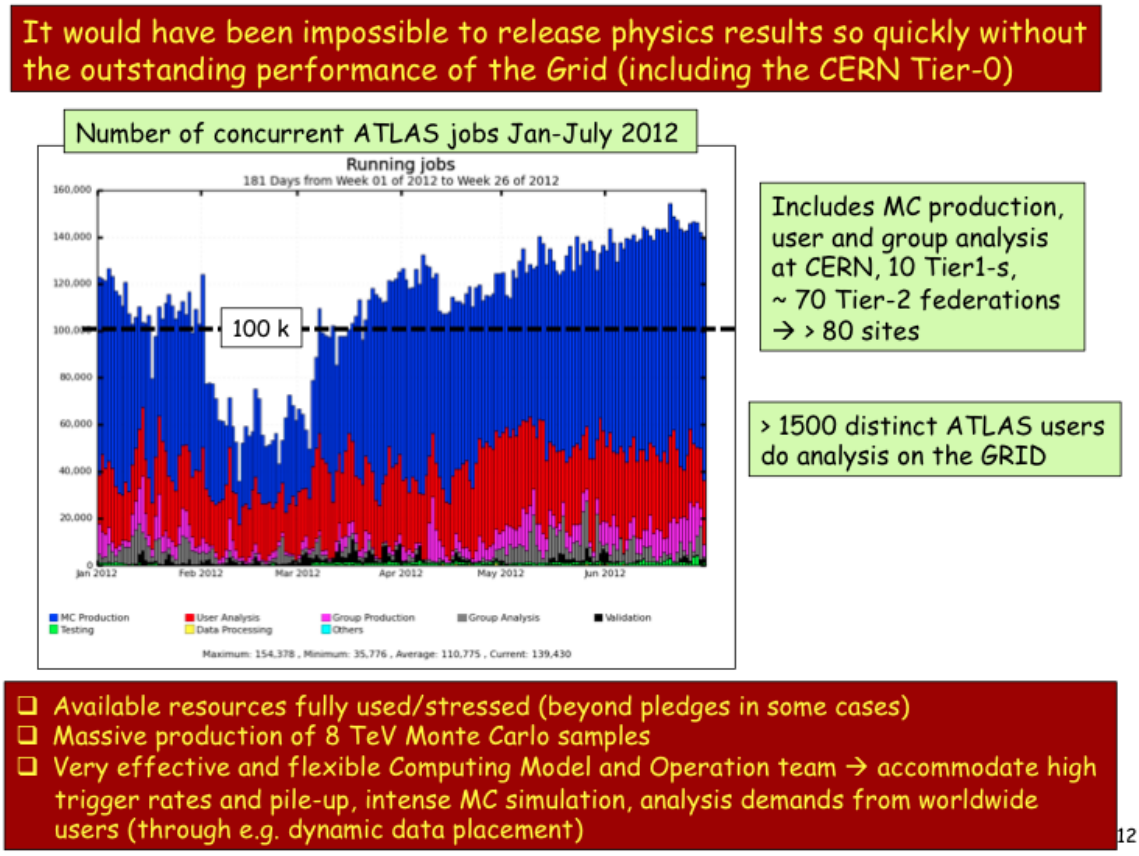

Figure 1: Slide from the ATLAS presentation at the CERN Higgs seminar showing a job-processing plot taken from the Experiment Dashboard.

During PQ9, substantial progress was made in all monitoring areas, in particular in job processing and data management monitoring.

2.1.1.2. Job monitoring

New versions of the Analysis Task Monitoring and Production Task monitoring tools were deployed for the ATLAS VO. These versions provide improved functionality following feedback and feature requests from the ATLAS community. Future work will enable job killing and job resubmission through the Task Monitoring User Interface.

New functionality has been added to the CMS Historical View which provides the ability to compare consumed CPU HEPSPEC06 hours against the 2012 pledged resources.



2.1.1.3. Data Management monitoring

The WLCG Transfer Dashboard passed final validation and was put in production in the beginning of June 2012. The Dashboard plots showing throughput of the transfers performed by the LHC experiments are now included in the home page of the WLCG project. The new system is becoming popular with the LHC computing community. During July 2012 the application was accessed by 2,600 unique visitors from 95 countries around the world. The current version monitors transfers performed via the File Transfer Service (FTS). Recent development has aimed to incorporate into the WLCG Transfer Dashboard those transfers performed on xrootd federated storage.

A new accounting application to monitor the evolution of datasets, files and bytes over periods of time is being developed at the request of the ATLAS VO. The application provides advanced statistics either in historical or real-time views and it offers wide flexibility to the ATLAS users. The new application shares its implementation to a large extent with the Job Monitoring Historical Views, which allowed a prototype Proof of Concept (PoC) implementation to be developed in less than one month. The prototype is currently under validation by the ATLAS computing experts while feedback for additional features is constantly being received from the ATLAS experts. The final version of the application should be deployed in production in October 2012 during the ATLAS Software and Computing workshop.

2.1.1.4. Life Science Dashboard Design

The LSGC ("Life Sciences Grid Community" VRC) technical support team continuously monitors grid resources allocated to Life Sciences users through a Nagios interface and SAM probes: it deals with defaults, proactively identifies potential problems, and provides assistance to grid users.

The technical support team works in close collaboration with NGIs' operation teams and with the developers of VO-level monitoring tools, to improve the tooling available for troubleshooting and operating resources, and therefore to improve the quality of service delivered to the users. In particular, it interacts with the development team of the VO Operations Dashboard (part of the EGI Operations Portal), proposes features, and makes beta-testing of the tool under development.

The technical support team has developed new tools and web reports to allow for the monitoring of storage space consumed VRC-wise, and thus anticipate problems of storage resources running out of free space. It also works with storage resource providers and other communities to identify and refine best practices, and ultimately set up appropriate data management procedures. A global effort to monitor the total usage of computing resources versus availability is currently under investigation.

2.1.2. Tools

2.1.2.1. HammerCloud

During PQ9, HammerCloud has seen work on the backend that allows a more sustainable growth in service clients. The first action has been performed on the web service, improving the deployment with more machines for the HammerCloud cluster and deep optimizations in the code to make web views between 20% and, in some cases up to 3,000% faster. A new storage backend was also deployed to provide a high availability database cluster to improve data management and durability.

Additional test infrastructure was added and tighter integration achieved with development teams from the two LHC experiments, ATLAS and CMS. In the ATLAS case, integration with the Athena developers will allow nightly release testing on the Grid, improving deployment quality and reducing "hot fixes" after the deployment of new versions. On the CMS side, the roadmap for testing of integration teams has been agreed and will take shape during PQ10, furthermore, testing for the new Glidein WMS has been scheduled and initial tests performed.

2.1.2.2. Ganga

During PQ9, Ganga has seen improvements to existing functionality along with the introduction of new features. In addition, there was a major refactoring of the GangaLHCb code to migrate the Gaudi framework components into a set of experiment-neutral classes. Thus, a community intending to adopt Ganga as their analysis tool (and who already utilises the Gaudi framework) can exploit these generic classes to create their own custom Ganga-based tools.

New developments within the Ganga core include the addition of a mechanism for maintaining the integrity of prepared applications. When an application is prepared a checksum is calculated based on the specific attributes set for that instance of the application. This fingerprint is stored in a hidden schema attribute and regularly recalculated to determine if a change has occurred. If so, either the user has overridden the prepared application's locking mechanism (possibly intentionally), or an internal error has occurred, and a warning is presented to the user.

Further improvements include the extension of the Ganga job object to contain additional descriptive information. The first of these (the job 'metadata' attribute) is application-specific and populated internally by Ganga code. Typically this attribute will hold information relating to the associated analysis task, such as the number of events processed or integrated physics luminosity. Secondly, a user-writeable attribute was added to the job object to allow users to add their own comments Ganga jobs. In addition to the above, multiple bug fixes, feature requests and efficiency improvements were applied to the Ganga codebase.

2.1.3. Services

2.1.3.1. Hydra

A new partner was identified to provision a Hydra key store, in order to replace the server initially provisioned by the HealthGrid association, after it was dissolved. This partner, CNRS Institut Pluridisciplinaire Hubert Curien (IPHC), has taken this opportunity to start updating Quattor scripts to deploy the current non-official release of the key store that should be part of a later EMI2 delivery (currently not scheduled). This partner will also contribute to the service testing.

There are two difficulties identified for delivering a production service using the Hydra key store. Firstly, some production sites are misconfigured, not having deployed the Hydra client, having deployed an older version of the Hydra client, or publishing Hydra tags that are not consistent with the client actually deployed, if any. Secondly, on the one hand the Hydra client currently deployed on the production infrastructure is available only with gLite 3.2, for which security support will terminate by September 2012. On the other hand, there is no planned date for the delivery of the Hydra client developed as part of the EMI middleware, and beta tests show that its dependencies are incompatible

with the gLite 3.2 release. Therefore, in such an unclear situation, the service delivered today is only a test service mostly used for the validation of the functionality delivered, and the testing of the deployment procedures.

During this period, a negotiation was led with each site publishing Hydra tags, or provisioning Hydra client without tags to resolve the situation. A close follow-up of EMI release plans is also organized to ensure that the client is integrated in future EMI releases and deployed as part of the standard distribution. This work is therefore bound to the release frequency of EMI.

2.1.3.2. GReIC

During PQ9, the following activities have been carried out:

- A new version of the DashboardDB registry and monitoring gadgets (permalinks available).
- Dissemination activities in close collaboration with NA2.
- Design and preliminary implementation of the DashboardDB service based view.

The DashboardDB registry and monitoring gadgets have been refined, fixed and deployed again. In particular for the DashboardDB registry, a bug related to the post of the messages in the discussion group has been solved, whereas for the DashboardDB monitoring gadget a bug related to the list of hosts in the availability table has been fixed (the paging was not working with more than 8 instances). At this stage, new requirements have been collected to extend the inputbox of the discussion group to include also multimedia and social contents (images, web urls, videos, tweets, etc.). In this regard, the design related to this extension has been completed whereas the software implementation will start in PQ10.

The gadgets have also been made available through different kinds of permalinks and each gadget can be exported in a secure (password-based) and guest (free access) way. They can be directly integrated into existing web applications to provide:

- Authenticated Permalink DashboardDB Registry
- Free Permalink DashboardDB Registry
- Authenticated Permalink DashboardDB Global Monitoring
- Free Permalink DashboardDB Global Monitoring

The permalink feature has been exploited to integrate the DashboardDB application into the official GRelC website (http://www.grelc.unile.it), under the two tabs:

- "*Registry*" (http://grelc.unile.it/registry.php)
- "*Monitoring*" (http://grelc.unile.it/monitoring.php).

Since the DashboardDB registry and monitoring have been deployed at the end of PY2, they are now being updated with new data sources and grid database access services. During PQ9 some grid-database services and data providers have been contacted to register/publish their own data resources/services into the DashboardDB system. This activity will strongly continue during PQ10 through until the end of the project. Moreover, as reported before, since the registry and global monitoring modules have been designed as two self-consistent components they are going to be publicised at the European level as two new EGI gadgets (www.egi.eu/user-support/gadgets). This activity has been carried in close collaboration with NA2 and will be finalized during PQ10. Part of

the activity will include preparing some material (blog post, newsletter item) and a new entry under 'Support Services' of the EGI website about 'Scientific databases'. A complete dissemination plan has been identified and will be implemented over the next months. This plan also includes sending a refined version of the questionnaire prepared during PY1 to the HUCs in order to identify the available database resources (along with specific needs like the porting in grid of new databases) and include them into the registry.

For the Dashboard Service View, a new module focusing on a single GRelC service instance has been designed. This new view will be available as a third gadget and will provide information about the status of each specific GRelC service instance deployed at the EGI level. Considering the currently available DashboardDB global monitoring, the user will exploit this new view to drill-down into a specific service instance. The back-end of this module has already been completed, whereas the GUI part will be implemented over the coming months.

2.1.4. Workflow & Schedulers

During PQ9, work with Kepler (and Serpens suite for Kepler) has been focused on improving the existing scenarios and performing further tests of the existing use cases in order to optimize the workflows. These include the existing fusion workflows (described in the previous report) as well as the astrophysics workflow. In particular we started to work on the extension of the workflow for astrophysics, described in the previous report. New possible templates for fusion workflows are under investigation, for example a Grid application (Fafner) connected to a HPC application EUTERPE.

In addition, the papers presenting the results of the work have been prepared and presented at a range of conferences, including HPCS and ICCS conference. In addition to the above, some bug fixes and feature requests were applied to the Kepler actors.

The main SOMA2 development result in PQ9 is a new release of SOMA2 (v1.4.1: Aluminium). In addition to bug fixes, this version adds support for user generated proxy certificates in Grid use via SOMA2. This release also contains grid enabled versions of SOMA2 demo program descriptions, which make use of the Open Babel program package. These program descriptions are also taken in use in SOMA2 EGI pilot service which was introduced for users in the EGICF 2012. The latter part of PQ9 saw improvements to common UI elements of SOMA2 but this work slowed down a bit due to the summer holidays. Finally, CSC maintained and operated CSC's SOMA2 services during PQ9.

2.1.5. MPI

The MPI support unit, whose establishment was recommended by the EGI-InSPIRE MPI Virtual Team activity, is now active. The MPI supporter unit is drawn from members of the SA3 MPI activity. The establishment of the unit has led to quicker assignment of MPI related tickets to the relevant people.

During the PQ9, CSIC has provided effort to the EGI-INSPIRE MPI Virtual Team. Actions completed include: improved documentation on the EGI wiki, new Nagios probes, Information System correctness improvements and batch system MPI support improvements. A full overview of the activity and actions can be found at https://wiki.egi.eu/wiki/VT_MPI_within_EGI

UNIPG has provided MPI support on a best effort, unfunded basis. UNIPG has disseminated information regarding the use of MPI with molecular science applications on the Grid at the ICCSA 2012 Conference in Salvador de Bahia. A report is being compiled detailing UNIPG's activities (linear algebra routines, quantum reactive scattering programs and secondary pollutant production Chimere package) and promoting the use of MPI on supercomputers from the Grid. In addition, a white paper is being drafted which outlines the strategies adopted to build a computational chemistry VRC.

TCD supported a local undergraduate student with his prize-winning entry to the Intel International Science and Engineering Fair 2012 in Pittsburgh, USA[19]. TCD also helped to establish, and currently leads, the EGI VT-GPGPU virtual team. The team aims to collect detailed requirements from existing and new EGI user communities and their support teams on using GPGPU services in the European Grid Infrastructure. The requirements will used by the EGI Operations community (through the OMB), the EGI User Community (through the UCB) and the EGI Technology Community (through the TCB) to define and implement extensions in the EGI e-infrastructure services in order to meet the communities' demand for GPGPU computing.

2.1.6. High Energy Physics

2.1.6.1. LHCb Dirac

The DIRAC framework provides a complete solution for using the distributed computing resources of the LHCb experiment. DIRAC is a framework for data processing and analysis, including workload management, data management, monitoring and accounting.[20] The LHCbDIRAC framework 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 the LHCb community. The support of LHCbDIRAC, and in particular of its Data Management system (DMS), began in the EGI-InSPIRE project in October 2010.

The first preliminary version of the popularity service, developed during PQ8, has been put into production and is currently being evaluated. During PQ9, development focussed on visualising data popularity plots through the LHCbDIRAC web portal.

The popularity service should provide metrics to quantify dataset popularity and provide a ranking of the most popular datasets (i.e. those most frequently accessed by users). The final goal is to use the information gathered to implement a dynamic data placement model, whereby the number of replicas of a given dataset is based on its popularity.

The LHCbDIRAC agent, which provides accounting plots for storage resources usage and which was first deployed in production during PY1, was refurbished and improved. The new implementation takes advantage of some new functionality in the framework, allowing more efficient usage of resources and a reduced number of queries to gather the necessary information. A prototype has been implemented during this current quarter and is currently going through validation.

[19] http://www.scss.tcd.ie/news/index.php?subaction=showfull&id=1338376309&archive=&start_from=&ucat=11&

[20] MS610 Services for High Energy Physics, https://documents.egi.eu/document/540



A procedure to consolidate the service for consistency checks of data between file catalogues and SEs, and streamline the process to report the inconsistent files and decide about their removal was proposed and is currently under evaluation. The objective is to find a procedure that minimises manual operations and reduces the effort required to verify the origin of the inconsistency, thus making the overall process more sustainable.

There has also been general support for LHCb computing operations on the Grid, both production and private user activity. In particular, after the restart of data taking in April, considerable effort has been dedicated to data production activities, such as setting up and monitoring jobs for data processing.

2.1.6.2. CRAB Client

The CRAB2 Client and server have remained fully operational during PQ9, with a small number of patches being applied largely to guarantee compatibility with CMS Analysis software changes.

Documentation for the new version of CRAB is now complete and has been extended to include the AsyncStageOut component. Amongst various changes, the two main development items were the automation of user data publication and a new monitoring system.

It has been proposed that, during migration of the CrabServer to a new version of the REST APIs, support for data-publication on demand will be dropped and integrated into the AsyncStageOut functionality. AsyncStageOut currently takes care of data movement to the final storage element and is then responsible for the data injection into the dataset-bookkeeping system (DBS). A prototype has been developed and is currently undergoing tests.

Development of a new monitoring system, designed around the continuous replication functionality of CouchDB, has been completed and is currently being tested by the integration team. The new system assumes that every distributed instance produces internal documents with summary information and that these documents are replicated in a central database at runtime; the AsyncStageOut tool implements a similar logic.

Finally, this quarter saw support added to CRAB3 which allows users to generate small, private samples of Monte-Carlo data.

