EGI-InSPIRE

QUARTERLY REPORT 10

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Abstract

This report details the activities of the EGI-InSPIRE project during the 10th project quarter from 1st August 2012 to 30th October 2012.



I. COPYRIGHT NOTICE

II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Steven Newhouse	EGI.eu/NA1	20/11/12
Reviewed by	**Moderator:** **Reviewers:**	AMB	28/11/12
Approved by	**AMB & PMB**		07/12/12

III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	19/11/12	First draft	Joan Maycock/EGI.eu
2	1/12/12	Second draft	Steven Newhouse
3			

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

The main focus of EGI's community engagement in PQ10 was the EGI Technical Forum in Prague 17-21st September 2012 which attracted over 400 people from around the world to an event with over 300 contributions from over 200 speakers. The event brought together work across EGI relating to community & coordination, the operational infrastructure and the establishment of virtual research environments. The EGI Champions scheme was launched in Prague with a call for applications. EGI Champions will be experts from within the research community that will help EGI with reaching out to new user communities and improving support within the production infrastructure for their needs.

The EGI Council meeting discussed a report on a proposed Digital Research Infrastructure ERIC that could bring together different e-Infrastructures and the services needed by individual research infrastructures under coordinated governance. From these and other discussions policy proposals related to demonstrating excellent science on EGI resources by giving user communities access to a pool of resources following peer review, and an exercise to explore mechanisms that would allow users to pay for access to EGI resources were developed. Alongside these activities the first EGI Compendium was released providing an overview of EGI activities across Europe in 2011.

Following issues over the summer with security alerts around unsupported software, a decommissioning campaign of the unsupported gLite 3.1 and 3.2 software deployed across EGI started following the definition of a software retirement policy. A survey on NGI operations sustainability and performance of the EGI global operations services was conducted in September and the evolution of several operations tasks was discussed in a sustainability workshop at EGITF 2012. The impact on the EGI operations assets introduced by the end of EMI and IGE in April 2013 affecting software provisioning, support and technical coordination were assessed and EGI.eu operations have been collaborating with the TCB for the definition of a mitigation plan. Resource Centres are being encouraged to publish user Distinguished Names (DNs): this is needed in order to improve the accuracy of NGI usage reports, which rely on user DN information for summarization of accounting information per Certification Authority (CA). Updates to the operational infrastructure provided improved support for Globus, ARC, UNICORE and Desktop Grids and included support QCG/MAPPER.

EGI consolidated its collaboration with EUDAT and PRACE with a workshop at EGITF 2012 to foster the operations integration and attendance at the EUDAT Conference in Barcelona. With the end of the GISELA project the federated operations centre denominated IGALC (Iniciativa de Grid de America Latina – Caribe) started its decommissioning in August 2012. Production Resource Centres are being migrated to the second operations centre functioning in the region (the Latin America federated operations centre).

UMD releases continued with support for multiple OS platforms with the provisioning process having become a truly independent service. A total of seven UMD releases were published with three updates to UMD-1 and four to UMD-2. The updates to UMD-2 continued to add in components coming from the first EMI-2 release, interweaving with EMI-2 updates as these were published. EGI's activities federating private institutional clouds have already started to prepare for the upcoming demo at the EGICF 2013 by integrating Accounting, Monitoring, and Information Discovery Capabilities related to a federated cloud into EGI's operation infrastructure.

The Virtual Team activity has continued with several entering the final phases of their activity by consolidating their achievements into their final reports. These include SPEECH on the Grid, Science Gateways in EGI, GPGPU on EGI and Inter NGI Usage. The Scientific Repository VT completed and its outputs were used within the policy documents presented to the EGI Council. The EGI Champions VT's outputs were used and presented at the EGITF 2012. The Environment and Biodiversity VT, and ELIXR VTs have both been in their startup phase during PQ10.

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1. OPERATIONS

1.1. Summary

The main operations theme which dominated PQ10 activities was the start of the decommissioning campaign of the unsupported gLite 3.1 and 3.2 software deployed across EGI following the definition of a software retirement policy. This activity involved EGI.eu operations, the Central Grid Oversight team and EGI CSIRT. The Central Grid Oversight team contributed to the enforcement of the new retirement policy across the whole infrastructure. The security monitoring team and the developers of the Operations Portal extended the Security Nagios system with a set of new probes for the monitoring of sites that deploy obsolete grid middleware and extended the Security Dashboard to enable affected sites to be contacted through the EGI Helpdesk. Hundreds of tickets were opened on affected sites. The upgrade campaign will continue in PQ11 and will be extended to the remaining gLite 3.2 software components reaching their end of support in PQ11 and then for EMI 1 which will reach its end of life in April 2013.

The EGI Public Key Infrastructure (PKI) for the authentication of the users and the service hosts is based on the IGTF PKI implementation. IGTF is discussing a migration from the SHA-1 hash algorithm because of its increasing weakness to SHA-2 and Certificate Authorities have been advised not to issue general availability SHA-2 certificates before August 2013. A migration to SHA-2 has an impact on the whole infrastructure and on the application frameworks. EGI.eu operations released a note describing the impact of these planned changes to EGI and will be defining an action plan to prepare for the transition to SHA-2[1].

A survey on NGI operations sustainability and performance of the EGI global operations services was conducted in September and the evolution of several operations tasks was discussed in a sustainability workshop at EGITF 2012[2]. Results of this work will be documented in D4.7 “Operations sustainability[3]”.

The impact on the EGI operations assets introduced by the end of EMI and IGE in April 2013 affecting software provisioning, support and technical coordination were assessed and EGI.eu operations have been collaborating with the TCB for the definition of a mitigation plan.

Early Adopter Resource Centres contributed to software verification in preparation of four UMD 2 updates (2.1.0, 2.1.1, 2.2.0 and 2.2.1) and two UMD 1 updates (1.8.1 and 1.9.0). Update 2.2.1 is an emergency release needed to solve dependency problems between EMI and IGE.

[1] https://documents.egi.eu/document/1291

[2] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=45&confId=1019#20120920

[3] https://documents.egi.eu/document/1471

Effort is being reallocated to the verification of EMI 2, as EMI 1 reaches the end of its standard support at the end of PQ10. In PQ10, 63 early adopting sites have contribute to software Staged Rollout. 40 tests were run for the verification of 29 products, of which one was rejected.
The central accounting repository was run with no internal problems. A fix for the EGI broker network identified in PQ9 was implemented and made available to the clients. NDGF/SGAS, NGI_CH/SGAS (UNIBE-LHEP, UNIBE-ID & UNIGE-DPNC sites) and NGI_IT/DGAS moved their production accounting to the new SSM infrastructure.

The test repository continues to run all the time to receive tests from other sites. All of the other existing and new accounting services have done some testing using SSM, including IGE/Grid-Safe, CC-IN2P3, and ARC-JURA. Testing of EDGI and MAPPER is still ongoing. Resource Centres are being encouraged to publish user Distinguished Names (DNs): this is needed in order to improve the accuracy of NGI usage reports, which rely on user DN information for summarization of accounting information per Certification Authority (CA).

A number of new versions of the central operations tools were deployed in production. GOCDB was upgraded to version 4.4 on 10-09-2012. A GOCDB read-only failover instance is now deployed by the Institut für Techno- und Wirtschaftsmathematik in Germany. The Operations Portal v. 2.9.6 was deployed on 03-09-2012. The major new feature is the implementation of a probe for monitoring under-performing sites. This allows the complete automation of the support process by relying on existing tools and procedures that are established and enforced for all operational issues.

SAM Update 17 rolls to production a number of important new features, among which the most important is Profile Management (POEM)[4] system which provides an interfaces and functionality necessary to group different metrics into profiles and based on those profiles configures Nagios and all other SAM components. The staged rollout of SAM Update-17 was successfully completed at the end of August. By the end of QR10 30 instances were upgraded to SAM Update-17. The SAM update improved ARC and UNICORE probes, and introduced Desktop Grids probes. SAM version Update-19 further extends the UNICORE probes and provides QCG/MAPPER probes (Update 19 will start staged rollout at the beginning of PQ11).

The latest version GGUS update was deployed on 24-10-2012. A new GGUS SOAP interface was introduced reducing the number of available fields in operations and a bug was fixed in the e-mail template of verification notifications. The implementation of the interface to the NGI_FR ticketing system was completed.

[4] https://tomtools.cern.ch/confluence/display/SAMDOC/POEM+User%27s+guide

Globus and UNICORE tests were integrated into the Operations Portal on 31-10-2012; by doing so failures of Globus and UNICORE services are displayed by the Operations Dashboard and support can be proactively provided by the NGIs.
During PQ10 EGI consolidated its collaboration with EUDAT[5] and PRACE[6]. A workshop to foster the operations integration between the three infrastructures was organized during the EGITF 2012, and a followup event focused on user community use cases will take place in November in Amsterdam. The status of operations integration activities are documented in MS421 "Integrating Resources into the EGI Production Infrastructure"[7] and in D4.6 "EGI Operations Architecture: Infrastructure Platform and Collaboration Platform Integration"[8].

The procedure for the support of underperforming Resource Centres was updated after the process was automated through the support of the Operations Portal[9]. COD stopped the manual procedure for issuing GGUS tickets to sites as of November 01 2012, but still holds of responsibility of suspending Resource Centres in case of continued performance issues.

With the end of the GISELA project the federated operations centre denominated IGALC (Iniciativa de Grid de America Latina – Caribe) started its decommissioning in August 2012. Production Resource Centres are being migrated to the second operations centre functioning in the region (the Latin America federated operations centre).

Because of financial issues, the Irish NGI announced the end of operations on 31-12-2012. Migration of international VOs supported by NGI_IE to other NGIs is being organized: membership management of vo.helio-vo.eu will be handed over to NGI_UK/GridPP, while HESS support will be migrated to NGI_FR. National VOs will not be sustained; users will migrate to other forms of computing (e.g. direct cluster access to some resources). The decommissioning of the smaller Irish Resource Centres started, and the last Resource Centre TCD will be decommissioned in December.

Ticket triage, first level support and second level support duties (formerly part of SA1) and the related effort were merged and reallocated across partners in order to streamline processes, make the whole software support task more efficient and provide support in new areas. The new process has been successfully running for one month. In the reporting period, 157 tickets were assigned to software support, out of which 48 (30%) were solved by the unit.

[5] http://eudat.eu/
[6] http://www.prace-ri.eu/
[7] https://documents.egi.eu/document/1308
[8] https://documents.egi.eu/document/1309
[9] https://wiki.egi.eu/wiki/Availability_and_reliability_monthly_statistics#Process_of_handling_RC_Availability_and_Reliability

1.2. Main achievements

1.2.1. Security

One of the main activities during PQ10 was the start of the decommissioning campaign for unsupported gLite 3.1 and 3.2 software components. This followed an advisory released by SVG on 1st August 2012 for the retirement of gLite 3.1 and gLite 3.2 components out of security support. The decommissioning involved EGI.eu operations, EGI CSIRT, the Security Policy Group (for the definition of a software retirement policy) and the Central Grid Oversight time for the enforcement of retirement policies across the whole infrastructure. The security monitoring team and the developers of the Operations Portal contributed to this activity by extending the Security Nagios system with a set of new probes for the monitoring of sites that deploy obsolete grid middleware, and for extending the Security Dashboard, which was used to contact affected sites through the EGI Helpdesk.

COD was responsible for issuing tickets to Resource Centres and of monitoring progress. The handling of sites that are not updated will be handed over to EGI CSIRT at the beginning of PQ11. A new policy for the retirement of unsupported software from the production infrastructure was approved by the OMB and the PMB in August[10]. This policy will be incorporated into the main body of EGI security procedures. At the start of PQ10, significant coordination efforts went into the monitoring and handling of two WMS vulnerabilities assessed by SVG and the EGI CSIRT: EGI-SVG-2012-4073 (EMI-1 WMS proxy theft vulnerability – Critical priority)[11] and EGI-SVG-2012-4039 (WMS proxy theft impersonation vulnerability – High priority)[12]. PQ10 has also seen the handling of one security incident, EGI-20120731, which affected saao.ac.za. This site is not yet a full EGI member, but EGI worked with them to resolve the incident.