2.1.6.3. Persistency Framework

Several patches have been applied to the CORAL and COOL code bases in order to address the issues (more than 700 for the two projects together) reported by the Coverity static code analyzer. Most issues have been fixed by CORAL or COOL patches that will be included in one of the next releases others have been dismissed as due to bugs in some of the external dependencies (e.g. ROOT or Boost). There are no pending Coverity issues left in CORAL or COOL.

New releases of CORAL and COOL have been prepared for LHCb (LCGCMT_63), mainly motivated by the upgrade to ROOT 5.34. The CORAL release includes major improvements in the handling of connection instabilities (CORAL is now able to reconnect transparently if network glitches do not break a transaction context), as well as important fixes in the cleanup of stale OCI sessions (avoiding crashes reported in a few uncommon situations). This is also the first release on SLC6 and the first release where support for the LFC replica service component of CORAL has been dropped. Finally, the code base of CORAL and COOL has been ported to gcc47.

2.1.6.4. ATLAS and CMS Common Analysis Framework

For the past two years of LHC data taking, the distributed analysis frameworks of the ATLAS and CMS experiments have successfully enabled the experiments' physicists to perform large-scale data analysis on the WLCG sites. However, a common infrastructure to support analysis is a step in the direction of reducing development and maintenance effort and thereby improving the overall sustainability of the systems. The eventual goal of the project is for the experiments to use a common framework based on elements from PanDA, the CMS WMS and the glideinWMS.

In March 2012 the project took off with the participation of both experiments and CERN IT-ES (co-funded by EGI-InSPIRE WP6 TSA3.3). The first goal was to complete a feasibility study as the beginning of the work toward a common framework. The main achievements of the feasibility study have been the following:

1. Review the architecture and functionality of the current analysis frameworks.
2. Determine which elements can be provided in common and which experiment-specific components need an adaptation.
3. Identify how to interface to existing external services.
4. Develop an architecture identifying which experiment specific services could be replaced with common elements.
5. Specify a detailed Proof of Concept proposal to demonstrate that PanDA can be enabled for CMS and to define the best interfacing of PanDA to the glideInWMS.

The feasibility study did not identify any showstoppers and the experiments approved to move on to the Proof of Concept phase, which is currently on-going.

2.1.7. Life Science

The Life Sciences HUC steers the LSGC ("Life Sciences Grid Community" VRC) effort to organize the community and deliver new services. Particular effort is invested in assisting users to better exploit the Grid and rationalizing Grid usage. The LSGC technical support team has regular phone meetings (every one or two weeks) to coordinate its activities. The procedures set up to anticipate grid storage filling up and migrate files in case of interruption of service prove to be very time-consuming for the technical team. New procedures and tools targeted at improving the management of the overall VRC storage space are under investigation. The VRC is also working on metrics to monitor the observed storage and computing resource usage and needs. Discussions have started with resource providers supporting the biomed VO regarding the resources delivered to the VO and the policies enforced to access resources.

2.1.8. Astronomy and Astrophysics

Activities carried out by the A&A community in task TSA3.5 during PQ9 focused on: a) coordination of the A&A community focusing in particular on the long-term sustainability plan; b) VisIVO, HPC, parallel programming, and GPU computing; c) access to databases from DCIs and interoperability with the VObs (Virtual Observatory) data infrastructure; d) harvesting of astronomical workflows and applications to be ported to several distributed e-Infrastructures.

VisIVO-related activities competed during PQ9 include:

a) The study and porting of the VisIVO MPI version to the gLite Grid. The relevance of this activity can be easily understood if one considers that, depending on the structure and size of datasets, the Importer and Filters components could take several hours of CPU to create customized views, and the production of movies could last several days. For this reason the MPI parallelized version of VisIVO plays a fundamental role.
b) The integration of VisIVO on Grid nodes where GPUs (Graphics Processing Units) are available. GPUs are emerging as important computing resources in Astronomy as they can be successfully used to effectively carry out data reduction and analysis. The option of using GPU computing resources offered by Grid sites to make visualization processing on VisIVO was therefore considered.
c) The production of a CUDA-enabled version of VisIVO for gLite. A first preliminary study focused on the porting and optimization of the data transfer between the CPU and GPUs on worker nodes where GPUs are available. To provide a service able to take advantage of GPUs on the Grid, A&A acquired a new CPU-GPU server, funded by the Astrophysical Observatory of Catania, and configured as a Grid computing node.
d) The analysis of the Multi-Layer Resolution Filter. This filter makes possible the inspection of a very large user file (hundreds of gigabytes) to create data for the visualization of an entire dataset with different levels of resolution: starting from a fixed position, that represents the centre of the inner sphere, concentric spheres are considered. Different levels of randomization can be given, creating a more detailed table in the inner sphere and less detailed tables in the outer regions, or vice versa. The region external to the last sphere represents the background. The performances of some additional VisIVO visualization filters such as randomizer, cut, select and swap operations on huge user data tables were also considered.
e) The design and implementation of a specific grid-enabled library that allows users to interact with Grid computing and storage resources.

It is worth noting that the current version of VisIVO is also able to interface with and use the gLite Grid Catalogue and that, although VisIVO has been conceived and implemented as a visualization tool for astronomy, recently it evolved in a generic multi-disciplinary service that can be used by any other community that needs 2D and 3D data visualization.

The other topics mentioned above, namely a), c) and d) are closely connected given that a significant effort for the coordination activity during PQ9 was invested in enhancing the portfolio of DCI-enabled workflows and applications and in further strengthening the interoperability between computing and data e-Infrastructures.

To this end, inputs in terms of workflows and applications have been recently requested to a well identified pool of groups and Institutes; the harvesting campaign started in June 2012 to collect workflows and applications to be discussed at the astrophysical workshop that will be co-located with the EGITF 2012. In this phase, the main target platform for these workflows and applications is SSP (SHIWA Simulation Platform) given that the EC has recently approved a specific multidisciplinary project to bring more and more workflows on this platform.

To strengthen the interoperability between computing and data e-Infrastructures, with particular reference to the European DCI operated by EGI and to the data e-Infrastructure of the IVOA (the

International Virtual Observatory Alliance), the new Astro-CG (Astro Community Group) is under creation in OGF. The first preliminary charter of Astro-CG has been discussed in a BoF at OGF35 (Delft, Netherlands, June 2012) and now the creation process is expected to terminate at OGF36 in October 2012.

The new Astro-CG in OGF will host the liaison group between OGF and IVOA. It is worth noting that no direct design/development activities will be undertaken in Astro-CG; it aims at becoming instead the place where people meet, discuss the evolution of technologies and the community needs and where contacts with Institutions and Organizations (e.g. EGI and NGIs in Europe) able to take in charge architectural designs, implementations, deployments and maintenance activities are managed. The activity foreseen in TSA3.5 in PQ10 will focus on the same topics; the development activity of VisIVO will continue as well as the gathering process of astronomical workflows and applications aimed at porting them on SSP and later on other DCIs and Platforms. The creation of the Astro-CG Community Group will be completed at OGF36 and a first report will be brought at the IVOA Interoperability Meeting in October 2012, resuming in this way the discussion related to the interoperability between computing and data e-Infrastructures.

2.1.9. Earth Sciences

Earth Science (ES) covers various disciplines like seismology, atmospheric modelling, meteorological forecasting, flood forecasting, climate change and many others. This task is centred in the implementation and maintenance of tools and interfaces to provide access to Earth Science specific data resources from the grid. In particular this includes data infrastructures such as the infrastructure of the Ground European Network for Earth Science Interoperations - Digital Repositories (GENESI-DR) and climate data from the infrastructure of the Earth System Grid Federation (ESGF). 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 projects in this task include a command-line client for the above mentioned GENESI-DR infrastructure (gsearch), a web GUI leveraging this client in Grid jobs, a command-line tool for the comfortable download of ESGF data (synchro-data) and a Credential Translation Service (CTS) for binding EGI grid credentials to ESGF credentials (details follow below).

Improvements on the "*gsearch*" utility for easy search and discovery of data in OpenSearch supported environments include several minor bug fixes and some attribute changes in the generic document parsing engine (e.g. for OpenSearch Replies, RDFs, Atom feeds etc.). These adaptions were necessary due to changes in the underlying GI-cat catalogue service and its attached catalogues (e.g. GENESI-DR, SeaDataNet).

The documentation of the tool has been reworked and extended, describing the aforementioned changes. A web page giving information on both clients (command-line and web GUI) has been created and will be updated continually with the tool's progress[21].

A new version (9.3beta1) of the GI-cat distributed catalogue service, which is able to broker between heterogeneous search and metadata infrastructures, has been deployed on SCAI's infrastructure. Initial

[21] http://eueartsciencegrid.org/content/genesi-dr-client

tests with the *gsearch* tools have been carried out and necessary adaptions to the tools have been identified and subsequently applied. Tests will continue until a stable version of the command-line and web clients have been finalized.

The web GUI is currently available as a portlet. At the moment, integration activities of the portlet targeting existing Grid portal framework (such as WS-PGRADE[22] and the Vine toolkit[23]) are carried out. The main goal of this integration is to be able to exploit existing certificate and user management techniques.

The team that works on Earth System Grid (ESG) interoperability has made considerable progress. The intelligent data transfer tool, named "*Synchro-data",* that facilitates the command line, bulk oriented access to ESGF data was updated. The tool can download files from the ESGF infrastructure in an easy way, through a list of variables, experiments and ensemble members. The user defines one or many templates that describe the desired data, each of them listing variables, frequencies, experiments and ensemble members. The user separately defines a list of models. Using these templates, the tool explores the ESGF grid and downloads all the corresponding available files. The program may be run regularly to download the potential new files.

Major added features include a new discovery engine, discrepancy detection and data version management.

The new discovery engine (Search-API) gives the ability to use projects other than CMIP5 (until now, Synchro-data was only able to download data from the CMIP5 archives). It is also faster than the previous discovery engine. The "Search-API" discovery engine works by calling a distributed server-side dedicated search API, while the former "THREDDS-catalogue" discovery engine works by parsing THREDDS XML catalogues[24], which is time consuming.

Data version management works as follows: when a new dataset version is available, Synchro-data starts downloading it in a new folder. At this point, end-users (scientists) still use the previous version, which is available using a symbolic link called "latest". When the download of the new dataset version has made enough progress (Synchro-data use size and files number thresholds to detect that), the "latest" symlink is switched to the new version, which make end-users use it instead of the previous one.

Local and remote repositories discrepancy detection works on this already downloaded data. It detects if data files have been modified on the remote location without creating a new version (i.e. to identify bad practice).

Updated Synchro-data related links are:

- http://forge.ipsl.jussieu.fr/prodiguer/wiki/docs/synchro-data
- http://dods.ipsl.jussieu.fr/jripsl/synchro_data/ADMIN_GUIDE

[22] http://www.guse.hu/

[23] http://vinetoolkit.org/

[24] http://www.unidata.ucar.edu/projects/THREDDS/tech/catalog/InvCatalogSpec.html

For the authentication interoperability, the prototype adaption of MyProxy as mentioned in the last report has been released as CTS version 1.

From the client side, the CTS works as follows. First a "CTS patched MyProxy client" must be installed on an interactive machine (the patch add the "myproxy-bind" command to the myproxy distribution). When a user wants to access ESGF from EGI, he logons on that machine, creates an EGI proxy certificate with the voms-proxy-init command, then binds it with his ESGF account using the "myproxy-bind" command (ESGF password will be prompted at this step). From that moment on, the user can retrieve an ESGF short-lived certificate with the "myproxy-logon" command without entering a password, by just using the EGI proxy certificate. Thus, it is possible to access ESGF data from non-interactive EGI worker node (for better use, a script can wrap the "myproxy-logon" command to make the ESGF authentication step transparent).

On the server side the CTS patch must be installed on the ESGF MyProxy server. The patch makes the server able to process "myproxy-bind" requests, add a new mapping table for EGI<=>ESGF identities bindings, and modify "GET" requests handling the use the new mapping table.

Future plans for CTS include porting the patch to other MyProxy versions, at least 4.6 and 5.9 (HEAD), improving code quality, adding a new option to "myproxy-logon" command to be used in place of the "-a" option ("-a" option is used for different things, which may be misleading), and improving the documentation.

The EGI Earth Science community is in contact with the FP7 project Virtual Earthquake and seismology Research Community e-science environment in Europe (VERCE), which aims at integrating a service-oriented architecture with an efficient communication layer between the Data and the Grid infrastructures, and HPC. The registration of a dedicated VERCE VO and planning of additional collaboration is in progress.

Issues and Mitigation

No issues to report for SA3.

Plans for the next period

2.1.10. Hydra service

When the EMI client is available, it will be installed for testing in this current test environment.

2.1.11. GReIC

During the next period, the dissemination plan that was jointly defined with NA2 will be implemented. The DashboardDB registry and global monitoring will be publicised as new EGI gadgets at the European level (www.egi.eu/user-support/gadgets). A preliminary implementation of the DashboardDB service view will be also carried out.

2.1.12. LSGC dashboard

Continued testing and feedback provision on the VO operations dashboard.

2.1.13. MPI

- Implementation of all recommendations of the MPI Virtual Team report.
- GPGPU survey data collection, analysis and presentation of results at EGITF 2012.
- MPI documentation improvements.
- Preparation of EGICF 2013 training and dissemination event.
- MPI Virtual Team article for EGI-InSPIRE newsletter.

3. SOFTWARE PROVISIONING

Summary

During PQ9, the second major release of the Unified Middleware Distribution was released. This release was the first without release XML directly submitted by technology provider and with the support for multiple OS platforms. This required previous procedures to be adapted as well as the repositories and the software provisioning technical infrastructure to be extended. Multiple platforms supported also meant more items to be handled and a greater effort needed during the verification and staged rollout phase.

UMD 2.0.0 contains only a subset of the components released by the technology providers. These components have been chosen based on the priority coming from the OMB and other technical constrains. To increase the coverage of the middleware capability of UMD-2 a first update is scheduled at the beginning of PQ10. Once UMD-2 covers all the products considered high priority by the EGI communities, the SA2 plans are to have a fix schedule of updates, around once every quarter.

During PQ9 SA2 released also two minor releases of UMD-1, featuring updates for some components released in the previous major release.

The federated clouds task force activities have continued during PQ9 (and is now a regular part of SA2) consolidating the nine workbenches based on as many use cases for the cloud infrastructure. During PQ9 progresses have been tracked during the weekly meetings, and in the wiki documentation which has been expanded during the last three months. The main achievement of this quarter was the participation to the OGF 35 conference with a live demo, demonstrating the status of the most advanced use cases.

Main Achievements

3.1.1. Quality Criteria

The Quality Criteria team has continued with the improvement of the documents by following new requirements from user and operations communities as well as any security advisories from the EGI Software Vulnerability Group. The Quality Criteria Task has produced the final version of the third release of the Quality Criteria[25] after the publication of the corresponding drafts with the reviews from the Quality Assurance teams of the Technology Providers. With the publication of the documents, an update of the mappings of product to criteria was released and per-product documents created. A complete description of the contents and changes of the documents is available in the EGI wiki[26] . A roadmap[27] for the publication of the 4th and 5th releases of the documents was created in order to assure the documents are published timely. Following that roadmap, the preparation of the forth

[25] 3rd iteration of the EGI Quality Criteria, http://go.egi.eu/qualitycriteria-3

[26] Release notes for 3rd iteration of the EGI Quality Criteria https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Release_3

[27] Quality Criteria dissemination at EGI.eu wiki, https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Dissemination

release of the Quality Criteria documents has started. The second public draft is now available[28] , and incorporates the changes from the reviews of the Technology Providers[29] . The documents are also provided in a per product organisation in order to facilitate the work of the verifiers.

The documentation[30] of the recommended testing procedures has started for various criteria simplifying the work of the verification team. This documentation will continue to be updated as the Quality Criteria are reviewed and improved.

3.1.2. Criteria Verification

During PQ9 products were verified using the new Quality Criteria[31] which includes more criteria for capabilities and a new product service mapping table[32] . Verification and QC teams have updated python scripts and Quality Criteria service mapping to generate a new set of verification templates[33] . The new templates provide a new set of comprehensive Quality Criteria for each product being tested.

In order to improve the verification process some changes have been implemented in the verification level of testing[34] . Currently, all new products are assigned to one of the following release types:

- **Major releases:** May not be backwards compatible. Verifiers must actively assess all assigned QCs (from the QC verification product templates), test the new features and install the new product from scratch (or upgrade if it's supported by the product).
- **Minor releases:** Backwards compatible releases. Verifiers only check QCs affected by update changes the rest of QCs should be left in blank or just add a comment: "Minor release, this QC was already verified". Verifiers still perform a package update and installation from scratch.
- **Revision releases:** Backwards compatible releases. These releases include only bug fixes (without new features or major changes). The verifier only checks new package installation and upgrades.

Based on the new revision releases types (major releases from technology providers are not very frequent) the verification process can be finished in shorter time.

UMD 1.7.0 was released on May[35] . The latest UMD1 update includes some bug fixes for CREAM, DPM and dCache but also included new products. With the inclusion of new verifiers from IN2P3[36] it is now possible to provide products in UMD based on the Oracle database.

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[28] 4th iteration of the EGI Quality Criteria, https://documents.egi.eu/document/1153

[29] Review from Technology Providers, https://wiki.egi.eu/wiki/EGI_QualityCritera_Release_4_Comments

[30] Testing procedures for Quality Criteria, https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Testing

[31] 3rd iteration of the EGI Quality Criteria, http://go.egi.eu/qualitycriteria-3

[32] UMD products service mapping, https://documents.egi.eu/document/418

[33] QC Verification templates, https://documents.egi.eu/document/417

[34] Verification level of testing, https://wiki.egi.eu/wiki/EGI_Verifier_Guideline#Level_of_Testing

[35] UMD 1.7.0 Release Notes, https://wiki.egi.eu/w/index.php?title=UMD-1:UMD-1.7.0

[36] Software Verifier Skill matrix, https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Verification - Verification_engineer_skill_matrix

With UMD 2.0.0 [37] released in July 2012 several changes were made in the verification process. To support new OS like debian6 or Scientific Linux 6 (required for UMD2 products), verification teams has created a new set of VM golden copies to instantiate the new Virtual Machines in a short time. The new images are available to be used by EGI verifiers to install and test new TP services. UMD2 has included a few more products than expected due to the inclusion of new globus-gssapi-gsi 10.6-1 package[38] . Some EMI products will need to be patched to use the new globus api.

To summarise, the new changes (new verification effort based on release types and the incorporation of new verifiers) were included satisfactorily and verification efficiency has been improved substantially (more than 140 products were verified during last quarter).

3.1.3. Support Infrastructure

During PQ9 TSA2.4 continued to support SA2 software provisioning activities as usual, in more detail we released

- UMD 1.7.0 (11 items)[39]
- UMD 1.7.1 (1 emergency item)[40]
- UMD 2.0.0 (25 Items)[41] that includes support for Debian 6 and Scientific Linux 6
- CA 1.48.1[42]

During PQ9 TSA2.4 finalized the update of the internal workflow of the repository to add support for Debian based PPAs as outlined in following paragraphs. In parallel, we performed regular maintenance and upgrade of the EGI instances of the Stratuslab marketplace (http://marketplace.egi.eu/) and appliance repository (https://appliance-repo.egi.eu/) to be used by TSA 2.3 in a pilot service that will offer virtual machines with preinstalled middleware services.

Repository Front End Activities

- Fixed a minor bug that produced duplicate posts..
- Updated the post creation plugin to cater for Debian support that is about to be introduced.

Repository Backend Activities:

- Developments related to Debian support.
    - Proper APT repositories created (per deb-flavor and arch and makings sure the physical path of the available APT repositories are following a specific and the most suitable pattern for the apt tools)
    - preparation of the umd-release.deb debian packages, for distributing the corresponding source.list files

[37] UMD 1.7.1 Release Notes, http://repository.egi.eu/2012/07/23/release-umd-1-7-1/

[38] IGE-EMI globus incompatibility issue, https://ggus.eu/ws/ticket_info.php?ticket=82746

[39] UMD 1.7.0 Release Notes, https://wiki.egi.eu/w/index.php?title=UMD-1:UMD-1.7.0

[40] UMD 1.7.1 Release Notes, http://repository.egi.eu/2012/07/23/release-umd-1-7-1/

[41] UMD 2.0.0 Release Notes, https://wiki.egi.eu/w/index.php?title=UMD-2:UMD-2.0.0

[42] EGI Trus Anchor Distribution 1.48.1, http://repository.egi.eu/2012/05/29/egi-core-trust-anchor-distribution-1-48-1/

- Limiting the PPAs version validation on a UMD major level. Meaning, that the X-1.2.3 PPA will be allowed to be submitted into the UMD repository and to be included in UMD-2 major, despite the fact that the X-1.2.4 (later version of the aforementioned PPA) may be already part into the UMD repository but under another UMD major (i.e. the UMD-1).
- Support of separate repositories per UMD-major release. The following repositories have been introduced:
  - **untested**: it contains all the PPAs that are under verification stage.
  - **testing**: it contains all the PPAs that are either under the StageRollout phase or they have successfully passed into the UMDstore area.
- Monitoring of the UMD releases that have been deployed into production repositories during the reporting period
- Several minor bug fixes

RT Activities

- Re-implementation of the user/group rights for all queues to mitigate the issue with the guest access and possibility to add correspondence anonymously to tickets in certain queues.
- Implementation of Debian packages dependency resolver module for the Bouncer
- Maintenance of the sw-rel queue and the workflow, we are now tracing the ReleaseType, TPBundleVersion and TargetUMD
- Introduced a couple of new automated checks in the sw-rel workflow (e.g., mandatory UMDRelease, re-enabled automated checking and reporting of missing QC and SR reports in sw-rel)
- Implementation of new aggregations to the sw-rel verification metrics based on the new CFs introduced to the sw-rel queue

Repository Statistics

- Implementation of the statistics web application that is able to provide dynamic reports per day, week, month, year or country or package
- Import of web servers logs from the files to the statistics application database
- Process of logs with the statistics application
- Changes in the logging setup to allow split of log files per month
- Direct import of logs to the statistics application

IT Support Activities:

- Upgraded Indico Service
- Added IPv6 Support to all EGI web services
- Performed regular monthly updates of the inspire-members group from PPT Excel table
- Solved various user problems with Indico and other systems
- EGI Wiki/Indico/Jabber/DocDB, SSO groups and mailing lists administration

3.1.4. Federated Clouds

During PQ9 the federated clouds task force continued with planned activities, that of building the blueprint document by expanding the wiki documentation that will be used as input for the blueprint,

and the deploying of the infrastructure services needed for the live demos of the testbed. In June 2012 at OGF 35, the task force demonstrating the federation of 7 cloud infrastructures, using a common authentication mechanism and common management interfaces. The resource providers who to the OGF demo are: GWDG, CESNET, CYFRONET, KTH, CESGA and FZJ. The other active resource providers working on their contribution for the next demo are: CC-IN2P3, TCD, GRNET and SARA.

VM Management/Data Management: The main activity has been for the resource provider: to implement the APIs based on open standards identified as common interfaces. Most of the resource providers already provide OCCI and CDMI management interfaces.

Information system: The main achievement during this quarter was the deployment of a distributed information system in the testbed. Resource providers deployed local information providers – an OpenLDAP server - that are now polled by the central information system of the testbed, which is a modified Top-BDII. With this configuration the information system became more dynamic allowing the single resource provider to manage their branch of the information system. This solution was not implemented in time for the OGF demo, but by the end of PQ9 was fully operational.

Accounting: Five Resource Providers publishing records to test Cloud Accounting System at RAL, a web page has been set up to provide updates on the resource providers publishing accounting records. Partners involved in the workbench activities developed software tools to parse and publish the accounting data:

- CESGA provided client cloud accounting script for OpenNebula.
- IN2P3-CC provided client cloud accounting package for OpenStack.

Monitoring: The set of monitoring probes has been extended, including also the infrastructure services such as the information providers deployed locally by the resource providers, together with the management interfaces. Probes for the central services, such as the Marketplace, have been developed and put in production, in order to test the specific functionalities of the service.

VM Marketplace: During the quarter an instance of the StratusLab Marketplace has been deployed by GRNET, in order to contain the metadata of the virtual images used during the live demo at OGF 35.

Brokering: This workbench has been created during the quarter, it with the issues around cloud brokering. With more than 10 resource providers, users need effective ways to access cloud resources. The goal is for a user to have a choice between a unified, abstracted view of the cloud testbed as a whole and the opportunity to target specific providers for their needs. During the quarter the work group tools have been set up, i.e. the wiki pages, and a first analysis of the available brokers for cloud has been submitted.

Issues and Mitigation

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

The GGUS development team communicated a number of reasons why DMSU statistics cannot be reliably cleaned from user reply distortions by automatically setting ticket states based on user interaction. Although those reasons are considered technically sound and valid, a reasonable

implementation would overcompensate and therefore cause distortions in the opposite direction, simply because of manual time delays between users replying to the ticket and support staff (not only DMSU) adjusting the ticket state back to “in progress”.

However, even with including the “waiting for reply” time, the DMSU is operating at 9.5 (mean)/4.1 (median) days to solve ticket in DMSU and 1.3 days/1.3h to reassign to 3rd line support, which are acceptable figures. This raises the question whether a technical solution for this issue is warranted based on these figures.

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

During PQ7 GGUS significantly improved the situation by adjusting the processes and formats of notification Emails sent to support staff. The changes to the Email format was to allow reliable processing and extraction of information that is currently not supported by the GGUS online reporting engine. This corrective measure was implemented as a transitional solution to allow for better reporting of DMSU needs while the GGUS reporting engine is refactored.

Formally this issue will be kept open until the new GGUS reporting engine will become available.

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

In PQ7a total of 8 tickets on ARC (3) and UNICORE (5) were submitted to DMSU, witnessing that these support channels are getting known, and they were handled with special care to encourage the users. We will monitor these figures for the upcoming reporting periods to be able to draw a conclusion.

3.1.8. Issue 18: EMI to stop producing release.xml for EMI version 2.

During the 9th TCB meeting[43] EMI announced that they would cease providing release.xml artefacts for software provisioning, beginning with the publication of EMI-2 (planned in April 2012). At the F2F in December 2011[44] SA2 decided to develop a small web based tool that will assist with generating a release.xml for all technology providers. This tool should be able to extract valuable information such as release notes from the Technology Providers information feed (e.g RSS).

3.1.9. Issue 19: Unclear distinction of documentation responsibilities and UMD repository purpose

It is reported that the structure of documentation available with the UMD repository is rather difficult to follow; it is rather difficult to point users to comprehensive documentation covering quite typical cases like "I want to install WMS from scratch", or "I want to upgrade from dCache installed previously according to EGEE recipes". Documents covering such use cases should be linked in the repository.

[43] MS501: Establishment of the EGI Software Repository and associated support tools, https://documents.egi.eu/document/46

[44] MS503: Software Provisioning Process, https://documents.egi.eu/document/68

SA2 concludes that the primary UMD repository purpose is to deliver software that vas verified against publically available quality criteria and behaves well in a near-production environment (through StagedRollout). It lies within the remit of the Repository and associated documentation to communicate known issues with installation, configuration and documentation of delivered software.

3.1.10. Issue 20: Scattered "known problems" documentation.

This kind documentation, pointing at general issues and describing workarounds, is rather scattered among technology provider resources, issues identified and described during the staged rollout, and those found and described by DMSU. An approach to integrate this documentation at the release notes pages in EGI repository was proposed, details have to be discussed.

Plans for the next period

The consolidation of the Quality Criteria process will continue by following the established procedures and roadmap. During PQ10 the final version of the updated quality criteria will be released and used for verification. Along with the documents describing the quality criteria, common test procedures will be included in the wiki for verifiers during the quality assessment process. The mapping of criteria to products will be updated for the creation of the verification templates and the per-product documents will be also produced.

The verification team will continue to work closely with the Federated Cloud activity to contribute images to the EGI VM Marketplace. The new testbed images generated for each verification process met all Stratuslab requirements to be included into VM Marketplace without any additional changes. The new procedure will allow a grid service provisioning through a web service where new users will able to instantiate new certified grid services in a short time.

UMD releases will continue to be provided through the repository infrastructure. A WebStatistics tool will be developed to:

- Map repository web logs with UMD products (it is a many to many relation)
- No provide geo-location information for IPv6 addresses

Federated Cloud task force activities will be focused on preparing the live demo at the EGI Technical Forum 2012 in Prague, and continuing to progress the work of the work groups.

4. COMMUNITY ENGAGEMENT

Summary

The redesigned EGI website launched at the end of PQ8 has seen more traffic to the news, events and media areas due to their greater prominence on the front page and the new content that has been developed. The redesign has brought other areas such as the case studies and service portfolio offered by EGI.eu into the top ten list of most viewed pages.

Planning around the upcoming EGI Technical Forum 2012 in Prague progressed with 130 community contributions around tracks relating to EGI Operations, Resource Infrastructure Services, Virtualised Resources: challenges and opportunities, Virtual Research Environments and Community and Co-ordination being received, reviewed and assigned to sessions in each track. In addition to the bi-annual Forum, EGI was involved in domain specific events (the EGU General Assembly in Vienna and HealthGrid 2012 in Amsterdam), general infrastructure events (IPv6 World Launch Day in Amsterdam and ISC2012 in Hamburg) and has had a paper accepted for eChallenges in Lisbon in October 2012. Further outreach came through articles in both printed and electronic newsletters with some articles being picked up publications including Bloomberg BusinessWeek, Discovery News and Wired.

The virtual team model continued to mature with community based teams working on defining a survey to produce an EGI Compendium, examining how to collecting scientific publications from EGI's research communities across Europe, defining EGI Champions who can act as ambassadors to local research communities, exploring the potential integration and use of GPGPUs within EGI and establishing the issues around adopting federated identity models within EGI.

Upgrades have been made to the Applications Database to allow programmatic updates to the database. The Training Marketplace now supports a web gadget that provides better usage data for reporting purposes. The Client Relationship Database continues to evolve to meet the needs of the NILs to collect data on local research communities and to share this internationally.

Strategic planning activities focused on a report describing EGI's possible transition to the ERIC legal entity to support discussions taking place within the EGI Council.

Main Achievements

4.1.1. Marketing & Communication

The new website for EGI featuring new images, a new structure and enhanced social media interactivity was launched at the EGI Community Forum in Munich. The new social media channels were also advertised at the event, as part of an outreach package including press releases, visiting journalists and blogs. The impact of the new website was assessed for MS231 Review of the website[45]. The report summarized some of the measures used to drive traffic to the website, including adding links to websites frequented by users, adding case studies across a range of disciplines, publicising the

[45] https://documents.egi.eu/document/1259

web on printed materials and integrating the website with the EGI blog and social media feeds. Overall, the website received over 200,000 visits and 85,000 unique visitors, corresponding to nearly 800,000 page views in the past 12 months. Since the restructuring of the website in March 2012, indications are that the most popular pages, apart from the home page, are Indico (the event planning website), the about section and news and events. Since the re-launch, the news and media section of the website has grown in popularity, increasing from 2% to 7% of the web traffic. This reflects the greater prominence given to news and events on the home page, including the new, more graphical features section on the home page. New sections such as services and case studies are also now featuring in the top ten list.

Work between the marketing & communications and the community outreach activities continued on joint planning of outreach and attendance at events, and in PQ9 focused on the EGU General Assembly in Vienna and the HealthGrid/IWSG-Life 2012 event in Amsterdam, which was co-organised by the user community support team in EGI.eu. The IPv6 World Launch Day took place on 6 June 2012, and EGI.eu participated as a sponsor, providing a booth, contributing to the press release and providing materials relating to EGI and iPv6. In addition, EGI sent a booth to the exhibition at ISC2012, which was attended by more than 2,000 delegates in Hamburg, distributing materials advertising the next EGITF 2012 in Prague.

Further articles about EGI were published in *PanEuropeanNetworks: Science & Technology*, *iSGTW*, the e-IRG newsletter and e-Research South. A press release on the sonification of the CERN Higgs data released by DANTE, mentioning EGI, was picked up by a number of high profile publications, including Bloomberg BusinessWeek, Discovery News and Wired.

In collaboration with the NILs and NGIs, the communications team has also participated in the ENVRI VT, Scientific publications VT and NGI Compendium VT. NGI_IE / TCD issued a news release in the wake of the Higgs boson results, highlighting its contribution to the search. The Grid-Ireland Operations Centre was mentioned in a subsequent article on mathematics and science in the leading Irish newspaper, the Irish Times[46]. IMCS-UL, Sigmanett updated their national Grid webpage with EGI-InSPIRE news items, project newsletter, planned events and press releases. The Lithuanian NGI introduced grid infrastructure at a joint meeting of the VU MIF and Military Academy of Lithuania. At the present time, a deeper analysis of the required software and hardware is necessary to foresee what must be integrated or what can be accessed by new users. Discussions are also ongoing with the Lithuanian Space Science and Technology Institute on common research work. In May 2012, the EGI-InSPIRE project members participated at a scientific festival in Kaunas to introduce the grid to the Life science and Computational chemistry domains. The NGI.LT was introduced at conference "Baltic Applied Astroinformatics and Space Processin", that was held on 6-7 May in Venspils, Latvia.

4.1.2. Strategic Planning & Policy Support

The Strategic Planning and Policy Support activity, led by the EGI.eu Strategy and Policy Team (SPT), analyse strategic themes and trends and produce documents and reports to inform the EGI management bodies and wider community to support the decision-making process. Analysis and initial

[46] http://www.irishtimes.com/newspaper/sciencetoday/2012/0719/1224320378490.html

draft has also begun for D2.11: EGI.eu Transition Plan to ERIC. This report includes a detailed overview of the ERIC framework, a full draft statutes, revised governance model, and timeline of activities. This document will serve as the basis for discussions within the EGI ERIC Working Group and for an EGI Council vote on whether or not to move forward with the transition plan. This report provides further detail from an overview document on ERIC sent to the EGI Council as a formal discussion paper[47]. The SPT also produced a briefing paper for the EGI Council regarding Structural Funds for wider circulation to the NGIs[48].

As a result of a virtual team project for establishing an EGI Compendium, PQ9 saw the start of the analysis around the information provided through the survey launched in the Spring 2012. A comprehensive report is in draft form to be due out in PQ10[49]. The SPT has also initiated and coordinates a new virtual team for improving the collection of scientific publications and related policies[50]. In addition to coordination (e.g. email communication; weekly Meetings), work has gone into collecting best practices from NGIs and other organisations, analysing tools and methods already available (e.g. OpenAIRE), exploring user obligations and drafting potential policies (e.g. AUP additions; EGI publication reference). An abstract for a dedicated session on the results of the virtual team was also submitted for EGITF 2012[51].