The Security Service Challenge 6 (SSC6) [13] was fully prepared and executed on about 40 sites in early September 2012. A full analysis of the results is underway and will be completed in PQ12. As a part of the training and dissemination activities of the EGI CSIRT group, a security hands-on was organised for the EGITF 2012[14] relating to forensic analysis which used a training test bed initially developed for the latest GridKa School. The participants took the role of security teams being responsible for the operational security of simulated grid sites running in a virtualised environment. They faced attacks very similar to those seen in real life. The teams' task was to respond to these attacks and keep their services up and running as much as possible. Two kinds of attack scenarios were considered: one involving vulnerability of the OS as seen in recent real incidents and one exploiting the Grid technology. The EGI CSIRT plan is to keep on developing this training test bed,

[10] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1096

[11] https://wiki.egi.eu/wiki/SVG:Advisory-SVG-2012-4073

[12] https://wiki.egi.eu/wiki/SVG:Advisory-SVG-2012-4039

[13] https://wiki.egi.eu/wiki/SSC6

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

also improving the related documentation, and using it also for the next security trainings events inside the EGI community.

The procedure for the EGI CSIRT accreditation with TRUSTED Introducer was successfully completed

1.2.2. Service Deployment and Integration

Early Adopter Resource Centres contributed to software verification in preparation of four UMD 2 updates (2.1.0, 2.1.1, 2.2.0 and 2.2.1) and two UMD 1 updates (1.8.1 and 1.9.0). Through the UMD release 2.0.0 and the subsequent updates, most of EMI 2 components as well as several IGE components were distributed.

To date 63 early adopters contribute to Staged Rollout of software. 40 tests were run during PQ10 for the verification of 29 products, of which one was rejected. Available effort is being moved away from EMI 1 (it reached end of standard support at the end of PQ10) and redistributed for the verification of EMI 2 products. Early Adopter teams are now available to verify most of EMI 2 and IGE components. The gathering of early adoption activity quality metrics is now automated[15]. The early adoption of new products for the release of UMD 2.3.0 is progress.

Integration

The SAM Update-17 improved ARC and UNICORE probes, and introduced Desktop Grids probes. SAM version Update-19 further extends the UNICORE probes and provides QCG/MAPPER probes (Update 19 will start staged rollout at the beginning of PQ11). Globus and UNICORE tests were integrated into the Operations Portal during PQ10: by doing so failures of Globus and UNICORE services are displayed by the Operations Dashboard and support can be proactively provided by the NGIs.

A GGUS support unit for QCG middleware (QosCosGrid) was created released on the 18th of October, and PSNC will be the partner technically responsible of delivering support. Technical support of Desktop Grids software will be provided by the new project IDGF-SP[16], and in PQ11 a Desktop Grids support unit will be established in GGUS.

The Accounting solution for Globus resources GridSAFE[17] was released as part of IGE 3.0[18] and is now being tested by NGI_DE. A workshop about the operations integration between EGI, EUDAT

[15] http://www.lip.pt/computing/apps/EGI_EA/index.php
[16] http://idgf-sp.eu
[17] http://gridsafe.sourceforge.net/Documentation/GridSafeDocumentation/index.html
[18] http://www.ige-project.eu/news-events/news/igev30released

and PRACE was organized during the EGITF 2012[19]. The workshop was successful and a follow-up event will take place in PQ11 to define pilot projects in collaboration with user communities interested in cross-infrastructure usage of resources[20]. An article for the Inspire newsletter will be contributed on how MAPPER communities were supported through an integration action of EGI and PRACE operations and support services

1.2.3. EGI Helpdesk & Support Activities

Various new EGI Helpdesk support units were introduced during PQ10: QosCosGrid and EGI Federated Cloud (both for 2nd level support), while others were decommissioned: ARC Deploy, NGI_AT and OTAG. Three new VO support units were added to the list of VOs which provide support via the EGI Helpdesk: t2k.org, comet.j-parc.jp, neurogrid.incf.org. The first meeting of the GGUS Advisory Board took place in October 2012 to facilitate requirements gathering and prioritization across the various user communities of the EGI helpdesks (end-users, technology providers and supporters).

- **GGUS web portal**. The workflow for the handling of GGUS tickets of decommissioned VOs was defined. The GGUS documentation was updated. Status "closed" was included in the ticket timeline tool and a password reminder was implemented.
- **GGUS backend**. A new SOAP interface was introduced reducing the number of available fields in operations and a bug was fixed in the e-mail template of verification notifications.
- **Interfaces to other ticketing systems**. A new interface for the new NGI_FRANCE ticketing system (OTRS) was rolled into production and the implementation of an interface for the IberGrid RT ticketing system started. As to the GGUS – Service NOW interface, a distinction between incidents and change requests was implemented and bugs were fixed.

Grid Oversight The central Grid Oversight team contributed to the support of Resource Centres deploying unsupported grid software (gLite 3.1 and 3.2). As a result hundreds of tickets where opened through the Security Dashboard and the progress of tickets has been periodically reviewed in collaboration with EGI CSIRT.

A ROD Team's newsletter was published in October[21] 2012. ROD support activities are being monitored on a monthly basis through the gathering of the ROD performance index; the overall number of tickets that are reaching the final escalation steps is progressively reducing.

The procedure for the support of underperforming Resource Centres was updated after the process was automated through the support of the Operations Portal[22]. From 1st November 2012, COD stopped the manual procedure for issuing tickets to Resource Centres, but is still responsible for suspending

[19] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=10&confId=1019#20120918

[20] https://indico.egi.eu/indico/conferenceTimeTable.py?confId=1228#20121126

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

[22] https://wiki.egi.eu/wiki/Availability_and_reliability_monthly_statistics#Process_of_handling_RC_Availability_and_Reliability

Resource Centres in case of continued performance issues. COD is currently contributing to the revision of the internal business logic of GOCDB and to the Resource Centre registration and certification procedure to introduce more automation into the process. A training session of ROD teams from emerging NGIs was organized during the EGITF 2012[23]. COD duties are being revised in preparation to PY4 of EGI-InSPIRE.

Network Support Preliminary tests of CREAM CE and DPM in four IPv6 different network configurations started, and workload management services are being added to the testbed. ARC CE tests were completed and wiki documentation was improved[24]. The HINTS tool was further consolidated and a deployment campaign of perfSONAR[25] started in collaboration with WLCG. EGI.eu is engaging with DANTE through a MoU to ensure continued support of this tool beyond the end of EGI-InSPIRE.

Software Support Ticket triage, first level support and second level support duties (formerly part of SA2) and the related effort were merged and reallocated across partners in order to streamline processes, make the whole software support task more efficient and provide support in new areas.

- Handling of incoming tickets is now under the full responsibility of a single partner - INFN (instead of being distributed across a pool two partners).
- KIT is now responsible of ticket follow-up to ensure that information keeps flowing between incident submitters and supporters for a correct handling of an incident.
- Frequency of the "hands on tickets" meetings, where non-trivial issues are discussed collectively, was increased to twice a week.

Despite minor clarification issues, the new process has been successfully running for one month. In the reporting period, 157 tickets were assigned to software support, out of those 48 (30%) were solved by the unit. This is a higher ratio with reference to previous numbers, however due to high oscillations the statistical significance still needs to be determined. Ticket solution time were 28/11 days (average/median), the reasons (external) for such high numbers were discussed in the QR9. Due to the vacation season, the average is even worse while the median remains the same.

User support

- **Cyprus.** 2-day training event for users from the Department of Mathematics and Statistics of the University of Cyprus, who are now successfully running their R application on Grid. Preparation work for the dissemination activity on the University of Cyprus Researchers Event taking place on 16-17 November 2012.

[23] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=56&confId=1019#20120921

[24] https://wiki.egi.eu/wiki/IPv6TestReports

[25] http://www.geant.net/Services/NetworkPerformanceServices/Pages/perfSONARMDM.aspx

- **Czech Republic.** User support activities for new and current communities focused on the continuous bulk production and user support in VO auger, atlas, alice, voce, and metacentrum. Over 50 new users from various academic institutions (Academy of Sciences of the Czech Republic and Universities) were integrated. NGI_CZ contributed to the organization of EGITF 2012. The Communication with people from ELIXIR_CZ node resulted to the creation of a Virtual Team on ELIXIR.

    - VO voce: improvement of the available documentation for local users.
    - VO metacentrum: improvement of documentation, installation of new local application software not reported in the EGI AppDB.
    - VO auger: first discussions about possible use of DIRAC as a file catalogue and also production system. Tests of file transfers to a new Storage Elements associated with the Prague site but located in Pilsen (aka distributed Tier2). Demonstration of jobs submission to the test cloud site during the EGITF 2012 demo.

    The plans for PQ11 are:

    - VO auger: continue in evaluation of parameter changes on the production efficiency, test the DIRAC file catalogue as a possible substitution for the LFC, clean the LFC from obsolete entries (if tools available and well tested), test FTS transfers from and to more sites.
    - VOs atlas and alice: continue with large scale production and analysis on praguelcg2 site, gradually decrease space allocated in the GROUPDISK and reallocate it to DATADISK, participate (at least remotely) in the Tier1, 2 & 3 jamboree, follow recommendations of the DPM Community workshop, support local users
    - VO belle: general support on the site, preparation of accounting reports for local Belle representatives
    - Dissemination activities: presentation at the PRACE workshop in IT4I Ostrava (6.11.), Czech Republic; preparation of two workshops in various Czech academic institutions.
- **Finland.** Sites in the Finnish NGI were visited to promoting grid use using the EGI Annual Report as dissemination material. Documentation and event press material is accessible from the web[26]. In October a seminar on High Performance Computational Nuclear/Particle Physics was organised. The event brought together both experimentalists and theorists in Finland, who work in the areas of nuclear and particle physics[27]. The Finnish NGI was presented and EGI dissemination material was made available (30 participants).

[26] https://confluence.csc.fi/display/fgi/FGI+User+Pages

[27] http://www.csc.fi/csc/kurssit/arkisto/hpc_nucl_part_phys_sem_2012

- **France.** A new application from Guadeloupe that simulates marine natural risks in the Antilles has been ported to the grid. The French community attended EGITF 2012 and the LCG-France meeting which took place in Nantes in September. Participation is planned for the workshop[28] organized around the official launch of the Virtual Imaging Platform project. The workshop will take place on the 14th of December in Lyon[29].
- **Georgia.** Regular meetings were held with NGI_GE users to clarify and identify issues in the users support and inform them about new procedures. GRENA together with Tbilisi State University prepared and submitted 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 in fully exploring and establishing new possibilities in their scientific work by providing easy and transparent access to the modern Grid infrastructure and services. If the project is approved 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 installation of software packages OPEMFOAM[30], ROOT[31], GEANT4[32] and RegCM[33] at the HellasGrid sites. Various problems concerning the WS-PGPADE portal were solved. The update of the SOAP interface between the GGUS and HellasGrid Request Tracker. Plans for PQ11 include the provision of credentials for access to HellasGrid WS-PGRADE portal[34] through the HellasGrid access site. These credentials will be also used for access to the HellasGrid User Interfaces. The HellasGrid site was updated with various software packages.
- **IberGrid.** Parallel computing models in the Portuguese HPC NGI were supported. These are applications of self-developed parallel computational models to solve combinatorial problems. General application integration and porting support was provided. A presentation at EGITF 2012 regarding user strategies in place for IberGrid was given and organisation of the 6th IBERGRID Conference to be held in Lisbon, Portugal (7th-9th November 2012) continued. Plans for PQ11 include the preparation of a cloud-based platform for the support of users of phenomenology using contextualisation
- **Ireland.** As NGI_IE will be decommissioned in PQ10, user support plans focus on migrating users to alternatives. Astronomy users from IT Tallaght will be migrated to local cluster access at TCD. Heliophysics users from HELIO project (including TCD and partners from UK and other countries) will be supported to access grid resources through NGI_UK. Grid-Ireland CA

[28] http://www.creatis.insa-lyon.fr/vip
[29] http://vip.creatis.insa-lyon.fr/workshop/
[30] http://www.openfoam.com/
[31] http://root.cern.ch/drupal
[32] http://geant4.cern.ch
[33] http://gforge.ictp.it/gf/project/regcm
[34] https://access.hellasgrid.gr

migration plans to Terena eScience Certificate Service have been put in place in conjunction with Irish NREN HEAnet.

- **Italy.** User support activities for new communities focused on the following main areas:
  - The definition of the grid interfaces for the EMSO project[35] data, in particular for the NEMO-1 experiment offshore Catania. The work was presented at EGITF 2012.
  - The improvement, according to the user community requirements, of IGI Portal high level web interfaces for the NEMO ocean modelling framework[36] created during PQ9. This work has been presented at the EGITF 2012.
  - The improvement of interfaces the IGI Portal interfaces for the ANSYS software as requested by the INFN SPES experiment community. The porting of the application (a licensed one) was completed during PQ9. This work has been presented at EGITF 2012 in Prague.
  - Ongoing work to improve the HPC support within IGI. This activity is in 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[37], RegCM[38], AVU-GSR for the ESA GAIA Mission[39], Quantum Espresso[40] and NEMO ocean model. An abstract on this activity has been accepted for the PDP2013 conference[41].
  - A new user community (the Institute for Atmospheric Science and Climate of the National Research Council - Bologna department) has been contacted and an application of them has been ported to the Grid. A small production has been carried out and the possibility of increasing the scale of the production and the creation of high level web interface through the IGI portal is being investigated. Their application is called GLOBO and is a self-developed climate forecast model.
  - The support to various COMPCHEM communities and applications, in particular effort was devoted to improve the porting of CRYSTAL[42] started in the previous PQs.
  - 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.
  - The organisation of various COMPCHEM training events, including the Training Grid at the 7th International Intensive Course of the European Master in Theoretical

[35] http://www.emso-eu.org/
[36] http://www.nemo-ocean.eu
[37] http://www.ks.uiuc.edu/Research/namd
[38] http://gforge.ictp.it/gf/project/regcm
[39] http://sci.esa.int/science-e/www/area/index.cfm?fareaid=26
[40] http://www.quantum-espresso.org
[41] http://www.pdp2013.org/index.html
[42] http://www.crystal.unito.it

Chemistry and Computational Modelling (TCCM) and the "Training Grid" workshop at the Clean Combustion community in Sofia during the COST meeting 2012[43].
    - Participation to EGITF 2012 with five contributions in collaboration with previously supported communities: i) EMSO ESFRI projects data management, ii) blood circulation simulation through OPENFOAM in collaboration with the Mario Negri pharmacological Institute iii) ANSYS licensed application porting in collaboration with the INFN SPES experiment iv) Porting the NEMO oceanographic framework v) TopHat to perform alignments of RNA-Seq reads to a genome in order to identify exon-exon splice junctions in collaboration with the Mario Boella institute.
    - IGI/INFN 5th Grid school for site administrators

  Future plans the porting of atmospheric models to EGI for the Italian Earth Science community. Collaboration with the Italian Elixir community will be strengthened in order to participate more actively to the EGI-ELIXIR Virtual Team and to support more application and use cases from the genome sequencing communities. The Chemistry and Molecular & Materials Science and Technology community will be supported to activate a virtual team to assemble out of the existing VOs a VRC and to aim at building the so called High Performance Grid (HIPEG). Within this effort a workshop at ICCSA 2013 (to be held in June, Vietnam) and a special session at EUCO CC 2013 (to be held in September, Sopron, Hungary) will allow developments to be discussed.
- **Latvia**. New user software has to be ported to grid environment to enable several local user communities to access distributed computing resources. Several material science and quantum chemistry applications are scheduled for porting.
- **The Netherlands**. The Life Science Grid clusters hardware was upgraded. Tutorials were presented about the use of grid. BBMRI.nl project intensifies use of Grid Storage for data sharing and distribution over sites of different analysis participants. The workflow system Galaxy is available for Dutch researchers on the HPC cloud. The application scales dynamically with increasing workload. SARA released a new web interface for the easy instantiation of preconfigured Virtual Machines. This was shown at EGITF 2012. The Hadoop cluster has increased its user base considerably. R and Pig were made available on Hadoop. Also the CommonCrawl dataset is being hosted at SARA's Hadoop cluster and available for users. The HPC cloud is very popular and resources are fully booked. The Hadoop cluster has a similar usage pattern. An upgrade of Hadoop and of the HPC Cloud hardware is planned in the near future (Q1 2013) and there will be a code challenge for Hadoop users of the Common Crawl data set.
- **Serbia.** The NGI_AEGIS Support Team has continued to support Serbian Grid community in the use of already ported Grid applications and in gridification of new applications. In particular, SZYBKI package from OpenEye software has been deployed at the AEGIS01-IPB-SCL Grid site. This package optimizes molecular structures with the Merck Molecular Force Field, either with or without solvent effect, to yield quality 3D molecular structures for use as

[43] http://www.cost-meeting-2012.eu

input to other programs. In addition to this, on the request of Serbian computational chemistry community, the latest version of NAMD software (molecular dynamics) has been deployed. As a good example of how Grid technology can improve research, the article "Are comets born in asteroid collisions?" has been published in the case study section of the EGI web site[44]. The NGI_AEGIS Helpdesk[45] and NGI_AEGIS website[46] have been regularly maintained and updated. Our user support team continued to participate in testing of GGUS-NGI_AEGIS Helpdesk interface functionality after each new GGUS release. In PQ11 some of the software packages being ported the NGI-AEGIS will be completed. In addition a Grid training event for NGI_AEGIS site administrators is planned. The aim of this training will be clarification of doubts related to administration of EMI-2/UMD-2 services.

- **Slovakia**. The NGI_SK has continued to work with existing grid users, particularly, in running fire simulations using FDS (Fire Dynamics Simulator), and applications in areas of chemistry, astrophysics and electronics. These activities concentrated mainly on testing the functionality of the gLite-UMD2 middleware with an emphasis on the execution of complex parallel jobs, and implementing scripts handling the submission of different FDS models for various configurations of computing resources.
- **Switzerland**. There has been an ongoing discussion with various Earth Science groups, in particular those contributing to the ENVIROGRID project. In PQ11 contacts will be established with the EGI 'earth' VRC and negotiate access details with them.
- **United Kingdom**. The UK held a very successful Summer School for 30 early career researchers. It was a week-long residential school aimed at increasing awareness around the variety of e-infrastructures available to today's researchers. Topics covered included HPC, grid computing, cloud computing, software, data and data curation. It was a very hands-on course with lots of practical exercises. Feedback from the attendees was excellent. In the New Year, NGI_UK hopes to hold a two day Cloud training workshop alongside a NGI_UK Cloud Meeting. The NGI_UK is organising the EGICF 2013 and plans to arrange a Champions workshop alongside the forum, bringing in Champions and experts from the various global schemes to learn from each other best practices in supporting existing and new users.

1.2.4. Infrastructure Services

- **GOCDB** version 4.4 was released and a GOCDB read-only failover instance is now deployed by the Institut für Techno- und Wirtschaftsmathematik in Germany[47]. The failover is intended to be read only to prevent data inconsistencies and the backend is refreshed every 2 h to keep consistency.
- **Operations Portal** version 2.9.6 was deployed where a major new feature is the implementation of a probe for monitoring under-performing sites. This allows the complete

[44] http://www.egi.eu/cms/case-studies/main-belt_comets.html
[45] https://helpdesk.aegis.rs/
[46] http://www.aegis.rs/
[47] https://goc.itwm.fraunhofer.de/portal

automation of the support process by allowing relying on existing tools and procedures that are established and enforced for all operational issues of the infrastructure. The Operations Portal now provides an Availability Dashboard that graphically plots monthly NGI service performance statistics[48] and Resource Centre performance statistics[49]. Four instances of the Operations Portal are currently deployed in production: NGI_BY, NGI_CZ, NGI_GRNET and NGI_IBERGRID. At the OTAG meeting in September it was decided that in order to reduce support costs future regional instances will be centrally provided by the Operations Portal team.

- **SAM**. The staged rollout of SAM Update-17 was successfully completed at the end of August. By the end of QR10, 30 instances were upgraded to SAM Update-17. SAM Update 17 rolls to production a number of important new features, among which the most important is Profile Management (POEM) system provides an interfaces and functionality necessary to group different metrics into profiles and based on those profiles configure Nagios and all other SAM components. The SAM mechanism for the message publishing is currently being transited from "topic" to "virtual destination" in order to improve synchronization between SAM instances and the Operations portal. SAM is a distributed infrastructure that to date comprises 28 NGI instances, 3 SAM instances service federated operations centres and 3 instances operated in Canada, IGALC and Latin America. The new SAM instance[50] for monitoring operational tools was deployed at CERN in October: integration with the central ACE was still in the progress at the end of the quarter. Four NGI SAM installations are officially using failover configurations (NGI_FI, NGI_IT, NGI_RO, NGI_UK). The performance of NGI SAM services is important in order to support daily operations activities and to collect reliable performance statistics. With the SAM instance for the operations tools the NGI SAM performance will be closely monitored in the coming months.
- **Accounting Repository**. The production repository was run with no internal problems. A fix for the EGI broker network identified in the previous quarter was implemented and made available to the clients. NDGF/SGAS, NGI_CH/SGAS (UNIBE-LHEP, UNIBE-ID & UNIGE-DPNC sites) and NGI_IT/DGAS moved their production accounting to the new SSM infrastructure[51]. The test repository continues to run all the time to receive tests from other sites. All of the other existing and new accounting services have done some testing using SSM, including IGE/Grid-Safe, CC-IN2P3, and ARC-JURA. Testing of EDGI and MAPPER related services still need to be completed. The accounting team participated in Inter-NGI Report Virtual Team and the Federated Cloud Task Force. For test cloud accounting database we now have seven Resource Providers who have successfully sent in cloud accounting

[48] https://operations-portal.egi.eu/availability/topbdiiList
[49] https://operations-portal.egi.eu/availability/siteAvailabilities
[50] https://ops-monitor.cern.ch/nagios
[51] https://wiki.egi.eu/wiki/APEL/SSM

records from OpenNebula and OpenStack cloud middleware. The SA1.5 team also contributed to the OGF Usage Record working group[52].
A significant fraction of the infrastructure still fails to publish user Distinguished Names in their accounting records. This is being followed up with NGIs as user DN information is needed for the computation of NGI international usage reports.

- **Accounting Portal.** The Accounting Portal is preparing the next release currently scheduled in PQ11. In the new version of the portal views will be improved and the backend optimised. For example, in the new portal the visualization of local job accounting information will be separated from accounting information extracted from grid jobs. The IP of the accounting portal server was moved to a new IP range, and the DNS changed. The image was updated and maintained to use qcow2 (qcow stands for "QEMU Copy On Write" and denotes a disk storage optimization strategy that delays allocation of storage until it is actually needed). There was also work to support the Distinguished Name format defined in RFC 2253, which needed changes in the code responsible of computing accounting summarizations per user CA.
- **Availability.** Resource Centre availability reports and NGI availability reports (currently comprising top-BDII instances) are being regularly generated on a monthly basis. The design phase of a new set of VO-oriented reports started. Purpose of this new set of reports is to complement the existing ones with an aggregated view that provides information about the services supporting a given VO. The performance of NGI services is progressively improving.
- **Catch-all services.** The operations of the portal, WMS, LB and Top-BDII services for site certification run smoothly. The migration to VOMS of the VOMRS service supporting user registration to the DTEAM VO started as VOMRS software is no longer supported. The migration will be completed in PQ11. Minor issues with the initial migration procedure were identified and were successfully followed up with the VOMRS development team. The deployment of the catch-call top-BDII instance to temporarily replace underperforming top-BDII services is being discussed.
- **Documentation.** Coordination of operations documentation activities was handed over by CSC to EGI.eu. During PQ10 two new versions of existing procedures were finalized. The Resource Centre certification procedure[53] was extended to address the requirements of sites deploying UNICORE and Globus, and to address CSIRT requirements. The VO registration procedure[54] was updated to reflect changes in the responsibility of validating and approving new VOs (EGI operations are now in charge of this). A new procedure was approved for the renaming of Resource Centre in the EGI registration database[55]. The structure of the operations documentation on wiki is being completely revised to make pages more accessible and easily searchable. A set of best practices were defined[56]. The EGI.eu Operations Level

[52] http://www.ogf.org/gf/group_info/view.php?group=ur-wg
[53] http://wiki.egi.eu/wiki/PROC09
[54] http://wiki.egi.eu/wiki/PROC14
[55] http://wiki.egi.eu/wiki/PROC15
[56] http://wiki.egi.eu/wiki/Help:Contents

Agreement defining the service level targets of services centrally provided by EGI.eu is being finalized. Finally, the EGI discussion forum[57] was rolled to production to support the exchange of information across largely distributed communities.