The SPT provided a financial analysis of the EGI Global Tasks for PY2 continuing the work regarding cost breakdown between operations, maintenance and development. The information provided was used in the 2nd EGI-InSPIRE review and preparatory work for the revised milestone reviewing EGI global tasks. Other analysis work has gone into areas such as updating the EGI relevant actions regarding Europe 2020[52] and overall project metrics. The SPT also finalised the first version of the EGI Glossary[53] and collaborated with the EGI.eu Marketing and Communications team to integrate the glossary on the main EGI website[54].

An important component of the work that is carried out is also to communicate key pieces of information to the wider community. The SPT authored a scientific paper "EGI: an Open e-Infrastructure Ecosystem for the Digital European Research Area", which was submitted for the eChallenges workshop in Lisbon, Portugal, October 2012[55]. The SPT also authored blog posts on "Applying for Structural Funds"[56] and "EGI Common Glossary"[57] as well as an article for the EGI Inspired newsletter "Envisioning the future: Strategy plan and EGI's role in the ERA"[58]. In addition, the SPT participated in a number of surveys including finalised data collection and submission for the

[47] https://documents.egi.eu/document/1301
[48] https://documents.egi.eu/document/1166
[49] https://documents.egi.eu/document/1303
[50] https://wiki.egi.eu/wiki/VT_Scientific_Publications_Repository
[51] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=74&confId=1019#20120918
[52] https://wiki.egi.eu/wiki/Europe_2020_actions
[53] https://wiki.egi.eu/wiki/Glossary_V1
[54] http://www.egi.eu/about/glossary/
[55] http://www.echallenges.org/e2012/
[56] http://www.egi.eu/blog/2012/05/29/applying_for_structural_funds.html
[57] http://www.egi.eu/blog/2012/06/01/the_egi_glossary.html
[58] http://www.egi.eu/news-and-media/newsletters/Inspired_Spring_2012/envisioning_the_future.html

ERINA+ impact assessment web tool, IPv6 survey submission and eScienceTalk survey for feedback on Grid Briefings.

The SPT liaises with other projects and organisations, including international policy bodies to establish collaboration agreements. The SPT authored the security sections for the latest e-IRG blue paper on "Data Management"[59] as part of its informal collaboration. The SPT also collaborated with the e-FISCAL project regarding EGI benchmarking (bare metal, VM) vs. Amazon EC2 and providing a financial cost analysis from NGI responses to EGI Compendium questionnaire. In terms of established MoUs, the SPT compiled an annual report of its more than twenty agreements serving as an opportunity to monitor the progress of the individual milestones within the agreements and evaluate strategic impact moving forward[60]. The SPT also finalised an MoU with a new Technology Provider, UVACSE, which was signed in July. Work has also gone into a full draft and final negotiations for an agreement with DANTE and a draft LoI for the DCH community.

Another important component of this activity is the organisation of meetings and workshops on key themes that are strategic to EGI as well as the attendance of relevant external events and conferences. The SPT provided reviews of submitted papers for the EGICF 2012 proceedings and started preparations for the EGITF 2012[61]. For the upcoming event, the SPT Manager is serving on the Programme Committee and as Track Leader for a dedicated track covering Communication and Coordination. This requires attendance at PC and Track Leader meetings, abstract reviews, session development and Indico updates. The SPT specifically submitted four abstracts for the track covering integration of public and private clouds, sustainability of both technology providers and national infrastructures, and one for the scientific publication repository virtual team. In preparation for the NGI Sustainability session, the SPT, together with the EGI.eu Operations Team, crafted a targeted survey to gather information prior to the event.

In terms of external events, the SPT attended several events including "Removing barriers to Cloud Computing in Europe", 10 May 2012, Brussels[62]; e-IRG Workshop - 11,12 June 2012, Copenhagen, Denmark[63]; and OGF35 - 17 June 2012, Delft, The Netherlands[64].

Finally, the SPT supports the formulation and development of policies and procedures through the EGI policy groups (e.g. security, technology coordination, operations management). The SPT recently provided its annual review of the PDP document[65] and secretariat support for the TCB meeting held 2 July 2012[66].

During PQ9, STFC continued to chair and lead the Security Policy Group (SPG). Work continued on the revision of the old top-level Security Policy and of the Accounting data handling policy. The SPG Chair also worked on the following topics:

[59] http://www.e-irg.eu/publications/blue-papers.html
[60] https://documents.egi.eu/document/1273
[61] http://tf2012.egi.eu/
[62] http://cordis.europa.eu/fp7/ict/ssai/study-cc-workshop_en.html
[63] http://www.e-irg.eu/e-irg-events/workshop-11-12-june-copenhagen.html
[64] http://www.ogf.org/OGF35/
[65] https://wiki.egi.eu/wiki/PDP
[66] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1058

1. Attended regular EUGridPMA and TAGPMA (International Grid Trust Federation) meetings representing EGI and WLCG as a relying party. Particular topics addressed by the chair were the migration from SHA-1 to SHA-2 and the guidelines on Attribute Authority Operations.
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 and trust for interoperation. Chaired a face-to-face meeting on 10-11 May 2012 in Karlsruhe where a good draft document was prepared.
3. Attended the 4th workshop on Identity Management for Research held at Nijmegen in June 2012. The SPG chair was on the organising committee for this and as a Security architect/contact person for the HEP community. He chaired a session and presented the status and plans of WLCG.
4. Represented the IdM for Research group and gave presentations on the requirements from the communities at the REFEDS meeting and the TERENA Technical Advisory Council in Reykjavik (May) and at an AAA Study Workshop organised by the EC in Brussels in July.
5. Participated in the EGI Security Risk assessment group and helped prepare the final report before the 2nd annual EU review.

4.1.3. Community Outreach

Planning for EGITF 2012 dominated the community outreach activities during PQ9. Tracks were defined for: EGI Operations, Resource Infrastructure Services, Virtualised Resources: challenges and opportunities, Virtual Research Environments and Community and Co-ordination, and Track Leaders assigned from the EGI.eu management team. The call for submissions opened on 4 May and closed on 11 June. Over 130 abstracts were received. All were accepted although a number were subject to revision and/or a change of contribution type, for example a presentation became a poster. The Programme Committee was convened and meetings were held during the submission and review phase of the preparation. In the end most of the reviewing was handled by the Track Leaders as most of the submissions were directly triggered by their vision for their tracks and sessions. A high level programme was defined early on in the process, in fact before all of the submissions were received. In contrast to the Community Forum, the Technical Forum is tightly structured around EGI's vision for the current operation and future evolution of the infrastructure. The high level programme reflected this vision and submissions were fitted into it to provide substance to the programme. In this way the Technical Forum is very different from the Community Forum which is driven by the nature and content of the contributions from across the community.

In addition, preparations and planning for FedCloud Taskforce PlugFest held at the Science Park in Amsterdam took place[67]. This involved contacting the five participating user communities, arranging suitable times for them to join the two day meeting and guiding them in the preparation of content. The 1.5 day teleconference worked well in practice and allowed the developers to gain a valuable insight into the requirements and working practices of the researchers through audio and audio-visual connections to the academics in their own working environments.

[67] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1102

The Community Outreach team uses multiple communication channels to interact with new and current community representatives.

- UCB convened for a telcon on 7th May 2012[68]. This was a small but productive meeting. UCB meetings now include a report from Operations as well as Support and Outreach. This has resulted in an increase in more technical matters being discussed. The next UCB meeting is planned for August 21st 2012[69]
- An article was published in the EPOS (European Plate Observing System) Newsletter[70].
- e-Research South Newsletter article published in UK. This followed an invitation earlier in the year and will help publicise EGI and the EGICF 2013 to be held in Manchester next year[71].
- Discussions have started with the organisation Promoter (IT) about their new portal http://www.digitalmeetsculture.net, an international magazine about digital technologies and culture. This has been designed as both a mean of information and a dissemination tool for projects and activities. This could take the form of an article or an interview to promote EGI and its services for the Cultural Heritage community.
- Discussions with VERCE (Virtual Earthquake and seismology Research Community in Europe) which is developing a data-intensive e-science environment to support Earth Science research projects such as EPOS were initiated relating to an MoU and thee high-level architectural needs in terms of sites and involved NGIs. These and other discussions relating to closer HPC-Grid integration will be continued at the EGITF 2012 at a EGI/EUDAT/PRACE meeting.
- An article was prepared for the EGI newsletter article presenting the Federated Cloud – taskforce. This was a useful opportunity to describe how the Taskforce is drawing upon first-hand user requirements from Astronomy, Linguistics, Music and Structural Biology as well as portal developers.
- A paper was written and submitted to the Digital Research 2012 conference (Oxford, UK 10-12 Sep 12) relating to the 'EGI Federated Cloud Taskforce: delivering innovative distributed computing solutions for diverse research communities from proof of concept prototypes to a blueprint for implementation'. This event replaces the UK's e-Science All Hands Meeting which has brought the UK's e-Science research community together annually over recent years.
- The Structural Biology ESFRI project INSTRUCT held a conference in Abingdon, UK, 21-23 May, 2012 of which EGI's VRc WeNMR is an active participant. The UK NGI represented EGI and presented a slide set prepared in Amsterdam. There was also a follow up from the Diamond Light Source in the UK after the event relating to PANData which is addressing many data sharing, analysis, provenance issues.

[68] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1041

[69] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1127

[70] http://www.epos-eu.org/assets/documents/newsletter/newsletter_epos_2012_07_jul.pdf

[71] http://www.eresearchsouth.ac.uk/news/the-european-grid-infrastructure-opportunities-and-successes-for-the-e-research-south-community-and-the-uk

- EGI-InSPIRE was involved in sponsoring the International Workshop on Science Gateways for Life Sciences (IWSG-Life). EGI.eu had a display table for promotional activities and co-led an workshop on Science Gateways. Discussions are underway to co-locate the next event with the EGICF 2013 in Manchester with a broader role across all disciplines in terms of Science Gateways.
- Amsterdam eScience colloquium at the HealthGrid/IWSG-Life event as well as the subsequent one held at the Science Park which was sponsored by EGI and delivered a lively discussion on the importance and value of "peopleware".
- EGI was involved in the inaugural Astronomy and Astrophysics Community Group (Astro-CG) which was held at the OGF meeting in Delft.

4.1.4. Technical Outreach to New Communities

The activities and achievements performed/achieved by the TONC group of EGI.eu in PQ9 were:

- Supporting the developers of the technical services in making progress with development according to the plans that we defined together at the beginning of 2012. Each of three groups made good progress during PQ9, details are given in the technical service specific subsections below.
- During PQ9 one requirement (#1626) has been addressed by technology providers through the TCB. The frequency of TCB meetings is expected to increase in PQ10 and the new UMD 2.0.0 release on the 10th of July is expected to address additional ones. Details for two requirements which had been returned by TCB got collected and submitted to TCB on 20th of May.
- Technical input has been provided for the discussion session that the TNA2.4 events team of UCST organized at the International Workshop on Science Gateways for Life Sciences (IWSG-Life) in Amsterdam.
- The EGI Blog, Twitter and Facebook have been used by the team to report about activities, achievements. During PQ9 2 blog posts have been written by EGI.eu TONC members and providers of TNA2.5 Technical Services. One article, titled 'Gateways for science', has been published in the Spring issue of the EGI Inspire newsletter.
- The interactive flash maps on the EGI website about the User Support and Resource Infrastructure providers were updated.
- The team was involved in six Virtual Team projects. Two of these started during PQ9, another two finished during PQ9. (Started: GPGPU requirements; Science Gateway primer. Finished: Federated Identity Providers Assessment, MPI in EGI. Still active: Fire and smoke simulation; Speech Processing on the Grid). The final reports of the two finished VTs have been put together and released to the community and the general public by TONC.
- Developed short, focused presentation about support services and activities that the EGI community provides for (new) communities. Presentations about 'Requirement management', 'Science gateways', 'Workflows and workflow systems' have been created and shared with the community through the EGI Training Marketplace.

- The TONC team defined the structure of the VRE track of the Technical Forum, wrote session abstracts and reviewed community contributions. The track will include
    - A double session on Research Infrastructure – NGI collaborations
    - A session about 'Software services for community building and support'
    - A one day long AAI workshop, jointly organized with the Resource Infrastructure Services track.
    - A 2x90 minutes long 'Science Gateways: Harmonising Development and Provisioning' workshop
    - A session with various VRE-related contributions from the community
    - A 2x90 minutes long 'Workflow community' workshop
- Hosting and working with Jelena Tamuliene, who spends three months as an 'Application expert' at EGI.eu. Jelena has background in computational chemistry and during her three months stay she
    - Reviews the applications/tools that are offered by EGI members from the 'Computational Chemistry and Material Sciences' domain.
    - Identifies key applications from the 'Computational Chemistry and Material Sciences' domain that would benefit from integration with EGI services (using scientific websites, databases, repositories, studies, NGI/project contacts).
    - Performs a cost and impact analysis of integrating these applications with EGI/NGI resources and services (e.g. number of users brought in, resources needed for integration and operation, barriers of uptake).
    - Sets up and launch focused Virtual Team projects with EGI-InSPIRE members to perform the integration of the key applications with EGI/NGI resources and services.
- Managed the reviews of all papers of the 'Software services for users and communities' track of the EGI Community Forum post-proceeding and provided reviews for around 15 papers.
- Started the setup of support processes and documents for users of the EGI Federated Cloud platform and begin working with the user communities who already have use cases for this platform.
- Establish the task-specific metrics for PY3, tools and processes for their reporting.
- Attended the 'The Milky Way: Stars, Gas, Dust and Magnetic Fields in 3D' workshop[72] and started discussion with the community on using EGI for modeling of the Milky Way. One of the new use cases for the EGI Federated Cloud is expected to come from this community in PQ10.
- Attended the '4th Federated Identity Management' workshop[73] and gave a presentation about federated identity management activities of EGI, including the recently finished related VT[74]. After the workshop EGI joint as an Identity provider (IdP) to the Grid Identity Pool

[72] http://www.ast.cam.ac.uk/ioa/research/ASTRA/meetings/MWin3D/

[73] http://www.clarin.eu/events/3501

[74] https://wiki.egi.eu/wiki/VT_Federated_Identity_Providers_Assessment

federation[75] with its Single Sign On system. The extension of this membership to a higher level IdP is under discussion. A related workshop (AAI workshop[76]) will be organized at the EGI Technical Forum.

Applications Database

The most prominent new feature that has been added to the EGI Applications Database during PQ9 is v1.0 of a REST API that supports authenticated writes and updates of the database. Third party application providers can make use of the API by forwarding their users' EGI SSO credentials, or by creating an AppDB system account to act on behalf of their users, in order to modify content and to read content that is not open to the general public. Authenticated access is granted based on permissions readily assigned to the account identified by the credentials passed, just as for the AppDB portal; moreover, since v3.1.0 the AppDB portal itself uses the REST API exclusively for all its non-administrative read/write operations, the same way a third party application would. Developments related to the REST API's write access include amongst others:

- API key management feature from within the portal, under user preferences
- Documentation, complete with examples and sample use cases[77]
- Changelog[78]

Other significant developments that took place during PQ9, mainly relate to quality of information and dissemination, and include

- A broken link notification subsystem, which automatically sends out e-mail notifications and reminders to application owners, in order to take action with regards to links that seem to be inaccessible for a period of over 3 weeks
- A mechanism that identifies application entries that have not been updated for a period of over 12 months. Such applications can be visually tagged with a small emblem that notifies users about the possibly not fully up to date entry. Users can exclude such entries from the hit list in searches. The first set of emails about older than one year entries has been sent to application owners at the end of PQ9. The visual representation of outdated entries will be turned on in PQ10.
- A mechanism that enables the community to classify the registered software items into various high level categories. Currently there are only ‘tools’ and ‘applications’ categories in the database, but using the new service this list can be extended and changed. For example we could setup new groups for grid middleware services, cloud services, operational tools, workflow systems. The list of categories that the community would like to see in the system is still under discussion, but the tool to implement new categories is already in place.
- A dissemination/outreach tool, which allows those who hold ‘manager’ role in the system to send out e-mail messages from the portal to certain group of users. This could be useful to the EGI.eu management team if they want to inform certain users about new services of changes in

[75] http://gridp.ct.infn.it/

[76] http://go.egi.eu/aaiworkshop

[77] http://wiki.egi.eu/wiki/EGI_AppDB_REST_API_v1.0

[78] http://wiki.egi.eu/wiki/EGI_AppDB_REST_API_CHANGELOG

EGI. For example to inform the providers and users of MPI applications about the report that was recently published by the 'MPI in EGI' Virtual Team Project.

Training Marketplace

Activity during PQ9 has focussed on improving the Training Marketplace Gadget to improve uptake of the tool. A new Drupal display module has been developed. It allows correct resizing of an events calendar within the iframe environment and the ability to include a calendar alongside a list displaying details of the events. Critically, the new functionality includes filters to allow the user to display local NGI based events by default, whilst maintaining links to the full database. Furthermore this gadget has a customisable appearance so the user can embed it into a website, matching colours, fonts and styles.

GoogleAnalytics is run centrally on all EGI.eu web pages but visits from gadgets embedded in third party web pages cannot be monitored in this way. To overcome this, a script has been developed to monitor usage of Training Marketplace gadgets and to differentiate website hits from the main and gadget interfaces. A script to monitor the number of people training days has also been developed with the ability to record the actual number of attendees on courses and to improve the accuracy of collected metrics, and the number of new entries in each of the different content types each period. A number of bugs have been fixed and minor feature requests have been implemented in PQ9, including an enhanced user rating feature, updating the theme and styling of the Training Marketplace gadget pages to match the new EGI website, writing a description of the different content types for users, and adding key word tagging.

Current activity is centred around improving and rationalising the forms used for adding event entries so that events can be displayed in a variety of formats such as the calendars and map.