1.2.5. Tool Maintenance and Development

During PQ10 a workshop relating to the "Long Term Sustainability of Operational and Security Tools" was organised in Karlsruhe, Germany[58]. Discussions focused how to maintain the operational tools after EGI-InSPIRE. The analysis would assess the needed effort in three different categories that could be mapped with different way to collect the needed funds:

- Effort for service operation and technical support
- Effort for software maintenance
- Effort for new developments

The possibility to evolve the tools in open projects has also been investigated.

Another important outcome has been the organization of the OTAG-13 meeting in Prague[59]. The results of this meeting are as follows:

- Finalization of the regionalisation roadmap:
- GOCDB will support PostgreSQL;
- Detailed analysis of open SAM requirements;

Representatives of all product teams attended the EGI TF where a workshop[60] on the future evolution of operational tools was organised, including tools currently developed outside EGI-InSPIRE (i.e. GSTAT). A new GGUS advisory board has been set up[61].

GOCDB

GOCDB 4.4 was released (10-09-2012) to address a number of smaller RT feature requests and GUI improvements[62]. Fixed RT tickets: 1099, 1097, 1210, 1016, 1095, 4270, 1096, 3249, 3635, and 3521. The GOCDB development roadmap was presented at the EGI TF and was refined in OTAG-13 in response to feedback from NGIs regarding regionalization requirements. It was agreed that the Regional-Publishing GOCDB would be dropped while new RDBMS support, an extensibility mechanism and GLUE2 support was prioritized. Support was given to EUDAT to capture requirements and upgrade to GOCDB v4.4 at http://creg.eudat.eu/. GLUE2 XSD design options were presented at EGI TF and to the GLUE2 working group at OGF 36. A consensus on the GLUE2 XML rendering is emerging. Importantly, this includes a number of GOCDGB requirements.

[57] http://forum.egi.eu/

[58] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1132

[59] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1162

[60] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=39&confId=1019#20120919

[61] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=58&confId=1019#20120921

[62] https://www.sysadmin.hep.ac.uk/svn/grid-monitoring/tags/gocdb/GOCDB-4.4/changeLog.tx

Operations Portal

During PQ10 one major release has been delivered (2.9.4)[63]. Below is a description of the main activities performed:

- **Monitoring of unsupported middleware version**: Information collected about old middleware version is available from the Security dashboard. The COD team is authorized to monitor it via the security dashboard and open GGUS tickets against each site that exposes the older versions of the software. The developments have been focused on:
  - Modifications of access rights and authentication
  - Development of specific reports per NGI , sites
  - Modification of ticket templates
- **Underperforming site probe** (RT Ticket 2298): A local probe obtains the availability of certain sites from MyEGI PI and compares them it two thresholds:
  - If the availability is below or equal to the "warning" threshold (75%), a WARNING is generated.
  - If it is below or equal to the "critical" threshold (70%) as well, a CRITICAL warning is generated.
- Refactoring of the different dashboards: to increase the efficiency and the maintainability of the different dashboards (security dashboard, VO Operations Dashboard, Operations Dashboard) the code is currently reviewed and improved. This work has been initiated during the summer and will last until PQ11.

Service Availability Monitor

The Service Availability Monitoring (SAM) framework had had one major release (SAM-Update 19) in PQ10 which has increased the functionality of the system, and improved the deployment and stability of the central services for EGI while improving documentation and the visualisation aspects within MyEGI[64]. Technical details include:

- 287 internal development tickets were resolved
- Status and Availability computation:
  - Improved availability re-computation algorithm and status computation bootstrapping
  - Log information about status of execution of MySQL events
  - Improvement of logging mechanism
- Topology aggregation:
  - New ATP API package integrated in MyEGI
  - VOFeed validation logs added to ATP probe
- Profile Management:
  - Added tagging capability and improving user interface
  - Changes to public Web API
- MyEGI changes:

[63] http://operations-portal.egi.eu/aboutportal/releaseNotesBrowser

[64] https://tomtools.cern.ch/confluence/display/SAMDOC/Update-19

    - Major style and layout changes
    - Adding new view availability and reliability reporting
    - Public API documentation revised
    - Added MyEGI user and admin guides
    - Changed to Django-1.3 to improve security and functionality of several components (POEM, MyEGI, ATP)
- Updated MySQL to non-vulnerable version (5.1.63) and improved MySQL database dump
- Developer documentation for all components
- Nagios configuration
    - Removed resource BDII from SAM/Nagios
    - Consume VO Nagios results in a Site Nagios instance
    - Removed probe 'org.nagios.NCGPidFile'
    - Added probe 'org.nagiosexchange.NCGLogFiles'
- Probes integration and changes:
    - Repackaging of perl-gridmon probe development framework
    - Integration of QCG/MAPPER probes
    - Integration of UNICORE Job and unicore6.StorageFactory
    - Enabled new MRS metrics on SAM/Nagios nodes
    - grid-monitoring-probes-ch.cern.sam
        - Fixing EMI version detection in the WN probe.
        - Metric 'MRSCheckDBInsertsDetailed' allows now on testing single NGI.
        - Fixing critical binary compatibility of Nagios on the 64-bit worker nodes.
- Fixing configuration issue with perl-Net-STOMP-Client-1.2.1
- SAM configuration changes (glite-yaim-nagios):
    - Removed MDDB configuration
    - Removed OpenReports/JasperReports and Report Generation Framework configurations

Messaging

Work in PQ10 included:

- Development of failover example scripts to be used by broker clients. When one broker is down or unhealthy another instance should be used in fail over mode as long as the client has such a mechanism enabled. Example scripts have been placed on internal activity SVN repository.
- Enabled logging of unauthenticated connections (IPs) to PROD broker network (to be deployed on all broker instances during upcoming PROD network update - currently only implemented and tested on GRNET/AUTH broker instance)
- Upcoming PROD broker network update has been scheduled to take place on the 6th and 7th of November. Broadcasts notifying clients of the update have been published via the operations dashboard.

EGI Helpdesk (GGUS)

During PQ10, two major releases have been delivered; the release notes are available at https://ggus.eu/pages/owl.php. A new GGUS advisory board has been set up during the EGITF 2012[65]. Below is a description of the main activities performed:

- Report Generator:
  - Live demo of the report generator at the EGITF 2012.
- New support units:
  - 2nd level software support unit – QosCosGrid
  - 2nd level software support unit -- EGI Federated Cloud
- Decommissioned support units:
  - ARC Deploy
  - NGI_AT
  - OTAG
- New VOs:
  - t2k.org
  - comet.j-parc.jp
  - neurogrid.incf.org
- GGUS web portal:
  - Decided how GGUS should proceed with decommissioned VOs
  - Updated the info section with new "did you know?"
  - Included status "closed" in the ticket timeline tool.
  - Implemented a password reminder.
- GGUS system:
  - Replaced old SOAP interface by a new one reducing the number of available fields in operations.
  - Fixed bug in mail template of verification notifications.
- Interfaces with other ticketing systems:
  - Implemented interface for new NGI_FRANCE ticketing system OTRS.
  - Started implementation of interface for IBERGRID RT ticketing system.
- GGUS - SNOW interface:
  - Implemented distinction between incidents and change requests
  - Fixed bug GGUS "Related issue" field getting flashed by SNOW updates

Accounting Repository

Below is a description of the main activities performed:

- Implemented consumer for StAR records with storage database.
- CAR (Compute Accounting Record) XML format can now also be received by SSM and loaded, in addition to the APEL message format.

[65] https://indico.egi.eu/indico/sessionDisplay.py?sessionId=58&confId=1019#20120921

- Testing data migration method, records from old APEL system to new begun.
- Additional work carried out using indexing more effectively to improve database efficiency, schema changes will be implemented on new system.
- Packages required for regional APEL server defined.
- Accounting for parallel jobs: data collection agreed, defined in CAR and code used by DGAS to collect data from batch logs received for comparison and reviewed.
- Started draft of an AAR (Application Accounting Record) XML format.
- Started implementing an application accounting solution (client and server) that outputs the draft AAR format.
- Source code of AAR implementation is available on https://github.com/hperl/app-accounting, git@github.com:hperl/app-accounting.git.

Accounting Portal

- Preparing next release foreseen by end of November 2012:
  - Cosmetic fixes
  - Optimization
  - Server & VMM maintenance
- Work to support RFC2253 (DNs):
  - Nationality code improved
  - Some calculations fixed
  - We are waiting for EMI decision on format to end integration of RFC2253 (currently they are read as other user).
  - IP migration to new domain

- **Metrics Portal** Cosmetic fixes
- Optimization
- IP migration to new domain
- Server & VMM maintenance
- New requirements:
  - Depreciable metrics
  - Depreciable activities (NA3 was removed from QR9 onwards)
  - New Quarterly report (All common metrics for all activities in a quarter)
  - Cumulative NA2 metrics
  - Some redundant views were removed

1.3. Issues and Mitigation

None.

1.4. Plans for the next period

GOCDB

Complete rollout of MVC and Query2XML and remove legacy code.

- Schedule v4.5 release to complete MVC/Query2XML rollout, and address more (smaller) RT, including new view filter requests and email role notifications (foreseen for January 2013).
- Continue engagement with the GLUE2 working group to help finalize the GLUE2 XML rendering document.
- Determine the best strategy for supporting a new open source RDBMS, e.g. Postgres (currently, much of the DB logic is developed using stored procedures written in Oracle PLSQL which will need to be redeveloped using a DB agnostic abstraction). Start prototyping.
- Work with EUDAT to provide enhancements: New features, extension mechanism for project specific code, refactoring to provide stable and consistent internal APIs e.g. AAI.

Operations Portal

As previously described we have initiated the refactoring of the dashboards and this work will be extended on the whole portal. This work is completed by the use of the CSS framework currently used by Twitter: "Bootstrap".

The benefits of this refactoring and framework will be:

- New portal look and feel with a homogenization of the display
- Improvements on efficiency, on reactivity and visibility

A first prototype will be delivered in PQ11 and will be used by ROD to provide feedback. This feedback will be implemented in order to deliver in a second phase the portal in production in PQ12.

Service Availability Monitor

- SAM Update 20: this update will focus on bug fixing identified during the wide deployment of Update-19. In addition, migration of the existing SAM libraries to newly developed EMI messaging clients (in EPEL) will start, which is necessary to follow the EGI messaging roadmap. We also plan to start migrating to UMD/EMI probes for what we'll have to perform a re-packaging of SAM to remove its dependencies on DAG and RPMForge repositories while leaving only dependencies on EPEL repository.
- Messaging: in line with the foreseen roadmap our plans for the next period is to work towards enabling authenticated (i.e. x509 based) on PROD message broker network. Within the work group we also intend to investigate our future plans for the PROD messaging infrastructure.

EGI Helpdesk

- GGUS report generator:
  - Implement missing features and bug fixing. The final version will be available in PQ11.
- GGUS structure:
  - Integration of Operations Portal in GGUS.
  - Define a concept for allowing access to GGUS without certificate.

- Interfaces with other ticketing systems:
  - Implement interface to PRACE RT system.

Accounting Repository

- Migrate IN2P3 accounting server to new APEL server
- Database schema improvements will be implemented
- Regional APEL server coding will be completed and packaged for testing to begin at STFC and German NGI have offered to test as well
- Cloud: test setup of SSM sending records from STFC to CESGA
- Storage: test receiving StAR from dcache/StoRM/DPM
- Parallel Jobs: work on client record data processing
- AAR: Packaging of the implementation (RPM, DEB et c.) using CPack
- AAR: Sending records to SSM
- Further work on AAR spec

Accounting Portal

- Next release foreseen in PQ11.
- Several requirements for InterNGI accounting data to be addressed as emerged from the EGI VT dedicated to this topic:
  - Reverse country view
  - Country usage matrix
  - % DN published per NGI
  - etc.
- Local job visualization support
- Better XML high-level interface

Metrics Portal

- Automatic mail notifications
- SSO support for group permissions



2. DOMAIN SPECIFIC SUPPORT AND SHARED SERVICES & TOOLS

2.1. Summary

Support for the shared tools and services used by the Heavy User Communities continues, having provided support for close to 20 different tools to date. A number of these have already reached maturity – that is they have entered production and/or been taken over by long-term support teams outside of this work package. Completing this transition remains the primary goal of the remaining months of SA3.

2.2. Main achievements

2.2.1. Dashboards

During PQ10 substantial progress was made in the development of various Dashboard applications, in particular in the area of data management monitoring

2.2.1.1. Job monitoring

The new job monitoring historical view dedicated to the CMS production team was prototyped and deployed on the test server. The new application is being validated by the CMS production team. The prototype of Analysis Task monitoring which includes the ability to kill jobs from the Task monitoring user interface was deployed on the test server and is being intensively tested in order to make sure that user privileges are properly handled by the application. Following the feedback of the user community, 19 feature requests were implemented in the Production Task monitoring and 17 feature requests were implemented in the Job Monitoring Historical View application.

2.2.1.2. WLCG Transfer Dashboard

During PQ10 major effort was directed to extend the functionality of the WLCG Transfer Dashboard. The latency monitoring functionality was prototyped. The new version of the WLCG Transfer Dashboard allows one to detect various inefficiencies in the data transfers performed by the FTS servers. Another important development area was enabling monitoring of the data traffic of the xrootd federations. The monitoring of the xrootd transfers of ATLAS and CMS were enabled in the new version of the WLCG Transfer Dashboard which is currently undergoing validation. Current effort is focused on integration of monitoring of the xrootd transfers performed by the ALICE VO.

2.2.1.3. Monitoring of data transfer and data access in the xrootd federation

The LHC experiments are actively investigating new data management scenarios and xrootd federations start to play an important role in enabling transparent data access for job processing. For that reason, monitoring of data access and data transfers in the xrootd federation becomes an important task. The Experiment Dashboard aims to provide a common solution for monitoring of the xrootd federations. Two prototypes with similar functionality but different persistency implementations are being developed. ORACLE is used as a database backend for the first prototype. Foreseeing a per-federation deployment model of the xrootd monitor, the Experiment Dashboard offers another solution

with Hadoop/Hbase used for implementation of the monitoring data repository. The user interface based on the xBrowser framework developed for transfer monitoring applications is shared by both prototypes and has a common core part with the WLCG Transfer Dashboard and ATLAS DDM Dashboard.

2.2.1.4. ATLAS DDM Dashboard

During PQ10 the following new features were deployed on the ATLAS DDM Dashboard production servers: Consolidation of transfer plots, Addition of registration error samples and plots and numerous UI tweaks. The following new features were deployed on the test server with a production release scheduled for November: Combined efficiency statistics, Addition of staging statistics, error samples and plots.

2.2.1.5. ATLAS DDM Accounting portal

The ATLAS DDM Accounting portal was prototyped in the beginning of summer 2012. During the reference period the application was validated by the ATLAS community. More than 30 feature requests had been submitted and were implemented. The application was deployed in production in the end of September and is being intensively used by the ATLAS community, in particular by managers of the ATLAS computing projects.

2.2.1.6. Monitoring of the sites and services

The Site Usability Monitor (SUM) which provides visualization of the results of the remote tests submitted via the SAM/Nagios framework and site availability based on these results is heavily used by the LHC experiments for monitoring everyday operations. The data visualized in SUM is retrieved from the SAM repositories using the SAM APIs. Therefore validation of the new SAM releases should include validation of the SAM APIs. The set of tests aiming to check the content and format of data retrieved with SAM APIs has been developed and is being used for validation of the new SAM releases.

2.2.1.7. Life Science Dashboard Design

The LSGC (“Life Sciences Grid Community” VRC) technical support team continuously monitors grid resources allocated to Life Sciences users. It 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.

The technical support team has developed new tools and web reports to allow the monitoring of VRC resources. Together, they form a set of LSGC Dashboard tools, integrating:

- Life Sciences applications Web gadget interfaced to the Applications Database.
- Web gadget for Community requirements posted to the Requirement Tracker system.
- Web gadget for Life Sciences trainings interfaced to the Training marketplace.
- A dedicated Nagios server deployed by the French NGI.

- Community files management gadgets to monitor storage space consumed VRC-wise, anticipate problems of storage resources filling up, handle SEs decommissioning and file migration procedures.
- Centralized view of VO resources that are currently not up and running (downtimes, not in production...)
- Miscellaneous tools for facilitating daily follow-up of issues, manual checks, etc.

More effort is currently invested in the monitoring of the computing resources used and needed by the community.

2.2.2. Tools

2.2.2.1. Ganga

During PQ10 Ganga development has included multiple bug fixes, feature requests and efficiency improvements. Most notably, the GangaTasks package saw significant improvements, including:

- Phased job submission, which 'drip-feeds' jobs to the executing backend to avoid adversely affecting a user's priority ranking.
- Automatic transfer of output data to local or Grid-hosted storage.
- Automatic and complete bookkeeping of output data.
- Chaining of transform tasks was added, to allow sequential work flows to be configured.

Introduction of the new, lightweight, GangaService package provides the ability to run Ganga either as a daemon (i.e. Ganga will run until the specified input script has completed), or in a client/server mode, wherein Ganga responds to commands passed via an *application programming interface* (API) on a given port.

The Ganga test framework was extended to identify internal object schema changes which were non-backwards compatible. The effect of such incompatibilities is that a user creating a job or task object in a particular Ganga release would not be able to load the same object in a version with an incompatible schema. Thus, the test framework generates Ganga objects for each production version and verifies that all objects created with previous releases can be loaded into the current release candidate.

Furthermore, Ganga was updated to utilise the latest releases of the experiment-specific tools, such as ROOT, the ATLAS Panda client and LHCbDirac. Finally, a fix was deployed to ensure Ganga remains compatible with the latest version of the EMI JDL specification.

2.2.3. Services

2.2.3.1. Hydra

The Hydra service relies on the fact that the Hydra client software be (i) installed on all sites where Worker Nodes may be required to access the Hydra service (presumably all sites accessible to the LS

HUC VOs), or (ii) installed and published by means of runtime environment tags on those sites that wish to support the service. However, a survey has revealed that lots of production sites were 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 deployed client if any. Consequently, during PQ10 a negotiation was led with each site publishing Hydra tags, or providing Hydra client without tags, to clear off the situation.

However, along with sites migrating their WNs to EMI 2 (see more information in 3.4.1), and as long as Hydra is not officially released in EMI 2, the service cannot be used for production. Instead, the service delivered today remains a test service that gives the opportunity for the validation of the functionality delivered and the testing of the deployment procedures.

2.2.3.2. GReIC

During PQ10, the following activities have been carried out:

1. The first implementation of the DashboardDB Monitoring service view has been completed and released in the official DashboardDB application.
2. Extension of the DashboardDB registry to include new community-based features.
3. A web-desktop application (DashboardDB Desktop) including the DashboardDB registry and monitoring gadgets has been designed, implemented and released.
4. Dissemination activities.
5. An initial plan for the GRelC service software towards EMI.

Concerning point 1 (DashboardDB service view), the monitoring module focusing on a single GRelC service instance has been implemented and released. This new view provides information about the status of each single GRelC service instance deployed in EGI. Starting from the DashboardDB global monitoring, the user can now exploit this new view to drill-down into a specific service instance. The GUI part was implemented during PQ10 and released in the DashboardDB application.

Concerning point 2 (DashboardDB registry) a new release of the grid-dabatase registry gadget has been deployed. The improvements are related to a bug fixed in the list of the discussions and a new community-based feature to add a “like/dislike” flag for the messages posted in the discussions. The number of posts for each discussion and the user who posted the last message are now available in the summary view listing all the active discussions.

Concerning point 3 (DashboardDB Desktop), a web desktop application including the two gadgets released in the last months has been designed and implemented. The DashboardDB Desktop represents a flexible environment joining the pervasiveness and platform independence of a web-based application with a superior user experience and responsiveness related to a desktop-based application. It includes all of the gadgets implemented during the project and new ones related to well-known social networks such as Twitter and Youtube.

Examples include:

- The DashboardDB registry (both secured and guest-based).
- The DashboardDB monitoring (from global to service based views).

- The Twitter gadget to follow the activities related to the DashboardDB application (the "DashboardDB" account has been created during PQ10).
- The Youtube gadget for dissemination purposes. The current version includes just one video, but in the next months it will be extended to allow the users to choose one item among a set of multimedia resources related to the GRelC software for training, communication, dissemination, etc.

The DashboardDB Desktop is very extensible, easy to use and new gadgets can be straightforwardly included as new "apps". Moreover the desktop approach provides the ability to maintain several "apps" active at the same time in separate windows (see Figure 3-1). It is important to note that the DashboardDB Desktop provides both secured (through login/password) and guest-based gadgets (grid-certificates are not needed to carry out the authentication step). Finally, the DashboardDB Desktop aims to integrate in a web-desktop based environment all of the resources related to the GRelC software (GRelC website, DashboardDB gadgets, dissemination material, community-based gadgets, etc.)

Concerning point 4, (dissemination activities) some grid-database services and data providers have been contacted to register/publish their own data resources/services into the DashboardDB system. This process will continue until the end of PY3. In this regard, as a preliminary result, two sites (one in Catania - INFN-CATANIA - and another one in Naples - GRISU-SPACI-NAPOLI), will respectively to update and install the gLite 3.2 version of GRelC, publishing these new resources into the DashboardDB system. Another activity related to the dissemination task has been the preparation of a short overview related to the two main gadgets (DashboardDB Monitoring and Registry) to be posted on the EGI website. This document has been prepared in recent months jointly with the NA2 representatives and validated at the end of PQ10. This material will soon be available from the EGI website, jointly with a new entry under 'Support Services' about 'Scientific databases'. Finally, dissemination material (1-minute video) about the GRelC software (www.grelc.unile.it), the DashboardDB application (http://adm05.cmcc.it:8080/dashboardDB/) and the DashboardDB Desktop (http://adm05.cmcc.it:8080/GrelcDesktop/) has been prepared for the IGI booth at the SC2012 (Salt Lake City, November 10-16, 2012) to be included in a video presenting all the IGI activities.
Concerning point 5 (GRelC & EMI), a preliminary study regarding the compatibility of GRelC software with the EMI distribution has been carried out. More effort in this direction is needed and it will be devoted during PQ11.

2.2.4. Workflow & Schedulers

During PQ10 work related with Serpens (Kepler) has been focused on:

- Integration of Kepler with GridWay services. This includes the development of the actors and workflows for interacting with GridWay using the GridSAM BES interface implementation.
- Small fixes of the Astrophysics workflow in response to user requests.

- Extension of the Astrophysics workflow usecase, developed and reported in previous deliverables.
- Preparation of Fundamenta Informatica, JoCS journal publications describing the work performed to date.