A Training Marketplace webinar took place in PQ9 and will be repeated in the Autumn and a demo will take place at the EGITF 2012 displaying the Training Marketplace. The UK is currently in talks with a major HPC training provider to encourage their use of the Training Marketplace. We are also in discussions with the EGI management about rolling out a similar tool to advertise e-infrastructure tools and services.

Client Relationship Management system (CRM)

The work in PQ9 focused on increasing the usability and robustness of the CRM service after its introduction as a production service in the beginning of April 2012. The first three months operating the service as a production product showed that it needs continue customisation to cope with constant emerging requests from the EGI community.

Some of the requirements that have emerged during this period, such as the ability to track and trace user activity within EGI CRM. This could not be satisfied with vtiger 5.3.0, which was the version setup as EGI CRM in April. A new vtiger version (5.4.0) was released during May 2012 that could minimize some of the problematic issues. According to the release notes, vtiger 5.4.0 implements a new functionality (called ModTracker), that when enabled for a given module (Accounts, Contacts, etc...) allows all the modifications or enhancements to be recorded and provides a historical view of changes for that module. A test instance has been installed at UPV during PQ9. The data structure, values and the Web Interfaces have been replicated from the production EGI CRM instance to this test

version. The evaluation is not completed yet, vtiger 5.4.0 continues to be evaluated and the implications regarding service migration to this new version will be done in PQ10.

Significant effort has been devoted in exploring the CRM Dashboard module of the EGI CRM production instance. The objective was to adapted and customize it to provide a simple and easy visual/graphical reporting tool. This Dashboard module is currently active in the production instance but it does not present the desired flexibility for the quantity and quality of data representations we would like to achieve. Therefore, alternative graphical reporting solutions are being investigated.

Another important achievement during the current period was the discussion, and consequent agreement, on the structure of monthly CRM activity reports (to assess the EGI community activity approaching user communities), and on their on-demand automatic generation. An auxiliary public web interface[79] has been implemented which triggers the collection and gathering of data, and presents them in a normalised way to the user. The same web interface can be used to collect metrics for the quarterly reports.

Other minor achievements during this period consisted on the resolution of several customisation bugs (related to the use of special characters in the "Advanced Search" and in the "Import/Export Data" utilities), on the implementation of a new web certificate (with crm.egi.eu as Distinguished Name) for secure http connections; on the monitoring of EGI CRM usage with Google Analytics, and on the exercise of the recover mechanisms for CRM backups, including the development and production CRM instances, and the git code repositories tracking code changes.

Finally, since the CRM tool is still not used at the desired rate by the EGI community, some dissemination effort has been put to write a CRM article into the EGI Newsletter and a talk to be given at the forthcoming NIL Meeting of the EGI Technical Forum.

4.1.5. Community Activity

4.1.5.1. T-GPGPU

GPGPU (General-Purpose computation on Graphics Processing Units) is the use of a GPU (graphics processing unit) as a co-processor to accelerate CPUs for general purpose scientific and engineering computing. The GPU accelerates applications running on the CPU by offloading some of the data-parallel compute-intensive and time consuming portions of the code.

The VT-GPGPU Virtual Team was established in mid-May 2012. It aims to collect detailed requirements from existing and new EGI user communities and their support teams about using GPGPU services in the European Grid Infrastructure. The requirements will used by the EGI Operations community (through the OMB), the EGI User Community (through the UCB) and the EGI Technology Community (through the TCB) to define and implement extensions in the EGI e-infrastructure services in order to meet the communities demand for GPGPU computing. The Virtual Team has 20 members, including members from the FP7 funded Mapper project.

The main objectives of the VT are:

[79] https://crm.egi.eu/metrics_report_index.php

1) Define survey(s) that could be used by the EGI community to map out the interest of existing and potential new user communities for GPGPU computing in EGI.
2) Survey user communities directly and/or through their support teams from NGIs, VOs and projects.
3) Analyze and normalize the collected requirements, request clarifications where needed.
4) Submit the detailed requirements to the EGI Operations community, the EGI User Community and the EGI Technology Community.
5) Gather existing use cases from the EGI community.

The VT was established during PQ9 and an initial phone conference held to discuss the objectives and their timelines. Most team communication, however, is through the e-mail list vt-gpgpu@mailman.egi.eu. In addition, Documentation is handled on the EGI wiki, with all documents rooted under the URI https://wiki.egi.eu/wiki/VT_GPGPU. Two draft surveys have been defined: A User Community survey and a Resource Centre Survey. The User Community survey focuses on how users currently use GPGPUs, if they currently use grid for this purpose or if they intend to use grid to access GPGPUs. A subsection of this survey also focuses on GPGPU application development. The Resource Centre survey looks at how GPGPUs are deployed and administrated at each site. We hope to gather some guidelines on how best to make GPGPUs available to the grid user communities.

We have received a number of diverse uses cases from the VT NGI representatives. In some cases, the NGI representatives have specifically interviewed representatives from several scientific disciplines. The use-case feedback from the NGIs is being co-ordinated via the EGI wiki.

The Draft Surveys are available at https://wiki.egi.eu/wiki/VT_GPGPU/DraftSurvey and will be finalized by July 31st, and then advertised from August 1st. The final date for response from the surveys will be September 7th. The results of the survey shall be presented at the EGITF 2012 in mid-September.

4.1.5.2. Scientific Publications Repository

The ultimate goal of EGI is to support researchers in achieving faster, better and newer scientific results. Therefore, it is of utmost importance to track all the scientific publications that have been possible thanks to EGI in order to demonstrate its real impact. Tracking the scientific outputs based on EGI has been always difficult because of the geographically dispersed communities that use the infrastructure and the lack of well-defined processes and tools. The goal of this virtual team project is to mitigate this issue by setting up tools and processes that enable the accurate tracking of scientific publications via the National Grid Infrastructures (NGIs) or Virtual Organisations (VOs).

After the approval of the VT on May 16th, NGIs have been invited to join. France, Germany, Turkey and the Asian-Pacific representatives expressed interested in joining this activity led by EGI.eu. The mailing list and wiki area were set up and the activity formally started June 20th 2012. During the reporting period, the group organised four phone conferences through which the work plan was structured in five areas: 1) collecting current practices from different organisations, 2) defining policies, 3) defining the schema for data collection, 4) defining the process and supporting tool(s), 5) communication plan. The team successfully completed twelve actions related to: collecting seven current practices; draft a policy amendment to the Grid AUP; investigate the OpenAire initiative,

organised a session for the upcoming EGITF 2012 to disseminate the results of the VT and stimulate community feedback.

During PQ10, the VT will focus on completing the analysis of the current practices, define a new process and requirements for the supporting tool to improve the collection of scientific publications in EGI, disseminate the results at the EGITF 2012 to collect feedback from the community, prepare a communication plan and liaise with interested parties to create synergies for the implementation phase. The final outcome of the team will be an agreed new process and recommendations for the supporting tool that will be proposed to the EGI Council for approval and allocation of resources for the implementation phase.

4.1.5.3. Federated Identity Providers Assessment

The goal of the VT[80] is to explore the current coverage of NGIs with identity federations and their potential for within EGI. The VT ran between 10th November 2011 and 12th July 2012.

The VT started in the middle of December 2011 and consists of representatives from seven NGIs: Czech Republic, France, Greece, Ireland, Italy, Germany, and Switzerland. In order to assess the readiness of the NGIs in adopting of the TERENA Certificate Service, a questionnaire was developed and filled out by most of the members of the VT. Responses were received from Czech Republic, France, Ireland, Italy and Switzerland.

The output of the VT has been a report[81] about the coverage of Czech Republic, France, Ireland, Italy and Switzerland with federated identity provision services, and about recommendation on mechanisms to increase the federated identity providers coverage across EGI. The report covers the broader context: It provides an overview of the various approaches that are currently used within the European Grid Infrastructure to authenticate users. X509 certificates, TERENA certificates, limited certificates, robot certificates and identity federation based login mechanisms are introduced and reviewed. The report also provides an analysis of these solutions based on the main criteria that EGI has for an authentication infrastructure before considering it for wider adoption. An action plan that could lead the EGI community to a wide and harmonised adoption of federated identity solutions within the infrastructure is covered by the last part of the report. The EGI.eu User Community Support Team and Operations teams will organise a joint topical workshop titled 'Authentication and Authorisation Infrastructure'[82] under the EGITF 2012 to endorse and kick off this action plan. The report and information about the workshop has been circulated to the EGI Community during PQ9.

4.1.5.4. EGI Champions

Information about existing community schemes relating to 'champions' or 'ambassadors' from within EGI have been collected from the UK, Hungary and Switzerland NGIs. This information gathering phase has coincided with PQ9 and the plans and processes are being written up for presentation to the

[80] https://wiki.egi.eu/wiki/VT_Federated_Identity_Providers_Assessment

[81] https://documents.egi.eu/document/1178

[82] http://go.egi.eu/aaiworkshop

NILs at the EGITF 2012. At the launch a small number of NGIs will be invited to volunteer to prototype the new scheme and evaluate the processes.

EGI Champions are individual researchers who are knowledgeable users of the infrastructure with an aptitude for passing on this knowledge to others. They may work in any discipline from computing to ancient history and their communication skills may relate to providing hands-on support to small numbers of other researchers to being able to give compelling talks to large numbers of people be they academics, the general public or perhaps school children. In return for acting as ambassadors for the infrastructure, it is proposed that the Champions will be rewarded with expenses to a number of events at which the will be expected to promote and answer question about EGI and also submit a short report summarising the event and passing on any potential leads that can be followed up by NGIs or EGI. The role will be time limited in order to build a community of alumni with awareness and improved communication skills.

The responsibilities of EGI Champions are as follows:

1. Promoting EGI.eu where appropriate
2. Attending a least one EGI Forum per year
3. Preparing reports on conferences and other events visited
4. Staying conversant with EGI's role and benefits from the perspective of researchers and research teams.
5. Providing help and advice where appropriate even if it is to escalate enquires to relevant individuals or services.
6. Notifying NGI/EGI/own institution about opportunities and issues that concern user communities use of the European Grid Infrastructure.

4.1.5.5. Digital Cultural Humanities

The VT on DCH (Digital Cultural Heritage) Integration has effectively migrated into the DCH-RP project. Therefore the VT will be formally closed and the communication channels established and knowledge gathered passed on to this project. Much of the activity in this area is taking place in Italy. The key sites are currently hosted at Catania. The main services currently being delivered are a collection of digital repositories and an e-Infrastructure-enabled semantic search service.

4.1.5.6. SPEEch on the griD (SPEED)

The Speech on the Grid - SPEED Virtual Team[83] aims to establish a Speech processing Virtual Research Community on EGI. The VT is led by IISAS Slovakia and EGI.eu and has active members from Finland, Switzerland, Republic of South Africa, United Kingdom and Slovakia. The expected output was two-fold:

- Making a Grid computing available to a wide scientific community of researchers dealing with speech processing.

[83] https://wiki.egi.eu/wiki/VT_SPEED

- A set of methods for optimization and diagnostics specifically in speech processing and tools implementing these methods in the grid platform was planned to be developed.

The focus of the scope and goals of the VT has been changed during PQ9 (after the project held its first teleconference) to address the issue that the speech community is generally not aware of the existence of EGI and NGIs. It was decided to contact the NILs in corresponding countries in order to help establish contacts between the researchers in respective countries and the SPEED team. The NILs could also inform the potential local researchers about the existence, capacity and possibilities of exploitation of the local Grid and the possibilities of coordinated use with other countries NGI resources.

Establishing contacts and the investigation of the state of the art are the most valuable outputs of the VT to date. In addition the most recognized conferences, the actual trends and topics, and active authors and groups in the area of speech processing have been identified. The VT will now work to establish a virtual organization for the Speech Processing research community on EGI using NGI resources. This would establish favourable conditions to form a consortium that could apply for a grant in grid-based speech processing.

Plans for the next period

During PQ10, EGI.eu will contribute to the planning and successful running of the EGITF 2012 with particular focus on the track "Community and Co-ordination". The report about ERIC will be completed and delivered to the EGI Council to support informed discussion and prepare for the related deliverable. The EGI Compendium report for 2011 will be completed and published and options for a Web tool to support data collection in the future iterations will be explored. The work from the Virtual Team "Scientific Publications Repository" will also be completed and results presented at the EGITF. Work will continue in finalising the EGI.eu service portfolio as well as establishing relationships with the new projects (FedSM and Helix-Nebula). The collaboration with the e-FISCAL project will also continue to improve the outcome of the project. The annual revision of the Policy Development Process will also be completed. As regards EU2020, the SPT will provide an updated analysis on what the EGI contribution can be. As regards collaborations, the SPT will continue to monitor the execution of the work-plans with the various partners as well as completing the agreement with DANTE.

As regards the STFC activity, a face-to-face meeting of SPG will take place in Prague during the Technical Forum (September). Final drafts of the revised top-level main Security Policy document and on the security aspects of Data Privacy will be completed. Work will also continue on "Security for Collaborating Infrastructures". Preliminary assessments will be made of the extent to which EGI meets the requirements expressed in the SCI document at a face-to-face meeting in Lyon (September).

The plans for the PQ10 for Applications Database include:

- Investigating the technical complexities and possibilities of integrating the Applications Database with social networks, as Facebook or LinkedIn, in order to pull user information into the Applications Database. The long term goal behind this development is to gradually remove the user profile management part from AppDB and replace it with profiles imported from these systems.

- Investigate the technical and political difficulties in integrating the Database with Identity Federations, primarily with the GrIDP federation[84] that EGI recently joined as a identity provider with its Single Sign On system.
- Discussing the possibility of extending AppDB's support towards the EGI Federated Cloud, by aligning-integrating its services with the EGI Virtual Image Marketplace. This will be discussed in the broader context of 'Software services for community building and support' at a dedicated session[85] of the Technical Forum.
- Implementing a new 'AppDB write gadget" that uses the new AppDB write API and enables the easy integration of rich AppDB services into third party websites. Such a gadget would nicely complement the existing read gadget that is already used in around a dozen websites in EGI.

The Community Outreach team will complete its planning for the EGITF 2012 programme with detailed plans to:

- Launch a trial of the EGI Champions scheme with 3- 5 NGIs at the EGITF 2012
- Start the detailed planning for EGICF 2013 in Manchester
- Start the planning for a series of smaller events that will be organised by EGI.eu to compliment the main Forums.

The marketing and communications team will continue its focus on events, with the delivery of the outreach plan for the EGITF 2012. This will include the preparation of the event programme, marketing materials for the EGICF 2013 in Manchester, organisation of the dissemination booth as well as the social media channels and press liaison at the event. The event will be attended by journalists from iSGTW and HPCinthecloud, and has been announced in iSGTW, HPCwire, HPCinthecloud, Datanami and Hostingtecnews.

During PQ10, members of EGI.eu will present papers at Digital Research 2012 in Oxford, eChallenges in Lisbon in October and EUMed2012 in Cyprus. The communications team will plan outreach to publicise EGI's participation in these events, and also make preparations for SC12 in Salt Lake City and SciTech 12 in Brussels in November.

Further case studies will be published on the EGI website, and disseminated through *iSGTW* and *Pan European Networks: Science & Technology*.

[84] http://gridp.ct.infn.it/

[85] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=67&confId=1019#20120918

5. CONSORTIUM MANAGEMENT

Summary

During PQ9 the second EC Review of the EGI-InSPIRE project took place. The consortium presented a number of alterations to the DoW that were designed to strengthen the support and coordination activities provided to the operational infrastructure while adding a dedicated focus to building a federated cloud environment using EGI's existing operational tools.

Main Achievements

5.1.1. Project Management

The main activity during PQ9 was the preparation for the 2nd EC Review that took place in Amsterdam on the 27th-28th June 2012. No feedback had been received by the project before the end of PQ9. In fact no feedback was provided until early September 2012. During the review several changes were presented to improve the operation of the project:

- Rationalisation of TSA1.7 (TPM) and TSA2.5 (DMSU) into a single middleware and operational tools support task in TSA1.7
- Creation of a new task TSA2.6 for integrating institutional private clouds into EGI
- Providing additional effort to LIP for the coordination of staged rollout activities
- Moving coordination of documentation from CSC to EGI.eu
- Moving coordination of integration activities from KTH to EGI.eu (from PM30)

These were implemented at the end of PQ9 as no negative feedback had been received during the review.

5.1.2. Milestones and Deliverables

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*)[86]	Revised delivery date(*)	Status (**)
D2.16	WP2	EGI-InSPIRE Presentation https://documents.egi.eu/document/1145	R	EGI	25	27	PMB approved

[86] *(*) Dates are expressed in project month (1 to 48).*

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

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

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*)[86]	Revised delivery date(*)	Status (**)
MS228	WP2	Marketing and Communication Handbook https://documents.egi.eu/document/1160	R	EGI	26	27	PMB approved
MS511	WP5	Deployed Middleware Support Unit Operations Procedures https://documents.egi.eu/document/1134	R	EGI	26	28	PMB approved
MS512	WP5	Software Provisioning Process https://documents.egi.eu/document/1135	R	EGI	26	27	PMB approved
MS616	WP6	Services for High Energy Physics https://documents.egi.eu/document/747	R	CERN	27	27	PMB approved
MS617	WP6	Services for the Life Science Community https://documents.egi.eu/document/1289	R	EGI	27	28	PMB approved

5.1.1. Consumption of Effort

Selected period: PM25 to PM27 (May 2012 to July 2012)

Report extracted on 6 September 2012

Type	Work Package	Worked PM Funded	Committed PM	Achieved PQ9 PM %	Achieved PM (YEAR 2) %	Achieved PM (YEAR1) %
MGT	WP1	20.6	21.1	98%	99%	77%
COORD	WP2	86.7	112.9	77%	89%	80%
COORD	WP3	0	0	0	128%	86%
SUPPORT	WP4	298.8	310.2	96%	105%	98%
SUPPORT	WP5	27.8	48.1	58%	92%	81%
SUPPORT	WP6	49.1	60.4	81%	98%	102%
RTD	WP7	20.1	21.5	93%	87%	76%
	Total	503.1	574.2	88%	101%	93%

Due to holiday period, only 88% of the committed PMs were achieved. WP2N is low (68%) which is based across the NGIs and supports the NILs and activities within the Virtual Teams, but WP2E is on track (93%) with its more concentrated effort in a few partners. Overall WP5 is low because of the late creation of the N tasks to support the new Federated Cloud Task in which only 31% of the efforts are used as staff ramp up in this activity. WP5E is also low (64%) due to low report of EGI.eu (due to staff illness) and the German and Nordic partners where effort is now being moved from TSA2.5 and

merged with TSA1.7. Overall in WP7 it seems balanced but in details, WP7E is overspent (124%) while WP7G is underspent (68%).