2.2.5. SOMA2

During the first month of PQ10, work consisted of developing general improvements into SOMA2. The aim was to stabilize the code for a version release. However, starting from September 2012 CSC has totally used the allocated EGI SA3 funding. This work is therefore now unfunded and the development effort is focused primarily at the national level. CSC will however support the existing SOMA2 services and it is foreseen that this will also suffice for the needs of the international SOMA2 service (SOMA2 EGI pilot). During PQ11 CSC aims to publish yet another public release of SOMA2 (1.5.0 Silicon) which will contain all the development efforts of PQ9 and PQ10.

2.2.6. MPI

The SA3 MPI activity contributed to the MPI Virtual Team demo booth at the EGITF which consisted of UNIPG showing an example MPI application executed on the production infrastructure through a web portal; and CSIC demoed the new MPI nagios probes. These new probes were developed by CSIC during PQ10 following their specification by the MPI Virtual Team. The probes are designed to detect the most typical problems with the submission of MPI jobs in the infrastructure and to detect issues in the information published by the sites about the resources. The demo used the SA2 verification testbed to show users and operators of the infrastructure the new tests and what information can be extracted from their results. Following the MPI Virtual Team recommendations, CSIC has also reviewed and improved the documentation available on the egi.eu wiki and has contact with EMI APEL developers to provide relevant input for the development of support for accounting of MPI jobs. The MPI support unit, established during PQ9, has been in charge of solving MPI related tickets in the EGI Helpdesk. This effort is drawn from TCD and CSIC members of the SA3 MPI activity. The SA3 MPI members also contributed input to the article on the MPI-VT EGI-InSPIRE newsletter.

2.2.7. High Energy Physics

2.2.7.1. 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[66]. 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. EGI-InSPIRE support of LHCbDIRAC began in October 2010. During PQ10 activity focused on the following.

[66] https://documents.egi.eu/document/540

- The first version of the popularity service, developed previously and put into production in July, was exposed to users. Their feedback triggered some feature requests that have been implemented and carefully tested during PQ10. The Popularity service should provide metrics to assess the data-sets popularity and provide a ranking of the most popular data-sets (i.e. data most frequently accessed by users). The plots produced by the Popularity service also provide useful information about the usage pattern by users, thereby guiding strategies for data production activities.
- The new version of the LHCbDIRAC agent, which provides accounting plots for storage resources usage, is undergoing a thorough validation. Some improvements have been validated and put into production during PQ10. Other features, which required more fundamental changes, are still under validation and will be released during PQ11.
- General support for LHCb computing operations on the grid, both for production and private user activity. In particular, during PQ10, significant effort has been dedicated to the finalisation of old productions that were nearing completion, but still active in the system, causing an overload for the production system. Many pathological cases due to bugs in the systems or rare race conditions were identified and fixed. The cleaning campaign has concluded and the objective of reducing the load on the production system by 50% attained. The second part of the exercise consists of exploiting the experience gained during the cleaning campaign, and proposing and implementing improvements in the production system in order to streamline the process of finalising productions. The objective is to reduce the person-power needed for production management and to make the whole system more sustainable. This second phase of the task was started during PQ10 and will be continued during the following months.

2.2.7.2. CRAB Client

During PQ10 a new version of the CRAB2 Client was released. This was intended to:

- Increase the reliability of job execution on worker nodes by adding a watch dog system during the job execution.
- Support CVMFS deployed at sites.
- Support remote glidein.
- Fix a series of bugs.

On the development side the main functionalities added to the CRAB3 generation of tools were:

- Support of the input lumi-mask to enable the capability for the user to select the input data to be analysed at a finer granularity.
- Automate data publication through the AsyncStageOut service and the newly developed DBSPublisher component.
- Introduce the ability to perform a manual resubmission of failed jobs, respecting the security constraints.

- Other required functionalities to manage the workflow (to produce reports, monitor transfers and the publication status) and to perform troubleshooting in the event of failures (i.e. retrieve log file, kill pending jobs etc.)
- Improve web monitoring to track the progress of all workflows and in order to have an overview on the distributed system activities.
- Various fixes have been added, including improvements to the command line interface on the client side.

During PQ10 two distinct versions of the services providing these functionalities were released: 3.1.1 (July) and 3.1.2 (1st October). In both cases there was intensive testing performed by the CMS Integration group, which included the participation of beta-users. In both test campaigns useful feedback was provided and a solution implemented in subsequent releases. Another aspect of the work conducted has been the refactoring of the deployment scripts. These were improved in order to automate the deployment of CRAB3 services on the CMS Cluster (cmsweb.cern.ch), allowing for the deployment of dedicated redundant services on which CRAB3 relies on.

2.2.7.3. Persistency Framework

During PQ10 activity focused on development and debugging of the CORAL frontier monitoring package. At the moment the latest version available to the experiment does not allow any client side monitoring for the CORAL Frontier application, due to a bug in a specific class of the package. Furthermore it does not allow multi-thread monitoring as the structure of the log in the cache enables just a simple chronological list of operations without any other element to distinguish the particular session the operation belonged to. In other words, the output needs to be modified to enable assignment of each operation to a specific session and transaction. Therefore, a new hierarchical structure was implemented. To achieve this, a fake session and transaction identification (ID) was assigned to each session and transaction. Subsequently the structure of the cache was modified to allow the inclusion of these new elements. Finally a map was implemented to sort the database operations by session and transaction ID. This new structure is now able to cope with the multi-thread applications used by the experiments. A test suite was implemented to validate all the modifications. However, currently, a problem of dead-lock due to some mutex is still present. This issue is still under investigation.

At the same time, detailed documentation covering CORAL Frontier monitoring has been prepared using UML. Uses case, Sequence, Collaboration and Class diagrams are already available.

2.2.7.4. 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 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.

After the feasibility study that was carried out in the previous quarter, which had a successful outcome, the work of PQ10 has focused on a Proof of Concept setup for the integration of the ATLAS workload management system with CMS specific plugins, such as the CRAB interface and the Asynchronous Stage Out tools. WP6 SA3.3 funded effort has acted as the ATLAS liaison, by initially interfacing ATLAS and CMS developers and by providing support to set up the testbed infrastructure. This activity included:

- Providing detailed instructions about how to submit jobs to PanDA and how to manually configure the environment to run a pilot that retrieves the submitted payload.
- Setting up and operating a PanDA Pilot Factory.
- Adding CMS grid sites participating in this phase to the configuration database and configuring them in the pilot factory.
- Help in debugging problems of pilots failing to run at sites.

2.2.8. Life Sciences

The "Life Sciences Grid Community" (LSGC) VRC is developing management tools to provide a VRC-wise vision of the activity and facilitate the VRC administration, help VOs of the community to mutualise efforts and leverage common tools to avoid duplicating efforts. The LSGC technical support team has regular phone meetings (every one or two weeks) to coordinate its activities. It invests a significant amount of its time in anticipating technical problems arising on the infrastructure from a VRC perspective through proactive monitoring and periodic testing of VRC resources. This continuous work aims to minimise the impact of infrastructure and middleware-related faults from a user perspective, thereby improving the grid users experience. Leveraging this experience, the LSGC technical team increasingly liaises with Operations and some resource provision sites to improve resources allocation and management policies and thus anticipate shortages or potential failures.

Complementarily, per-VO and VRC-wide mailing lists have been set up and are kept up to date to ensure communication within the community. Several Web gadgets customized for the Life Sciences have been added to the LSGC wiki, with the help of the User Communities Support Team (see section 3.2.1.3 for a detailed list).

2.2.9. Astronomy and Astrophysics

Activities carried out by the A&A community (task TSA3.5 of EGI-InSPIRE) during PQ10 related to the following topics; a) VisIVO, HPC, parallel programming, and GPU computing; b) coordination of the A&A community; c) access to databases from DCIs and interoperability with the VObs (Virtual Observatory) data infrastructure and d) harvesting of astronomical workflows and applications to be ported on several distributed e-Infrastructures.

A) VisIVO, HPC, parallel programming and GPU computing.

- The study and the porting of the VisIVO MPI version on 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. A parallel application for the Gaia Mission porting activity on grid gLite middleware is started. The parallel application is dedicated to the development and test of the core part of the AVU-GSR (Astrometric Verification Unit - Global Sphere Reconstruction) software developed for the ESA GAIA Mission. The main goal of this mission is the production of a microarcsecond-level 5 parameters astrometric catalogue - i.e. including positions, parallaxes and the two components of the proper motions - of about 1 billion stars of our Galaxy, by means of high-precision astrometric measurements conducted by a satellite continuously sweeping the celestial sphere during its 5-years mission. The RAM requested to solve the AVU-GSR module depends on the number of stars, the number of observations and the number of computing nodes available in the system. During the mission, the code will be used in a range of 300,000 to 50 million stars at most. The estimated memory requirements are between 5 GB up to 8 TByte of RAM. The parallel code uses MPI and OpenMP (where available); it is characterized by an extremely low communication level between the processes, so that preliminary speed-up tests show behaviours close to the theoretical speed-up. Since AVU-GSR is very demanding on hardware resources, the typical execution environment is provided by Supercomputers, but the resources provided by IGI are very attractive for debugging purposes and to explore the simulation behaviour for a limited number of stars. The porting on the EGI is in progress in the framework of the IGI HPC test-bed in which we select resources with a large amount of global memory and a high speed network, such as the one provided by INFN-PISA and UNI-NAPOLI sites.

- 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 then considered.
- 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 system (funded by the Astrophysical Observatory of Catania). It is a hybrid server CPU-GPU, with 2 quad-core processors Intel(R) Xeon(R) CP E5620 at 2.40GHz, 24 GB RAM DDR3-1333 NVIDIA TESLA C2070, 448 CUDA core and 6 GB of RAM. The server is configured as a Grid computing node.
- The design and implementation of a specific grid-enabled library that allows users to interact with Grid computing and storage resources.
- The submission of jobs using VisIVO on gLite infrastructure was tested using a Science Gateway designed for this purpose.

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.

B) Coordination of the A&A community.

During PQ10 a significant effort was spent to strengthen the presence of the community in EGI and to enhance the ability of the community to make use of DCIs. The interoperability with other e-Infrastructures, in particular with the Virtual Observatory was one of the core activities undertaken during this quarter period. An astronomical workshop, co-located with EGITF 2012, was organized. The new OGF community group "Astro-CG" whose creation process initiated during PQ9, was also approved and activated in August 2012; the first Astro-CG session was organized at OGF36 in early October. Results from this coordination activity proved once more that the astro community is a vast and articulated community and its coordination is quite challenging. The purpose of the workshop in Prague was mainly to meet astronomical groups and individuals able to contribute pilot applications and workflows. After the astro workshop at EGITF 2012 it was clear that an effective coordination action requires direct contacts with Institutes and research groups which own applications and workflows suitable to be ported on DCIs. Tight synergies have to be established with these groups to jointly study how their workflows can be ported on DCIs in the best possible way. This is what already happens with the CTA ESFRI project. Activities are in progress to design and implement prototypal Science Gateways and a SSO authentication system for CTA having in mind a more ambitious goal, namely the adoptions of such systems by the whole Astro-Particle Physics community. A Virtual Team for CTA and for the whole Astro-Particle Physics community is also in progress to; a) gather requirements from end users for what concerns SGs and the SSO system; b) identify and put in place an identity federation model for this community; c) access to databases from DCIs and interoperability with the VObs (Virtual Observatory) data infrastructure.

C) Infrastructure Interoperability

Interoperability between DCIs and data infrastructures remains one of the hot topics in astrophysics, it is mandatory to achieve this objective in order to build working environments which are really useful for astronomical end users. In the past this goal was pursued by creating a research group in OGF mainly aimed at managing a liaison group with IVOA, the international Virtual Observatory Alliance. This research group was frozen some time ago, hence the IVOA executive board recently endorsed the creation of a new community group in OGF (Astro-CG) to inherit and continue the activity that was in charge of the past RG.

The outcome of the first Astro-CG at OGF36 was reported at the IVOA interoperability meeting; it was established to organize a joint session Astro-CG (OGF) – GWS (IVOA) at the next IVOA interoperability meeting in Heidelberg in May 2013. The forthcoming months will be dedicated to the preparation of this event whose goal is to intensify coordinated OGF-IVOA actions to achieve an effective interoperability between DCIs and the Virtual Observatory, the data e-Infrastructure operated by IVOA.

D) Astronomical workflows on distributed e-Infrastructures.

The harvesting of astronomical workshops and applications is now one of the core activities related to the coordination of the A&A community. Because astrophysical applications and workflows have been recognized as excellent test beds for e-Infrastructures and their correlated tools and services, several projects and organizations ask contributions in terms of applications and workflows to our

community. The participation of the astro community to projects recently activated, such as ER-flow is mainly finalized to this goal. The harvesting of workflows and applications is an endless activity which requires looking for new contributors (Institutes, research groups, individuals) and implies continuous interactions once these contributors have been identified.

2.2.10. Earth Sciences

The services for Earth Science 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. A new version (9.3 Final, released 5 Oct. 2012) 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. Necessary adaptions to the *gsearch* tools have been applied. Development will continue until stable versions of the command-line and web clients have been finalized. The web interface needed some architectural changes due to the inclusion of more job capabilities. To interface with the Grid services, first jLite was used. Due to update problems, it was later changed to jSAGA. The ESGF download tool *synchro-data* has been maintained and among others bugs in the recently introduced discovery engine and search-api have been fixed. The usage of the tool in the ESGF community has been actively supported and further requests or wishes are discussed.

For the CTS additional documentation has been prepared. An installation guide, developer documentation and user documentation is now available[67] The VO for the VERCE project has been finalised (VERCE.eu) and the first sites have joined. Deployment of VO software in the VO SW area of the sites has started and first test are carried out. In the community, an additional application is being prepared, regarding the simulation of marine natural risks in the Antilles. Additional information will be published later. Finally, preparation for the yearly session at the European Geosciences Union called "Earth science on Cloud, HPC and Grid" and this years' first EGI session called "Platform federation and data sharing for Earth Sciences: EGI Technical Workshop" has started.

2.3. Issues and Mitigation

The LSGC technical team still consumes most of its effort in performing basic monitoring of the grid resources and services accessible to the VRC, it is difficult to focus on application domain-specific

[67] http://dods.ipsl.jussieu.fr/jripsl/cts

tasks. Discussions are continuing with Operations to improve and mutualise infrastructure monitoring tools and dashboards.

The LSGC currently faces an increasing demand for computing resources which is not satisfactory as most sites only provide opportunistic access to their resources for this VRC. In the context of an overall computing power demands increasing over the EGI, in practice, many sites do not allocate any computing slots to the VO anymore although they will accept and queue biomedical computing tasks (jobs starvation). Discussions are on-going with EGI.eu, NGIs and largest site administrators to improve the VRC resources allocation policies.

2.4. Plans for the next period

As PY3 is the final year of the SA3 work package, the main theme is to complete all work described in the Description of Work and to hand over support to the future support teams.

2.4.1. Hydra service

Several concerns hamper the deployment of the Hydra service in production: on 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 November 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 first tests show that its dependencies are incompatible with the gLite 3.2 release. Hence, along with resource providers choosing to migrate their Worker Nodes to EMI before the Hydra client is released, we can expect the number of appropriate WN supporting Hydra to decrease.

A close follow-up of EMI release plans is organized to ensure that the client be integrated in a future EMI release and deployed as part of the standard distribution. This work is bound by the frequency of EMI release schedules though.

2.4.2. GReIC

A key activity for the last six months of PY3 will be “community outreach” to disseminate the main results of this activity, attract new users and register new grid-database resources. During the next period, new actions in the dissemination plan (jointly defined in June with NA2 representatives) will be implemented. The DashboardDB Desktop will be extended to include new applications and it will be publicised among the user communities. A strong interaction with the end users will focus on adding new entries in the DashboardDB registry in terms both of grid-database resources and grid-database service instances. In terms of use cases, a new one (jointly defined with CMCC scientists and exploiting GRelC as a grid data interface to manage climate change datasets) has been defined and will be implemented until the end of PY3 to provide data analytics functionalities for a subset of CMIP5 climate change data in the NetCDF format.

Concerning EMI & GRelC, the initial study started in PQ10 and will be completed at the beginning of PQ11. The deadline to provide outcomes on the porting activity is the end of PY3. Participation to the SC2012 is planned for PQ11 as part of the dissemination activities.

2.4.3. LSGC dashboard

Increased integration of the VRC monitoring, user's management and reporting tools into the LSGC dashboard is on-going, regarding in particular the following services:

1. User management tools, covering users life cycle management, interface with the VOMS and Application Database services.
2. VRC-wide accounting, needed to deliver statistics at the VRC level. The current EGI accounting portal only provides per-VO accounting information.
3. Monitoring of computing resources availability to detect possible bottle necks among computing resources, and eventually address this issue at different levels, for instance in job submission policies.

Additionally, close collaboration continues with the VO Operations Portal development team, to define and test features.

2.4.4. MPI

During PQ11 the Nagios probes will be deployed in the production infrastructure and work will be started on the MPI contribution to the SA3 Training and Dissemination event that will take place at EGICF 2013.

3. SOFTWARE PROVISIONING

3.1. Summary

In PQ10 the regular publication of UMD releases continued. Supporting multiple OS platforms and triggering the pull of Technology Provider updates, the provisioning process has now become a truly independent service. The activities and processes around Quality Criteria definition and maintenance, and Criteria Verification have reached a steady state point and require little effort for the current UMD update activities.

A total of seven UMD releases were published; three updates to UMD-1 and four to UMD-2. The updates to UMD-2 continued to add in components coming from the first EMI-2 release, interweaving with EMI-2 updates as these were published. While the UMD releases were evenly spread over UMD-1 and UMD-2, the number of UMD-1 releases were significantly lower than in previous reporting periods. This was expected (and anticipated) according to the EMI support calendar. With the end of PQ10, the EMI support calendar moves EMI-1 to its last 6 months of security only updates, before its support will end. Therefore, the number of UMD-1 updates and with this the associated effort is expected to significantly decrease further.

The activities federating private institutional clouds have continued further consolidation of internal activities. The individual work packages have already started to prepare for the upcoming demo at the EGICF 2013, and will continue to do so. The work packages integrating Accounting, Monitoring, and Information Discovery Capabilities to a Cloud federation will continue to work towards integration (or take over) by the operational EGI Core Infrastructure Platform. The work towards integrating VO support in Cloud stacks will continue in the following months leading to a new capability tested at the upcoming Cloud Plugfest.

3.2. Main Achievements

3.2.1. Quality Criteria

The Quality Criteria team has produced the 4th release of the Quality Criteria documents[68] following the roadmap proposed in PQ9. This release incorporates the comments from the Quality Assurance teams of EMI and IGE Technology Providers received after the publication of the public drafts.[69]

The major changes in this release are related to the Security Capabilities and Information Schema: The security related criteria were clarified and simplified and new checks for RFC proxies and SHA-2 certificates were added; the information schema criteria modifications were dedicated to GlueSchema

[68] https://documents.egi.eu/document/1153

[69] https://wiki.egi.eu/wiki/EGI_QualityCritera_Release_4_Comments

v2 support. A wiki page[70] with recommended testing procedures for these new criteria was created to aid the verifiers in the quality assessment process. An updated mapping up products and criteria was produced so the SA2.3 team can produce new templates for product verification.

The team has started the production of the 5th release of the Quality Criteria following the roadmap. For this release, the QosCosGrid (http://www.qoscosgrid.org/) middleware components are being analysed in order to include new criteria for them if needed. The first public draft is now available[71].

3.2.2. Criteria Verification

From the new Quality Criteria release produced by SA2.2 team, SA2.3 has created a new set of verification templates[72]. During PQ10, the SA2 testbed golden images were modified to support UMD-2 repositories. The new VMs instantiated for UMD-2 verification include UMD-2-untested, UMD-2-testing and UMD-2-base repositories. The new repositories configuration helps verifiers to start checking delivered software in a shorter time. SA2.3 VM contextualisation script was also modified to include configuration templates for the most used IGE and EMI products. The new configuration templates are included into each new SA2.3 VM root directory after the first boot. These templates could be used by the verifiers to deploy a quick configuration testing in a few minutes; it includes the testbed services endpoints and also a standard configuration ready to be used by a small site.

SA2.3 verifiers have tested several UMD-2 products in PQ10. The most important EMI products verified for UMD-2 in the last period were UI, CREAM-CE, WN, ARGUS, DPM, MPI and VOMS services. IGE products were also verified, GRAM5, myproxy and default-security are now available from UMD-2. In total 43 different products were verified for three different OS platforms, of which 36 products were sourced from EMI, and 7 from IGE. The mean time to verify a product across all Technology Providers was 7.4 hours.

3.2.3. Support Infrastructure

During PQ10 TSA2.4 continued to support SA2 software provisioning activities as usual. UMD-2 support was started in PQ9, and has continued in PQ10.

For UMD-1, the following releases were published:

Release	Date	Type	Contents
UMD 1.8.0	7 Aug 2012	Planned, Minor	4 updates across EMI, IGE and EGI. EMI: 2 updates • CREAM, StoRM

[70] https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Testing

[71] https://documents.egi.eu/document/1421

[72] https://documents.egi.eu/document/417

Release	Date	Type	Contents
			IGE: 1 update • GridFTP EGI: 1 Update • Repository configuration package
UMD 1.8.1	24 Aug 2012	Emergency, Revision	1 Update from EMI (WMS)
UMD 1.9.0	29 Oct 2012	Planned, Minor	9 components; 4 new and 5 updates. EMI: 2 new components and 5 updates • New: GFAL, ARC Clients • Updated: BDII core, CREAM, WMS. ARC CE, ARC InfoSys IGE: 2 new components • Gridway, SAGA adapters

For UMD-2, the following releases were published:

Release	Date	Type	Contents
UMD 2.1.0	6 Aug 2012	Planned, Minor	17 components; 15 new and 2 updates. EMI: 14 new components and 2 updates: • Updates: StoRM, top BDII • New: EMI-UI, gLite CLUSTER, UNICORE Client6, UNICORE XUUDB, UNICORE/X6, CREAM LSF module, CREAM Torque module, CREAM, WMI-WN, TORQUE server config, TORQUE WN config, gLExec-wn, BLAH, gLite-gsoap-gss IGE: 1 new component (Globus GRAM5)
UMD 2.1.1	11 Sep 2012	Emergency, Revision	1 update from EMI (lcg-info)
UMD 2.2.0	9 Oct 2012	Planned, Minor	13 new components from EMI and IGE EMI: 10 new components • New: gLite-MPI, CREAM SGE module, UNICORE UVOS, MyPROXY (former proxyrenewal), BDII core, gridsite, GFAL/lcg_util, Trustmanager, L&B, ARGUS 1.5.0 IGE: 3 new components

Release	Date	Type	Contents
			• New: Globus default security, Globus MyProxy, Security Integration
UMD 2.2.1	26 Oct 2012	Emergency, Revision	1 IGE update (Globus GRAM5)

Supporting EGI internal operational technology providers, the following releases were published:

Release	Date	Type	Contents
CA update 1.49-1	7 Aug 2012	Planned, Minor	Regular EUGridPMA trust anchor update
CA update 1.50-1	25 Sep 2012	Planned, Minor	Regular EUGridPMA trust anchor update
SAM Update 17.1	22 Aug 2012	Planned, Minor	EGI-InSPIRE JRA1 regular update of the SAM framework.

During PQ10 TSA2.4 performed regular maintenance and upgrade of the EGI instances of the Stratuslab marketplace[73] and appliance repository[74] to be used by TSA 2.3 in a pilot service that will offer virtual machines with preinstalled middleware services.

3.2.3.1. Repository Front End Activities

Admin support for the web front end (word press upgrades, minor changes in the content) and minor bug fixes and enhancements (support for the display version feature) for the rss plugin were implemented.

3.2.3.2. Repository Backend Activities:

During the reporting period, a Repo gadget has been developed by our team and integrated into EGI RT system. The Gadget offers the ability to the verifiers to change a group of PPA specific release metadata.