The detailed breakdown of effort contributed to each work package by each partner is provided in the following tables for PQ9. 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.

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

Partner	Worked PM Funded	Committed PM	Achieved PM %	PY2 Worked PM Funded	PY2 Committed PM	PY2 Achieved PM %
1-EGI.EU	9.9	9.3	106%	38.2	37.3	102%
Total:	9.9	9.3	106%	38.2	37.3	102%

WP1-M - WP1 (NA1) - NA1 Management

Partner	Worked PM Funded	Committed PM	Achieved PM %	PY2 Worked PM Funded	PY2 Achieved PM %	PY2 Achieved PM %
1-EGI.EU	10.7	11.2	96%	42.9	44.8	96%
Total:	10.7	11.2	96%	42.9	44.8	96%

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

Partner	Worked PM Funded	Committed PM	Achieved PM %	PY2 Worked PM Funded	PY2 Achieved PM %	PY2 Achieved PM %
1-EGI.EU	30.6	33.4	92%	110.6	96.9	114%
12A-CSIC	0	0.6	0%	0	1.2	0%
16A-GRNET	1.4	2.2	61%	2.9	4.4	66%
16E-IASA	0	0.7	0%	0	1.3	0%
26A-FOM	0.9	0.3	265%	1.9	2.1	91%
29-LIP	1.9	0.8	242%	6.2	1.6	390%
34A-STFC	2.8	3.1	91%	8.7	8.3	105%
Total:	37.6	40.4	93%	130.3	115.8	112%

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

Partner	Worked PM Funded	Committed PM	Achieved PM %	PY2 Worked PM Funded	PY2 Committed PM	PY2 Achieved PM %
2-UPT	0	2.5	0%	0	5.0	0%
3-IIAP NAS RA	0	0.6	0%	0	1.2	0%
5A-IICT-BAS	0	1.4	0%	0.2	3.1	7%
7A-ETH ZURICH	0	0.4	0%	0	0.7	0%
7B-UZH	0.9	0.6	153%	1.0	1.2	84%
7C-SWITCH	0	0.7	0%	0.1	1.4	9%
8-UCY	0.6	1.0	57%	3.1	2.7	115%
9-CESNET	2.0	2.4	84%	6.0	5.5	108%
10B-KIT-G	5.0	5.6	89%	13.7	13.2	104%
12A-CSIC	7.5	1.4	541%	14.1	6.2	229%
12D-UPVLC	2.4	2.7	87%	3.7	6.1	61%
13-CSC	0.6	3.0	20%	1.7	6.9	25%
14A-CNRS	5.2	2.9	178%	13.5	8.0	169%
14B-CEA	0.2	1.1	16%	0	2.2	0%
15-GRENA	0.4	0.4	100%	0.6	0.8	78%
18A-MTA KFKI	0.3	0.5	50%	0.4	1.1	37%
18B-BME	0	0.5	0%	0.7	1.6	42%
18C-MTA SZTAKI	0.9	0.6	153%	2.4	1.1	207%
19-TCD	0.7	1.4	51%	3.2	3.3	97%
20-IUCC	0.1	0.8	15%	0.7	1.8	37%
21A-INFN	7.2	4.3	168%	10.8	10.6	102%
22-VU	0.1	2.9	4%	3.0	8.2	37%
23-RENAM	0.2	0.2	110%	0.3	0.3	93%
26A-FOM	0	0.5	0%	1.4	1.4	102%
26B-SARA	0.3	0.5	58%	0.5	1.1	41%
27A-SIGMA	0	1.0	0%	0	2.0	0%
27B-UIO	0	0.7	0%	0	1.4	0%

27C-URA	0	1.5	0%	0	3.1	0%
28A-CYFRONET	0.8	1.4	55%	3.9	4.8	83%
28B-UWAR	2.2	1.4	159%	0	2.8	0%
28C-ICBP	0	1.0	0%	0	2.0	0%
29-LIP	0	2.6	0%	1.6	6.5	25%

Partner	PY2		
	Worked PM Funded	Committed PM	Achieved PM %
30-IPB	5.2	5.1	103%
31-ARNES	0.7	5.8	11%
31B-JSI	2.3	3.4	68%
32-UI SAV	5.6	7.5	75%
33-TUBITAK ULAKBIM	8.2	8.5	97%
34A-STFC	8.5	8.4	101%
34C-UG	0.1	0.7	14%
34D-IMPERIAL	0	0.8	0%
34E-MANCHESTER	0	0.8	0%
36-UCPH	5.8	6.2	94%
38-VR-SNIC	0.6	0.4	142%
38A-KTH	2.5	3.1	78%
39-IMCS-UL	0.4	4.6	8%
40A-E-ARENA	3.9	4.6	83%
Total:	132.1	178.3	74%

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

				PY2		
Partner	Worked PM Funded	Committed PM	Achieved PM %	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	6.3	3.5	183%	9.5	13.8	69%
9-CESNET	0	5.9	0%	0	0	0%
10B-KIT-G	4.7	4.5	106%	18.7	17.5	107%
10D-JUELICH	0	0.8	0%	0	0	0%
12A-CSIC	3.9	1.1	369%	7.8	4.3	183%
12B-FCTSG	0.6	0.8	76%	2.5	3.0	82%
13-CSC	0.0	1.4	3%	2.0	5.8	35%
14A-CNRS	0.8	0.8	104%	3.0	3.0	100%
16A-GRNET	1.8	4.4	40%	7.6	17.5	44%
17-SRCE	3.6	2.4	149%	7.7	9.8	79%
21A-INFN	2.4	5.4	45%	9.0	9.0	100%
21B-GARR	0.5	0.8	71%	0.9	3.0	29%
26A-FOM	0.6	0.8	85%	3.9	3.0	129%
26B-SARA	0.9	1.4	60%	8.5	5.8	148%
28A-CYFRONET	1.3	1.4	87%	5.6	5.8	97%
29-LIP	1.0	1.1	98%	5.2	4.3	123%
34A-STFC	4.1	4.9	82%	20.9	16.8	125%
35-CERN	3.3	3.7	88%	17.9	14.8	122%
38A-KTH	0	0.7	0%	3.5	2.8	128%
38B-LIU	0	0.8	0%	0	0	0%
Total:	35.8	46.2	77%	134.2	139.6	96%

WP4-N - WP4 (SA1) - SA1 Operations

				PY2		
Partner	Worked PM Funded	Committed PM	Achieved PM %	Worked PM Funded	Committed PM	Achieved PM %
2-UPT	0	2.0	0%	0	8.1	0%
3-IIAP NAS RA	1.1	1.2	96%	3.6	4.8	76%
5A-IICT-BAS	0.8	6.8	11%	4.0	27.0	15%
5B-IOCCP-BAS	0.2	0.5	49%	1.4	2.0	71%
5C-NIGGG-BAS	2.3	0.5	463%	8.5	2.0	427%
6-UIIP NASB	0	1.9	0%	5.2	7.6	69%
7A-ETH ZURICH	1.0	2.1	45%	6.2	8.5	73%
7B-UZH	0.4	1.1	34%	4.4	4.5	99%
7C-SWITCH	0.5	2.1	22%	7.3	8.6	85%
8-UCY	0.7	3.0	23%	6.0	12.0	50%
9-CESNET	6.9	8.0	86%	27.2	32.1	85%
10B-KIT-G	6.6	7.1	93%	33.8	28.5	119%
10C-DESY	2.7	1.9	139%	9.5	7.8	123%
10D-JUELICH	0.9	1.8	51%	6.3	7.3	87%
10E-BADW	1.0	3.0	33%	7.2	12.0	60%
10G-FRAUNHOFER	2.3	1.9	120%	5.2	7.7	68%
10H-LUH	1.9	1.6	117%	9.3	6.5	144%
11-UNI BL	3.5	4.7	74%	14.0	18.9	74%
12A-CSIC	3.3	2.8	118%	7.4	11.1	67%
12B-FCTSG	6.1	4.5	134%	20.0	18.1	110%
12C-CIEMAT	3.7	2.4	154%	12.4	9.5	131%
12D-UPVLC	1.1	1.8	62%	6.3	7.0	90%
12E-IFAE	3.6	2.9	125%	13.2	11.5	115%
12F-RED.ES	5.0	3.3	154%	26.2	13.0	202%
12G-UNIZAR-I3A	2.9	3.3	90%	11.5	13.0	89%
12H-UAB	2.6	2.5	105%	10.5	10.0	105%
13-CSC	5.2	4.2	124%	18.4	16.9	109%

14A-CNRS	18.4	15.8	117%	79.9	63.1	127%
14B-CEA	5.1	4.0	128%	21.6	16.0	135%
15-GRENA	1.1	1.2	92%	6.1	4.8	129%
16A-GRNET	11.2	7.7	145%	43.0	30.9	139%
16B-AUTH	0	0.8	0%	0	3.3	0%
16C-CTI	1.5	0.8	186%	7.9	3.3	244%
16D-FORTH	3.3	0.8	403%	13.9	3.3	427%
16G-UI	0.4	0.5	70%	1.4	2.0	71%
16H-UP	0.7	0.6	110%	4.5	2.5	179%
17-SRCE	4.6	4.5	102%	19.0	18.0	106%
18A-MTA KFKI	4.1	4.1	101%	16.9	16.4	103%
18B-BME	2.3	1.8	124%	7.1	7.4	96%
18C-MTA SZTAKI	1.7	1.5	112%	8.0	6.1	131%
19-TCD	4.1	5.9	69%	18.1	23.6	77%
20-IUCC	1.8	1.6	112%	6.2	6.3	100%
21A-INFN	35.2	22.9	154%	117.3	91.6	128%
21B-GARR	0.3	0.8	42%	1.2	3.0	41%
22-VU	3.6	1.4	264%	5.7	5.5	104%
23-RENAM	1.5	1.3	114%	6.8	5.1	133%
24-UOM	2.3	4.4	53%	12.3	17.8	69%
25-UKIM	5.4	4.4	122%	24.3	17.8	137%
26A-FOM	4.4	2.0	219%	15.4	8.0	192%
26B-SARA	4.5	8.0	56%	21.2	31.9	67%
27A-SIGMA	0	2.5	0%	4.5	10.1	44%
27B-UIO	0.1	1.8	7%	6.5	7.0	93%
27C-URA	0	0.9	0%	5.0	3.5	142%
28A-CYFRONET	9.0	7.2	125%	36.0	29.0	124%
28B-UWAR	1.3	0.4	312%	0.5	1.7	32%
28C-ICBP	3.4	1.1	301%	15.2	4.5	339%
28D-POLITECHNIKA WROCLAWSKA	1.7	1.0	173%	6.2	4.0	157%
29-LIP	4.9	6.7	74%	25.0	26.9	93%
30-IPB	7.3	7.4	99%	29.3	29.6	99%
31-ARNES	0	2.7	0%	12.9	10.8	120%
31B-JSI	0	3.2	0%	14.9	12.8	117%

32-UI SAV	5.6	6.0	92%	20.4	24.1	85%
33-TUBITAK ULAKBIM	8.2	8.2	100%	30.5	32.6	94%
34A-STFC	6.7	6.5	104%	24.0	25.9	93%
34C-UG	3.6	3.6	99%	15.3	14.5	105%
34D-IMPERIAL	6.2	3.6	170%	20.1	14.5	139%
34E-MANCHESTER	5.1	3.6	142%	19.2	14.5	132%
36-UCPH	1.7	5.1	34%	7.6	20.3	38%
38A-KTH	0.6	0.4	150%	1.1	1.5	75%
38B-LIU	1.0	1.9	52%	5.3	7.5	71%
38C-UMEA	3.4	3.0	112%	13.2	12.1	109%
39-IMCS-UL	1.3	3.3	39%	6.6	13.1	50%
40A-E-ARENA	0.5	0	#DIV/0	0.7	0	#DIV/0
40B-SINP MSU	2.5	1.3	197%	9.7	5.0	194%
40C-JINR	1.0	0.8	120%	3.8	3.3	118%
40D-RRCKI	1.0	0.8	120%	3.8	3.3	118%
40F-ITEP	0.9	0.8	120%	3.5	3.0	118%
40G-PNPI	0	0.8	0%	0	3.3	0%
51A-ICI	1.9	1.4	136%	20.5	5.6	365%
51C-UPB	0	0.8	0%	0	3.3	0%
51D-UVDT	0.3	0.6	53%	3.6	2.3	158%
51E-UTC	0	0.6	0%	5.3	2.3	236%
51H-INCAS	0	0.2	0%	0	0.8	0%
51J-UB	0.2	0.1	158%	4.0	0.5	791%
Total:	263.0	263.9	100%	1,117.6	1,055.8	106%

WP5-E - WP5 (SA2) - SA2 Provisioning Soft. Infrastructure

Partner	Worked PM Funded	Committed PM	Achieved PM %	PY2 Worked PM Funded	PY2 Worked PM Funded	PY2 Worked PM Funded
1-EGI.EU	0.9	2.6	36%	9.0	10.5	86%
9-CESNET	5.5	11.0	50%	24.9	31.3	80%
10D-JUELICH	0.7	2.7	27%	6.3	6.0	104%
12A-CSIC	2.8	3.3	85%	11.9	13.3	90%
12B-FCTSG	2.7	1.1	256%	8.4	4.3	197%
16A-GRNET	2.1	3.5	61%	15.6	14.0	112%
16B-AUTH	0	0.8	0%	0	3.3	0%
16E-IASA	0	0.8	0%	0	3.3	0%
16F-ICCS	1.4	0.8	173%	3.7	3.3	113%
21A-INFN	4.7	5.2	90%	12.4	11.8	106%
29-LIP	3.2	4.4	72%	17.9	17.5	102%
38B-LIU	1.0	2.7	38%	5.5	6.0	91%
Total:	25.1	39.5	64%	0	1.5	0%

WP5-N - WP5 (SA2) - SA2 Provisioning Soft. Infrastructure

Partner	Worked PM Funded	Committed PM	Achieved PM %	PY2 Worked PM Funded	PY2 Worked PM Funded	PY2 Worked PM Funded
9-CESNET	0	0.4	0%	n/a	n/a	n/a
10B-KIT-G	0.6	1.5	43%	n/a	n/a	n/a
10D-JUELICH	0.9	0.8	117%	n/a	n/a	n/a
10H-LUH	0	0.5	0%	n/a	n/a	n/a
12A-CSIC	0	0.8	0%	n/a	n/a	n/a
14A-CNRS	0	0.8	0%	n/a	n/a	n/a
21A-INFN	0	1.3	0%	n/a	n/a	n/a
26B-SARA	0.4	0.8	58%	n/a	n/a	n/a
32-UI SAV	0.7	1.3	57%	n/a	n/a	n/a
34F-OXFORD	0	0.8	0%	n/a	n/a	n/a
Total:	2.7	8.6	31%	n/a	n/a	n/a

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

				PY2		
Partner	Worked PM Funded	Committed PM	Achieved PM %	Worked PM Funded	Worked PM Funded	Worked PM Funded
10G-FRAUNHOFER	3.1	2.3	136%	14.2	9.0	158%
12A-CSIC	2.0	2.3	87%	7.6	9.0	85%
12C-CIEMAT	2.0	1.5	131%	9.0	6.0	149%
13-CSC	2.8	1.5	188%	9.2	6.0	153%
14A-CNRS	6.7	5.8	115%	33.2	23.2	143%
14B-CEA	0	0.7	0%	0	2.7	0%
14C-HealthGrid	0	0.5	0%	2.2	1.8	122%
19-TCD	1.7	1.8	100%	7.0	7.0	100%
21A-INFN	2.3	5.0	47%	3.0	20.0	15%
21C-INAF	1.5	2.5	59%	3.5	10.0	35%
21D-UNIPG	0	0.8	0%	3.5	3.0	115%
21E-SPACI	0.9	2.3	40%	4.3	9.0	48%
28C-ICBP	0.4	0.5	71%	6.8	2.0	338%
31B-JSI	0	0.3	0%	0.6	1.0	61%
32-UI SAV	0.8	1.5	56%	4.4	6.0	74%
35-CERN	25.0	28.4	88%	129.5	113.7	114%
37-EMBL	0	3.1	0%	0	12.3	0%
Total:	49.1	60.4	81%	238.0	241.7	98%

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

Partner				PY2		
	Worked PM Funded	Committed PM	Achieved PM %	Worked PM Funded	Committed PM	Achieved PM %
10B-KIT-G	3.7	2.9	127%	13.4	11.8	114%
12B-FCTSG	0.8	0.8	113%	4.4	3.0	146%
14A-CNRS	0.8	0.8	100%	3.0	3.0	100%
16A-GRNET	0.9	0.8	115%	1.9	3.0	63%
17-SRCE	0.8	0.8	105%	3.5	3.0	116%
21A-INFN	1.4	1.5	95%	6.5	6.0	109%
34A-STFC	1.5	1.5	98%	5.3	6.0	88%
35-CERN	2.1	0.8	282%	5.7	3.0	189%
Total:	12.0	9.7	124%	43.6	38.8	112%

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

Partner				PY2		
	Worked PM Funded	Committed PM	Achieved PM %	Worked PM Funded	Committed PM	Achieved PM %
10H-LUH	0.7	1.5	45%	6.6	6.0	111%
12B-FCTSG	0.5	1.5	35%	3.0	7.5	40%
14A-CNRS	5.3	4.4	120%	19.7	19.2	103%
17-SRCE				0	1.5	0%
21A-INFN	0.3	2.2	14%	1.2	8.7	14%
34A-STFC	1.2	2.3	55%	8.3	10.5	80%
35-CERN				0	3.0	0%
Total:	8.0	11.8	68%	38.9	56.3	69%



5.1.2. Overall Financial Status

	PQ9				
Partner	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
1-EGI.EU	58.5	60.0	98%	519,727	307,470
2-UPT	0	4.5	0%	0	0
3-IIAP NAS RA	1.1	1.8	64%	3,412	1,126
5A-IICT-BAS	0.8	8.2	9%	4,622	1,525
5B-IOCCP-BAS	0.2	0.5	49%	1,483	489
5C-NIGGG-BAS	2.3	0.5	463%	14,135	4,664
6-UIIP NASB	0	1.9	0%	0	0
7A-ETH ZURICH	1.0	2.5	39%	8,288	2,735
7B-UZH	1.3	1.7	75%	8,901	2,937
7C-SWITCH	0.5	2.8	17%	6,476	2,137
8-UCY	1.3	4.0	32%	11,127	3,672
9-CESNET	14.4	27.7	52%	94,884	37,479
10B-KIT-G	20.7	21.6	96%	184,463	73,667
10C-DESY	2.7	1.9	139%	23,900	7,887
10D-JUELICH	2.5	6.0	42%	22,373	8,459
10E-BADW	1.0	3.0	33%	8,733	2,882
10G-FRAUNHOFER	5.4	4.2	128%	47,638	17,622
10H-LUH	2.6	3.6	71%	22,799	7,941
11-UNI BL	3.5	4.7	74%	14,268	4,709
12A-CSIC	19.5	12.2	160%	152,314	60,269
12B-FCTSG	10.7	8.6	125%	83,880	33,464
12C-CIEMAT	5.6	3.9	145%	43,974	15,589
12D-UPVLC	3.4	4.5	77%	26,866	8,866
12E-IFAE	3.6	2.9	125%	28,148	9,289
12F-RED.ES	5.0	3.3	154%	39,184	12,931
12G-UNIZAR-I3A	2.9	3.3	90%	22,769	7,514
12H-UAB	2.6	2.5	105%	20,596	6,797

Partner	Q9				
	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
13-CSC	8.7	10.1	86%	89,743	31,730
14A-CNRS	37.1	31.2	119%	320,514	115,255
14B-CEA	5.3	5.8	92%	45,717	15,086
15-GRENA	1.5	1.6	94%	3,690	1,218
16A-GRNET	17.3	18.6	93%	133,892	52,262
16B-AUTH	0	1.6	0%	0	0
16C-CTI	1.5	0.8	186%	11,676	3,853
16D-FORTH	3.3	0.8	403%	25,358	8,368
16E-IASA	0	1.5	0%	0	0
16F-ICCS	1.4	0.8	173%	10,910	5,455
16G-UI	0.4	0.5	70%	2,713	895
16H-UP	0.7	0.6	110%	5,307	1,751
17-SRCE	9.0	7.7	117%	44,674	18,473
18A-MTA KFKI	4.4	4.6	95%	17,351	5,726
18B-BME	2.3	2.3	98%	12,578	4,151
18C-MTA SZTAKI	2.6	2.1	123%	15,700	5,181
19-TCD	6.5	9.0	72%	63,128	22,022
20-IUCC	1.9	2.3	80%	24,050	7,937
21A-INFN	53.6	47.7	112%	395,285	142,518
21B-GARR	0.8	1.5	57%	6,260	2,732
21C-INAF	1.5	2.5	59%	10,823	4,329
21D-UNIPG	0	0.8	0%	0	0
21E-SPACI	0.9	2.3	40%	6,552	2,621
22-VU	3.7	4.2	89%	31,165	10,284
23-RENAM	1.6	1.4	114%	4,886	1,612
24-UOM	2.3	4.4	53%	5,621	1,855
25-UKIM	5.4	4.4	122%	21,686	7,156
26A-FOM	5.9	2.9	202%	60,595	22,673
26B-SARA	6.1	10.7	57%	62,440	22,111
27A-SIGMA	0	3.5	0%	0	0

Partner	Q9				
	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
27B-UIO	0.1	2.5	5%	1,270	419
27C-URA	0	2.4	0%	0	0
28A-CYFRONET	11.1	10.1	110%	94,667	33,061
28B-UWAR	3.5	1.8	194%	29,940	9,880
28C-ICBP	3.7	2.6	144%	32,009	10,776
28D-POLITECHNIKA WROCLAWSKA	1.7	1.0	173%	14,726	4,860
29-LIP	11.1	15.5	71%	60,587	25,685
30-IPB	9.1	9.2	99%	49,900	16,467
31-ARNES	0	5.0	0%	0	0
31B-JSI	0	4.6	0%	0	0
32-UI SAV	9.4	12.3	76%	74,985	25,213
33-TUBITAK ULAKBIM	11.3	11.5	98%	79,250	26,153
34A-STFC	19.1	21.2	90%	196,233	80,218
34C-UG	3.7	4.0	95%	38,412	12,676
34D-IMPERIAL	6.2	4.0	154%	63,469	20,945
34E-MANCHESTER	5.1	4.0	128%	52,844	17,438
34F-OXFORD	0	0.8	0%	0	0
35-CERN	30.4	33.4	91%	437,047	182,550
36-UCPH	2.1	8.1	26%	22,921	7,564
37-EMBL	0	3.1	0%	0	0
38-VR-SNIC	0	0.2	0%	0	0
38A-KTH	0.6	2.5	23%	6,440	2,125
38B-LIU	2.0	5.3	38%	22,711	9,454
38C-UMEA	3.4	3.0	112%	38,642	12,752
39-IMCS-UL	1.4	5.3	26%	10,696	3,530
40A-E-ARENA	1.6	1.3	121%	6,205	2,048
40B-SINP MSU	2.5	1.3	197%	9,762	3,222
40C-JINR	1.0	0.8	120%	3,846	1,269
40D-RRCKI	1.0	0.8	120%	3,846	1,269
40F-ITEP	0.9	0.8	120%	3,550	1,172

	Q9				
Partner	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
40G-PNPI	0	0.8	0%	0	0
51A-ICI	1.9	1.4	136%	11,625	3,836
51C-UPB	0	0.8	0%	0	0
51D-UVDT	0.3	0.6	53%	1,804	595
51E-UTC	0	0.6	0%	0	0
51H-INCAS	0	0.2	0%	0	0
51J-UB	0.2	0.1	158%	1,203	397
Total:	503.1	574.2	88%	4,215,859	1,674,947

Issues and mitigation

There are no project management issues to report.

Plans for the next period

The project consortium will continue to implement the minor structural changes to the project and await the feedback from the EC Review report.

6. PROJECT METRICS

Overall metrics

No	Objective Summary	Metrics	Value Q9	Target PY3
PO1	Expansion of a nationally based production infrastructure	Number of resource centres in EGI-InSPIRE and integrated partners (M.SA1.Size.1)	347	350 (355) (355)
		Number of job slots available in EGI-InSPIRE and integrated partners (M.SA1.Size.2)	327,394	300,000 (325,000) (333,000)
		Reliability of resource centre functional services (M.SA1.Operation.5)	-	95% (96%) (97%)
		Reliability of NGI functional services (MSA1.Operations.4)	-	97% (98.5%) (99%)
		Reliability of critical operations tools (MSA1.Operations.6a)	0	97% (98.5%) (99%)
PO2	Support of European researchers and international collaborators through VRCs	Number of papers from EGI Users (M.NA2.5)	27	70 (80) (90)
		Number of jobs done a day (M.SA1.Usage.1)	-	1.2M (1.4M) (1.5M)
PO3	Sustainable support for Heavy User Communities	Number of sites with MPI (M.SA1.Integration.2)	106	120 (130) (140)
		Number of users from HUC VOs (M.SA1.VO.6)	7,467	12,000 (15,000) (17,000)

No	Objective Summary	Metrics	Value Q9	Target PY3
PO4	Addition of new User Communities	Peak number of cores from desktop grids (M.SA1.Integration.3)	0	1,000 (5,000) (7,500)
		Number of users from non-HUC VOs (M.SA1.vo.5)	7,467	10,000 (12,000) (13,000)
		Public events organised (attendee days) (M.NA2.6)	21 events, 50 days	15,000 (17,000) (19,000)
PO5	Transparent integration of other infrastructures	MoUs with resource providers (M.NA2.10)	3	4 (5) (5)
PO6	Integration of new technologies and resources	Number of HPC resources (M.SA1.Integration.1)	40	50 (50) (50)
		Number of resource centres part of the EGI Federated Cloud (M.SA2.19)	-	10 (15) (20)

Activity metrics

These are now available from the EGI Metrics Portal – metrics.egi.eu/QR9

7. DISSEMINATION AND USE

Main Project and Activity Meetings

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
27-28/6/ 2012	Amsterdam, NL	2nd EGI-InSPIRE review	80(?)	http://indico.egi.eu/indico/conferenceDisplay.py?confId=1046

Conferences/Workshops Organised

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

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
21-23/05/ 2012	Amsterdam	HealthGrid conference	50	http://amsterdam2012.healthgrid.org
10-11/5/2012	Karslruhe, DE	Security for Collaborating Infrastructures		D. Kelsey/STFC organised and chaired the meeting. Produced a good draft of the document describing the requirements and best practices. http://indico.cern.ch/conferenceDisplay.py?confId=183229
20-2/5/ 2012	Reykjavik, Iceland	TERENA Networking Conference 2012 & REFEDS workshop		D. Kelsey/STFC was the Chair of the Programme Committee and also presented on eScience requirements for Federated Identity Management at the REFEDS workshop. https://tnc2012.terena.org/ and https://refeds.org/meetings/may12/index.html
24-26/6/ 2012	Prague	Auger Software Tutorial	36	https://indico.nucleares.unam.mx/conferenceDisplay.py?confId=641
	Lille	France Grilles operations and cloud workshop	26	https://indico.in2p3.fr/conferenceDisplay.py?confId=6447
27/06/ 2012	Lyon	Security Workshop	21	https://indico.in2p3.fr/conferenceDisplay.py?confId=6928
May 07-09, 2012	Karlsruhe, Germany	The 25th EUGridPMA and IGTF All Hands meeting	Members of the European Grid Policy Management Authority and members of the International Grid Trust Federation	Report and discussion on SHA-1 Risk assessment; updating of the Attribute Authority Operations guidelines; and so on. https://indico.scc.kit.edu/indico/conferenceDisplay.py?ovw=True&confId=11

May 10-11, 2012	Karlsruhe, Germany	Security for Collaborating Infrastructures (SCI) meeting	security staff of EGI, OSG, PRACE, WLCG, and XSEDE	Discussion of the current draft text (V6) of the SCI document; creation of a complete first draft of the SCI document. http://indico.scc.kit.edu/indico/conferenceDisplay.py?confId=12
16th May	Madrid, Spain	LDAP, Security Policies	30	LIP-LISBON - http://www.e-ciencia.es/FichaEvento.jsp?externos=null&IDEvento=26
16th May	Madrid, Spain	Proyecto IMED: desarrollo y resultados. Explotación de e-Infraestructuras para la investigación en el diagnóstico de cáncer de mama	2	CETA-CIEMAT - Presentation: http://www.e-ciencia.es/indico//contributionDisplay.py?contribId=10&sessionId=4&confId=16 , http://www.e-ciencia.es/FichaEvento.jsp?IDEvento=26
6-7 June	Valencia, Spain	Master course on LDAP	7	LIP-LISBON - http://www.lip.pt/computing/index.php?L=n&O=5
18-26 June	México	Joint CHAIN/GISELA/EPIKH School for Application Porting to Science	1	CETA-CIEMAT - APPLICATION PORTING section, http://agenda.ct.infn.it/conferenceOtherViews.py?view=standard&confId=783
27-29 June	México	Developing a portlet for the GISELA Science Gateway to process hyperspectral images	1	CETA-CIEMAT - http://indico.ceta-ciemat.es//subContributionDisplay.py?subContId=9&contribId=17&sessionId=2&confId=26
27-29 June	México	Clarabox: A platform to manage easily Grid storage	1	CETA-CIEMAT - http://indico.ceta-ciemat.es//subContributionDisplay.py?subContId=3&contribId=13&sessionId=1&confId=26
27-29 June	México	The IMED project: first results - Exploiting e-infrastructures for research in breast cancer CAD methods	1	CETA-CIEMAT - http://indico.ceta-ciemat.es//subContributionDisplay.py?subContId=3&contribId=6&sessionId=0&confId=26

June, 1	VCONF	IPv6 testing activities	Barbara Krasovec (ARNES); Tomas Kouba (FZU); Mario Reale (GARR)	Plans for testing og gLite and ARC https://wiki.egi.eu/w/images/c/c4/EGI_IPv6_VCONF_-_1_-_June_-2012.pdf
June, 6	VCONF	HINTS-pS-MDM possible integration	Olivier Lenormand, Domenico Vicinanza, Gilian Gambini, Mario Reale, Roland Karch, Susanne Naegele-Jackson, Buelent Arslan, Christian Naensch, Hakan Calim	A first general discussion on possible integration between the deployment modules of HINTS and PerfSONAR MDM took place. Decision taken to organize further meeting to deepen technical details https://wiki.egi.eu/w/images/1/15/HINTS-PerfSONAR-VCONF-v1.0-1.pdf
17-18.05.2012	Technical University of Moldova	Annual RENAM Users' Conference	Representatives from research institutions of the Academy of Sciences, universities of Moldova, students	Several presentations dedicated to the National eInfrastructure developments and new services for R&E community were presented. Special emphasize was done in the report presented by Mr. Nicolai Iliuha to the current state and perspectives of the regional HPC infrastructure development and mode of access to HPC resources for Moldavian researches.
30.05.2012	Institute of Mathematics and Computer Science of the Academy of Sciences of Moldova	"Access to regional High Performance Computing (HPC) resources"	Research personnel and specialists from scientific subdivisions of the Academy of Sciences of Moldova and universities of Moldova	Institute of Mathematics and Computer Science of the Academy of Sciences of Moldova in cooperation with RENAM Association organize the first session of the cycle of technical-scientific workshops, training events and courses for research personnel and specialists from Moldova devoted to rising awareness and skills in HPC, Grid and Cloud computing infrastructures utilization. The program of the first session included two presentations. Dr. P. Bogatencov made the presentation "International and regional projects for computing technologies development". Mr. Nicolai Iliuha made the presentation entitled "Access to regional High Performance Computing (HPC) resources" http://www.math.md/en/news/2012/11073/
several days in may	Amsterdam	Turorials on Grid and Cloud	10	
28/05/2012	Institute of Physics Belgrade, Serbia	Grid Training for Power Users	19	The Scientific Computing Laboratory of the Institute of Physics Belgrade organized an EGI training event for the AEGIS user community held on 28 May 2012. The goal of this one-day training event was to introduce utilization of the Grid resources to AEGIS users through the series of hands-on sessions. It included practical guides for submitting simple jobs, data manipulation, interaction with file catalogs on Grid and submitting advanced jobs. Participants also had an opportunity to learn about the mechanism of authorization and authentication of Grid users, and gLite services architecture. More information are available at: http://www.scl.rs/news/787

Other Conferences/Workshops Attended

Date	Location	Title	Participants	Outcome (Short report & Document Server URL to presentations made)
22-23/5/2012	Amsterdam	N4U plenary meeting	30	Discussion on EGI infrastructure usage for the N4U community.
5-7/6/2012	Sardinia	SHIWA plenary meeting	20	Demonstration of the user of SHIWA workflow management platform interfaced to the EGI infrastructure.
7-9/5/2012	Karslruhe, DE	EUGridPMA Meeting		D. Kelsey/STFC attended this IGTF meeting to represent interests of EGI and WLCG as a Relying Party and gave presentations on several topics http://www.eugridpma.org/meetings/2012-05/
10/5/ 2012	Brussels, BE	Removing barriers to Cloud Computing in Europe	around 100	S. Andreozzi/EGI.eu attended the meeting and contributed to the discussion http://cordis.europa.eu/fp7/ict/ssai/docs/study45-workshop-agenda.pdf
11-12/6/ 2012	Copenhagen, DK	e-IRG Workshop	79	http://www.e-irg.eu/e-irg-events/workshop-11-12-june-copenhagen/participants.html
17/6/2012	Delft, NL	OGF35	70?	S. Andreozzi/EGI.eu attended the GLUE workshop S. Newhouse/EGI.eu attended the event D. Kelsey/STFC participated in all security related activitites http://www.ogf.org/OGF35/
21-22/6/ 2012	Nijmegen, NL	Federated IdM workshop		D. Kelsey/STFC attended the meeting. Good progress on requirements for federated IdM in eScience and also presented on HEP needs http://www.clarin.eu/events/3501
12/7/ 2012	Brussels, BE	AAA Study Workshop		D. Kelsey/STFC presented work of the Federated IdM for Research activity and sat on panel https://confluence.terena.org/display/aaastudy/AAA+Study+Workshop
27-28/6/2012	Tbilisi, Georgia	EC funded GEO-RECAP project networking and IDEALIST project twinning meetings	35	Results obtained in the framework of the projects and possibilities of future cooperation were discussed. Representatives from Georgia, Ukraine, Azerbaijan, France and Sweden attended the meetings. Agenda of the meetings can be found at: http://indico.ipb.ac.rs/conferenceDisplay.py?confId=290 R. Kvatadze made presentation: E-infrastructure in South Caucasus Countries for Science
21-25 May	New York, USA	Computing in High Energy Physics 2012	1	http://indico.cern.ch/conferenceDisplay.py?confId=149557 We participated with a poster "IPv6 testing and deployment at Prague Tier 2"
16-20.7.2012	Dubna	GRID 2012	2	http://grid2012.jinr.ru/programme.php, We participated with a talk "Prague TIER-2 operations"
23.4 - 27.4	Prague	HEPIX Spring 2012 Workshop	Ulf Tigerstedt	https://indico.cern.ch/conferenceDisplay.py?confId=160737
30.5 to 1.6	Uppsala	NorduGrid 2012	Ulf Tigerstedt	http://indico.hep.lu.se/conferenceDisplay.py?confId=1185

19-20/05	New York	WLCG workshop	1	http://indico.cern.ch/conferenceDisplay.py?confId=146547
21-25/05	New York	CHEP2012	1	http://indico.cern.ch/conferenceDisplay.py?confId=149557
18-jun-12	Tbilisi,Georgia	Workshop at EU Delegation	25	EU projects in which Georgian researchers are participating were discussed. R. Kvatadze made presentation "Participation of GRENA in European Commission projects".
June 27-28, 2012	Tbilisi,Georgia	EC funded GEO-RECAP project networking and IDEALIST project twinning meetings	35	Results obtained in the framework of the projects and possibilities of future cooperation were discussed. Representatives from Georgia, Ukraine, Azerbaijan, France and Sweden attended the meetings.Agenda of the meetings can be found at: http://indico.ipb.ac.rs/conferenceDisplay.py?confId=290 R. Kvatadze made presentation "E-infrastructure in South Caucasus Countries for Science".
May 19-20, 2012	New York	WLCG workshop	NGI_DE staff (DESY, KIT, etc.)	WLCG status, report
May 21-25, 2012	New York	CHEP 2012	NGI_DE staff (DESY, KIT, etc.)	Talks and posters
June 11-13, 2012	Copenhagen, Denmark	e-IRG workshop	LRZ staff	Talks and discussions on the development of e-infrastructures
June 18-21, 2012	Hamburg, Germany	ISC12	LRZ staff	participation in the talks of the conference
June 25-29, 2012	Garching near Munich, Germany	ISPDC2012	LRZ staff	participation in the talks of the conference
Madrid, Spain	6ª Reunión Plenaria de la Red Española de e-Ciencia	5		BIFI - http://www.e-ciencia.es/FichaEvento.jsp?externos=null&IDEvento=26 CETA-CIEMAT - http://www.e-ciencia.es/FichaEvento.jsp?IDEvento=26
New York, USA	Computing in High Energy Physics 2012	2		IFAE - Presentations made on HTC services at PIC (http://indico.cern.ch/contributionDisplay.py?contribId=277&sessionId=5&confId=149557) and extensions to the DIRAC Grid framework for running jobs on VMs (http://indico.cern.ch/contributionDisplay.py?contribId=164&sessionId=4&confId=149557)
7th June	Barcelona	DIRAC tutorial	1	BIFI - http://icc.ub.edu/gr_DIRAC.php
25-27 June	Liverpool, UK	14th IEEE International Conference on High Performance Computing and Communications (HPCC-2012)	2	CIEMAT-LCG2 - Evaluation of the Broadcast Operation in Kademlia
27-29 June	México	Joint CHAIN/GISELA/EPIKH School for Application Porting to Science	1	CETA-CIEMAT - http://indico.ceta-ciemat.es//conferenceDisplay.py?confId=26

3-4 July	Samos (Greece)	2nd e-Fiscal Workshop	2	IFAE - Attendance to the workshop of the e-fiscal EU project. Collaborating in the study of the cost of research e-infrastructures carried out by this project. http://www.efiscal.eu/2nd-workshop
2-6 July	Budapest, Hungary	SCI-BUS, SHIWA, EDGI joint Summer School on Workflows and Gateways for Grids and Clouds	1	IFAE - Attendance to workshop to learn and evaluate workflow engines potentially pluggable to the a generic Grid framework such as DIRAC. http://www.lpds.sztaki.hu/summerschool2012/?m=0
3-4 July	México	Joint CHAIN/GISELA/EPIKH School for Application Porting to Science	1	CETA-CIEMAT - http://indico.ceta-ciemat.es//conferenceDisplay.py?confId=26
12-13 July	NIKHEF, Science Park, Amsterdam Netherlands	EGI Federated Cloud Task Force user Plugfest	1	CESGA - EGI organised a two day workshop that brought together the members of the Federated Cloud Task Force together with representatives from user communities who are interested in adopting EGI's Cloud Infrastructure platform. https://indico.egi.eu/indico/conferenceDisplay.py?confId=1102
7-9 May 2012	KIT, Karlsruhe, DE	EU Grid PMA	32	https://agenda.nikhef.nl/conferenceTimeTable.py?confId=1890 1 NGI_IE ops member attended
July, 4-6	Palermo (Italy)	The Sixth International Conference on Complex, Intelligent, and Software Intensive Systems (CISIS-2012)	Vania Boccia	Talk about "Modelling the Behaviour of an Adaptive Scheduling Controller", http://voyager.ce.fit.ac.jp/conf/cisis/2012/
14-jun-15	CERN	HEPiX IPv6	Mario Reale	Decision to integrate IPv6 testbeds servers and resources of HEPiX, EGI and EMI and to support 3 VOs.
14-mei-17	Naples (Italy)	Workshop INFN GARR 2012	Giacinto Donvito, Marco Bencivenni, Luciano Gaido	Talks about: Report TEG WLCG data mgmt, Web Interfaces for distribute compute and storage resources, Cloud experiences in Italian communities - agenda (in italian): http://agenda.infn.it/conferenceOtherViews.py?view=standard&confId=4801
9-mei-11	Gothenburg (Sweden)	BioVeL MS6 workshop	Giacinto Donvito	Presenting Web Service solution for exploiting IGI/EGI resource using Taverna, http://www.biovel.eu/index.php?option=com_content&view=article&id=43:ms6-workshop&catid=22:biovel-meetings&Itemid=122
May 7-9 2012	Karlsruhe	EUGridPMA meeting	1	Latvian NGI representative and CA admin participated (through videoconference) in policy discussions, workshops and audits of other CAs http://www.eugridpma.org/meetings/2012-05/

10-11.05.2012	Amsterdam, Netherlands	36th TF-CSIRT meeting	1	http://www.terena.org/activities/tf-csirt/meeting36/
13-14.05.2012	Amsterdam, Netherlands	Project Managment Board of EGI-InSpire project	1	
04-06.06.2012	Omaha, Nebraska	ICCS 2012, International Conference on Computational Science	1	http://www.iccs-meeting.org/
18-20.06.2012	Hamburg, Germany	International Supercomputing Conference 2012	1	http://www.isc-events.com/isc12/
02-06.07.2012	Madrid, Spain	Workshop on Fusion Distributed Applications (WFDA 2012), Intl. Conf. High Performance Computing and Simulation (HPCS 2012)	1	http://hpcs2012.cisedu.info/2-conference/workshops/workshop-21-wfda
13/07/2012	Petnica Science Center, Serbia	Trans European School of High Energy Physics	40	SCL members participated in „The Trans-European School of High Energy Physics“, a summer school which lasted from July 13th to July 20th 2012 in Petnica Science Center, Serbia. Dr Aleksandar Belic, the director of the Institute of Physics Belgrade, gave an invited talk to all lecturers and participiants of the school. Dr Antun Balaz was one of the organizers and lecturers. The seminar "Grid and High Performance Computing in Physics" focused on the use of Grid computing as a crucial tool in modern High Energy Physics. Milica Cvetkovic was a participant of the school.
18/05/2012	Belgrade, Serbia	Fifth Belgrade International Open Access Conference 2012	75	SCL's Antun Balaz, Dusan Vudragovic and Vladimir Slavnic participated in the Fifth Belgrade International Open Access Conference 2012, which was held on 18-19 May 2012. During the agINFRA workshop, Antun Balaz gave an overview of High Performance Computing and Grid eInfrastructure available for agriculture. More information are available at: http://www.scl.rs/news/786
May 30 - June 1	Uppsala, SE	NorduGrid 2012 conference	Sigve Haug, Gianfranco Sciacca (UNIBE-LHEP), Tyanko Aleksiev, Sergio Maffioletti (UZH)	Defined way forward for establishing operational solutions still missing from ARC middleware for: APEL accounting (affects CSCS, Unibe, Unige), information system, full integration with ATLAS operations.

June 25 - June 29	Cetraro, IT	Int. Adv. Res. Workshop on High Performance Computing, Grid and Clouds	Sergio Maffioletti	The main focus was on how to prepare providers and community support for next generation large scale data analysis, with an emphasis on cloud computing.
7-9/05/12	Karlsruhe	EUGrid PMA Meeting	1	http://www.eugridpma.org
5-8-2012	Hamburg DESY	EMI AHM	2	-
19/05/12	New York	WLCG Workshop	2	-
21/05/12	New York	CHEP Conference	3	-
20/5/12	Reykjavic	TERENA Neetworking Conference 2012 & REFEDS workshop	1	-
13/06/12	CERN	WLCG GDB	1	-
17/06/12	Delft	OGF35 UR WG	1	-
10-12-2011	CERN	WLCG GDB	2	-
12-13/7/12	Amsterdam	Federated Cloud Task Force plugfest	2	http://www.egi.eu
30/5/12	Brussels	H2020 Workshop on human Resources for e-Infrastructure	1	http://cordis.europa.eu/fp7/ict/e-infrastructure/human-skills-workshop_en.html
6-1-2012	Birmingham	EPSRC Workshop on Software for the Future	1	-
5-7-12	Madrid	Workshop on Fusion Distributed Applications (WFDA 2012), Intl. Conf. High Performance Computing and Simulation (HPCS 2012)		Workflows Orchestration In Distributed Computing Infrastructures" Marcin Płociennik , Tomasz Zok , Antonio Gomez-Iglesias, Francisco Castejon, Andres Bustos, Manuel Aurelio Rodrıguez-Pascual, and Jose Luis Velasco

5-6-12	Omaha, Nebraska	ICCS 2012, International Conference on Computational Science		Application Scenarios Using Serpens Suite for Kepler Marcin Płóciennik, Michał Owsiak, Tomasz Zok, Bartek Palak, Antonio Gómez- Iglesias, Francisco Castejón, Marcos Lopez-Caniego, Isabel Campos Plasencia, Alessandro Costantini, Dimitriy Yadykin, Pär Strand

Publications

Publication title	**Journal / Proceedings title**	**DOI code**	**Journal references** *Volume number* *Issue* *Pages from - to*	**Authors** *Initials*	**Authors** *Surname*
Scalable and Resilient Workflow Executions on Production Distributed Computing Infrastructures	International Symposium on Parallel and Distributed Computing (ISPDC 2012)		Munich, Germany, 25-29 June 2012	J. T. J.	Rojas Balderrama Truong Huu Montagnat
Enabling Large-Scale Linear Systems of Equations on Hybrid HPC Infrastructures,	Proceedings of ICT'2011 Innovations, September 4-16, Skopje, Macedonia		Springer Advances in Intelligent and Soft Computing, 2012, Volume 150/2012, 239-245, DOI: 10.1007/978-3-642-28664-3_22		Hrachya Astsatryan, Vladimir Sahakyan, Yuri Shoukourian, Michel Dayde and Aurelie Hurault
NAMD Package Benchmarking on the Base of Armenian Grid Infrastructure,	Journal of Communications and Network, Scientific Research		Publishing, Vol. 4 No. 1, 2012, pp. 34-40, doi:10.4236/cn.2012.41005		A. Poghosyan, L. Arsenyan, H. Astsatryan, M. Gyurjyan, H. Keropyan and A. Shahinyan
C programs for solving the time-dependent Gross–Pitaevskii equation in a fully anisotropic trap	Comput. Phys. Commun.	10.1016/j.cpc.2012.03.022	**183** (2012) 2021		1. D. Vudragovic 2. I. Vidanovic 3. A. Balaz Et al.

Parametric and Geometric Resonances of Collective Oscillation Modes in Bose-Einstein Condensates	Phys. Scr.	10.1088/0031-8949/2012/T149/014003	**T149** (2012) 014003		1. I. Vidanovic 2. H. Al-Jibbouri 3. A. Balaz Et al.
Spin Relaxation in CdTe Quantum Dots with a Single Mn Atom	Phys. Rev. B	10.1103/PhysRevB.85.195311	**85** (2012) 195311		1.M. D. Petrovic 2.N. Vukmirovic:
Lattice Dynamics of FeSb2	J. Phys. Cond. Matt	10.1088/0953-8984/24/25/255402	**24** (2012) 255402		1.N. Lazarevic 2.M.M. Radonjic 3.D. Tanaskovic Et al.
View on the Magnetic Properties of Nanoparticles Com (m=6,8,10,12,14) and Co6On (n=1-9)	Smart nanoparticles technology	ISBN 978-953-51-0500-8	InTech, Published: April 18, 2012 under CC BY 3.0 license, in subject Nanotechnology and Nanomaterials	J. R. G. M.L.	Tamuliene Vaisnoras Badenes Balevicius
Electron-impact and thermal fragmentation of amino acid molecules: Mechanisms and structure of the molecules	Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms,		Volume 279, 15 May 2012, Pages 128-134,	J L.G. V.S. A.V.	Tamuliene Romanova Vukstich, Snegursky
Mechanisms of the electron-impact-induced glycine molecule fragmentation	*Chemical Physics*	http://dx.doi.org/10.1016/j.chemphys.2012.01.019	*In Press, Available online 8 February 2012*	J L.G. V.S. A.V.	Tamuliene Romanova Vukstich, Snegursky
Mechanisms of the electron-impact-induced methionine molecule fragmentation	*Chemical Physics*,	http://dx.doi.org/10.1016/j.chemphys.2012.02.013	*In Press, Available online 14 March 2012*	J L.G. V.S. A.V.	Tamuliene Romanova Vukstich, Snegursky

SCIENCE AND EDUCATION NETWORK AS INFRASTRUCTURE FOR GRID - APPLICATIONS	Proceedings of the 4th International Conference "Telecommunications, Electronics and Informatics" Volume II, Chisinau, UTM, 2012, ISBN 978-9975-45-082-9; pp. 163-169				Petru Bogatencov, Grigore Secrieru, Nicolai Iliuha
Paper: The IMED project: first results - Exploiting e-infrastructures for research in breast cancer CAD methods	Proceedings of the Joint GISELA-CHAIN Conference. COMETA 2012				Guillermo Diaz, Jose Miguel Franco, Cesar Suarez et al
Paper: Clarabox: A platform to manage easily Grid storage	Proceedings of the Joint GISELA-CHAIN Conference. COMETA 2012				Cesar Suarez, Jose Miguel Franco, Guillermo Diaz
Paper: Developing a portlet for the GISELA Science Gateway to process hyperspectral images	Proceedings of the Joint GISELA-CHAIN Conference. COMETA 2012				Sara García, Jose Miguel Franco, Cesar Suarez Et al.
HADAB: Enabling Fault Tolerance in Parallel Applications Running in Distributed Environments	Parallel Processing and Applied Mathematics 9th International Conference, PPAM 2011				V.Boccia, L.Carracciuolo, G. Laccetti, M.Lapegna, and V. Mele

Application Scenarios Using Serpens Suite for Kepler Scientific Workflow System	Procedia Computer Science	Volume 9, 2012, Pages 1604-1613			Marcin Płóciennik at all.
C programs for solving the time-dependent Gross–Pitaevskii equation in a fully anisotropic trap	Comput. Phys. Commun.	183 (2012) 2021; DOI: 10.1016/j.cpc.2012.03.022			1. D. Vudragovic 2. I. Vidanovic 3. A. Balaz Et al.
Parametric and Geometric Resonances of Collective Oscillation Modes in Bose-Einstein Condensates	Phys. Scr.	T149 (2012) 014003; DOI: 10.1088/0031-8949/2012/T149/014003			1. I. Vidanovic 2. H. Al-Jibbouri 3. A. Balaz Et al.
Spin Relaxation in CdTe Quantum Dots with a Single Mn Atom	Phys. Rev. B	85 (2012) 195311; DOI: 10.1103/PhysRevB.85.195311			1. M. D. Petrovic 2. N. Vukmirovic
Lattice Dynamics of FeSb2	J. Phys. Cond. Matt	24 (2012) 255402; DOI: 10.1088/0953-8984/24/25/255402			1. N. Lazarevic 2. M. M. Radonjic 3. D. Tanaskovic Et al.
AppPot: bridging the Grid and Cloud worlds	Proc. EGI Community Forum 2012				R. Murri, S. Maffioletti, T. Aleksiev
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