Some additional technical considerations that need to be mentioned about the Gadget include:

- The Repo gadget is based on an iFrame technology and its main purpose is to be easily included/integrated with the EGI RT system.
- The Repo gadget provides access the repo database using the write-enabled recently developed RESTFull API.

[73] http://marketplace.egi.eu/

[74] https://appliance-repo.egi.eu/

- By using the gadget, one is able to modify the aforementioned metadata for the PPAs that are neither in UMDStore nor in Production state. In case a PPA is in either UMDStore or in Production state, its related metadata should be modified by using the Composer module.
- There are two possible ways for a third-party, to use this gadget:
    - Stand-alone: where one should log into using his/her EGI SSO credentials in order to perform write operations.
    - In conjunction with a trusted source: where the iframe gadget will be included to a trusted source (i.e. EGI RT system) and the authentication process will be of the responsibility of the aforementioned third-party source.

NOTE: In both cases, the AuthZ process will be part of the Gadget itself. Meaning that, having an EGI SSO account will not be enough for someone to make use of the Gadget and change the PPA related metadata. He/she should also be member of either the sw-rel-admins or the sw-repo-gadget ldap group, defined into the EGI SSO profile repository.

A newly introduced field, called 'Display version', has been added to the PPA metadata set. It is modifiable via the Gadget or Composer module (depends on the PPA running state) and its main purpose is to hold an alternative version for a PPA than the one being used internally for the UMD verification process. If this field is not empty, then its value will be displayed as the 'real' PPA version, into the EGI Repository front-end component.

Finally, many bug fixes and enhancements have been performed during the reporting period. Two indicative examples are:

- A bug has been identified and fixed, regarding the RPMs checksum calculation in the produced yum "repodata/*" files
- A mechanism has been created, that automatically perform mass updates to the 'display version' field of a group of PPAs, which are of the same product and version with the PPA that its 'display version' field, actually being updated by the user.

3.2.3.3. Repository Statistics

- Updated to new version of Hadoop tools
- Created a test user to Hue user interface for a web demo
- Basic testing to all tools (Hive, Ooze, flume-ng, Python scripts)
- Basic reading for flume-ng new manual

3.2.3.4. IT support and RT Activities

- EGI forum tool deployment and customization especially development of additional user information synchronization between EGI SSO and the forum tool built on top of existing phpBB LDAP authentication plugin.
- Decommission of sa2-umd-rel - GGUS interface, the interface is still maintained for potential future use though
- Deployment of PGP support for RT-IR
- Installed and maintained a Shibboleth identity provider for the Gridp federation
- Maintenance of the EGI web site

- Re-implementation of Excel export of conference contributions in Indico
- Monthly updates of inspire-members list from PPT
- Added two more fields to personal data in EGI SSO (givenName, surName) to allow Dutch names to be sorted correctly (e.g. van der Meer under M)
- Created the EGICF 2013 web site
- Organised assignment of IPv4 and IPv6 addresses, DNS record and SSL certificate for https://forum.egi.eu
- Updated bouncer repositories for IGE 3
- Implemented deletion of user for EGI SSO
- On-going back office administration, maintenance and user support.

3.2.4. Federated Private Clouds

During PQ10, the Federated Clouds task has been working towards consolidating its activities into focused sub-tasks relating to technology integration and the recruitment of user communities that would be willing to be early adopters of the federated test bed. Part of that work were discussions about use cases relating to the federated Cloud infrastructure, resulting in a set of requirements that would need to be satisfied by updates to the deployed Cloud stacks before day-to-day engagement with user communities will take place.

The technical work continued according to the roadmap with more effort spent towards:

- Integration with the EGI Core Infrastructure platform with a focus on Accounting, Monitoring and Information Discovery.
- Interoperability among different cloud platforms like OpenStack and OpenNebula.

Federated institutional Clouds now consistently report resource usage using an extended version of the OGF UR format, named Cloud Accounting Record (CAR). A preliminary, very limited portal is provided for the time being, until integration with the Accounting infrastructure part of the EGI Core Infrastructure Platform.

Information Discovery and dissemination is currently provided by a dedicated top-BDII instance that aggregates information from local institutional Ldap instances by means of a modified GLUE2 schema.

Federated institutional Clouds integrated into the testbed are monitored using a clean Nagios instance and a set of dedicated Nagios probes. Results are available at https://test30.egi.cesga.es/nagios. Management of Cloud Compute and Storage services through OCCI and CDMI are in steady state, though native support for OCCI is not yet available for deployed Cloud management stacks. CDMI has been confirmed as the management interface for Cloud storage resources in EGI.

In preparation for supporting VO membership for users, a dedicated VO (fedcloud.egi.eu) was set up for the task. This VO is used twofold:

- It is the VO for a GGUS support unit implemented for user support for Cloud resources.
- It is the test VO for implementing VO support for Cloud resources, particularly for multi-VO membership of individual users.

3.3. Issues and Mitigation

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

Description: During the 9th TCB meeting EMI announced that they would cease providing release.xml artefacts for software provisioning, beginning with the publication of EMI-2 (planned in April 2012).

Actions: At the F2F in December 2011 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). Being deployed during PQ9, this tool now is a regular component of software provisioning activities.

Status: Resolved.

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

Issue: This kind of documentation which points at general issues and describes workarounds, is rather scattered among technology provider resources, issues identified and described during the staged rollout, and those found and described by DMSU.

Actions: Integration of this documentation at the release notes pages in EGI repository was proposed, details have to be discussed. No progress has been made in pursuing this issue since regular software provisioning activities took precedence.

Status: Open

3.4. Plans for the next period

3.4.1. Quality Criteria

The Quality Criteria definition team will publish new revised public drafts following recommendations from the technology providers and including criteria for QosCosGrid products. A new roadmap for the following document releases will be produced during PQ11.

3.4.2. Criteria Verification

SA2.3 team is still working on EGI Fedcloud images provisioning task. The new SA2 testbed images are generated by qemu utilities like qcow2 and are ready to be started by KVM hypervisor. In PQ11 it will be release a new automated mechanism to publish the new verified images into EGI Fedcloud Marketplace.

3.4.3. Support Infrastructure

TSA2.4 team continues to work on performing regular UMD releases while we continue the development of the WebStatistics tool to tackle the following issues:

- Map repository web logs with UMD products (it is a many to many relation)
- No geolocation information for IPv6 addresses
- Use hadoop as calculation engine to improve the time needed to process the apache logs.

The software provisioning process will have to adapt also to be able to handle the multiple technology providers that will be offering the products we currently use when the European projects EMI and IGE end (April 2013).

3.4.4. Federated Private Clouds

The overarching goal for the next 6 months is to prepare the testbed so that it can be made available for regular early-access usage to the general EGI community. Parts of that goal are the next steps in the next three months as follows.

First support for VOMS proxies in OpenNebula and OpenStack is planned for early December, ready for the next OGF Cloud Plugfest. EGI Cloud resources will be published as OCCI/CDMI resource types in GOCDB, making them available for generic EGI monitoring and Availability/Reliability calculations by the EGI monitoring infrastructure. The necessary probes will be pushed into one of the next SAM updates enabling site admins to enable Cloud resource monitoring through standard EGI production-level means. The transition to the production accounting portal using a dedicated cloud section is part of that activity list. As the future of BDII is unclear at the moment, an alternative solution employing the EMIR service coming from the EMI project will be investigated.

Higher-level services such as Brokering will be investigated as required, and possibly sourced in from participating user communities where possible. Feedback to standardisation bodies will be provided where applicable (e.g. Usage Records, GLUE2).

4. COMMUNITY ENGAGEMENT

4.1. Summary

The main focus of EGI's community engagement in PQ10 was the EGI Technical Forum in Prague 17-21st September 2012 attracted over 400 people from around the world to an event with over 300 contributions from over 200 speakers. The event was co-located with GlobusEurope and featured a meeting with the European Commission relating to the future development of DCIs in Europe. The EGI Champions scheme was launched in Prague with a call for applications. EGI Champions will be experts from within the research community that will help EGI with reaching out to new user communities and improving support within the production infrastructure for their needs.

In preparation for the EGI Council meeting in Prague in September, a report was prepared on how the ERIC legal model could impact EGI and its activities. Following input from various NGIs, a proposal for a Digital Research Infrastructure ERIC was prepared that could bring together different e-Infrastructures and the services needed by individual research infrastructures under coordinated governance. Following feedback at the Council meeting the report was revised and a plan proposed to the Council meeting in November 2012 for endorsement.

Following on from the September Council meeting two policies were developed for discussion and decision at the November meeting. These related to demonstrating excellent science on EGI resources by defining a pool of resources from across the NGIs that could be allocated to user communities following peer review, and an exercise to see how resources from within the EGI could be made available to users willing to pay for access. Alongside these activities the first EGI Compendium was released providing an overview of EGI activities across Europe in 2011.

The Virtual Team activity has continued with several entering the final phases of their activity by consolidating their achievements into their final reports. These include SPEECH on the Grid, Science Gateways in EGI, GPGPU on EGI and Inter NGI Usage. The Scientific Repository VT completed and its outputs were used within the policy documents presented to the EGI Council. The EGI Champions VT's outputs were used and presented at the EGITF 2012. The Environment and Biodiversity, and ELIXR VTs have both been in their startup phase during PQ10.

4.2. Main Achievements

4.2.1. Marketing & Communication

The main focus for communications activities during PQ10 was the EGI Technical Forum which was held in Prague from 17 to 21 September. The event was attended by 415 participants and included over 300 contributions, 203 speakers and 42 session convenors. The communications team coordinated the outreach for the event through the social media channels, such as Twitter, Facebook and Flickr, and also produced the programme, badges and website. During the event, the team staffed

and ran the EGI booth in the exhibitions area, and coordinated the media activities at the event. These included attendance by the iSGTW editor, the editor of HPCintheCloud and the GridCast team. During the event, there were over 500 microblog posts on Twitter from 60 users, more than twice the traffic from the previous year's event. Photos were tagged in Flickr and GridCast published 17 posts from 6 bloggers, including 9 webcasts and 2 demo videos. The Conference4Me app was downloaded by 190 users, nearly half the attendees. A number of articles were published in HPCintheCloud and iSGTW including "Grid Community Gathers in Prague[75]", HPC in the Cloud, 18 September, "Globus and Grid: Blazing Trails for Future Discovery[76]", HPC in the Cloud, 13 September and "Federating clouds to aid researchers[77]", iSGTW, 17 October 2012.

The team presented the EGI communications handbook to the NILs and ran a session on marketing and communication. A European version of Globus Online was launched on 20 September, and announced through a joint press release with Globus and IGE. An EC workshop on DCIs for e-Infrastructures was also held on 18 September bringing together key stakeholders from the commercial and academic spheres. From the feedback survey, 126 responses were received. The majority of delegates found the website useful and the online registration easy to use. Conference staff and EGI staff were deemed to be helpful and most delegates had no major problems with the logistics of attending the event. Nearly half the respondents accessed our Twitter account compared to 25% on Facebook, making Twitter the most popular social media channel. Over 35% read iSGTW, and about 25% visited the EGI and GridCast blogs.

TNA2U.2 and TNA2U.4 continued to work together on joint planning of outreach and attendance at events, and in PQ10 focused on the European Conference on Computational Biology in Basel, where EGI case study brochures on life sciences were distributed by the Dutch NGI. EGI was on the agenda at Digital Research 2012, the UK All Hands Meeting and a presentation and poster were given on EGI at eChallenges in Lisbon in October. EGI was also presented at the EUDAT 1st Annual Meeting in Barcelona, and at the EUROMED'12 conference in Cyprus.

Further articles about EGI were published in *PanEuropeanNetworks: Science & Technology*, *iSGTW*, *Belarus Telegraph Agency*, *International Innovations*, *HPCwire* and the *CERN Bulletin*. Three Directors' letters were issued in August, September and October. The communications team also launched a new monthly publication called the NIL Bulletin, in response to feedback from the NIL communications session at the EGI Technical Forum. The new publication is issued through Mailchimp to the NILs list and features links to key events, materials and initiatives targeted at new users, which will be of direct use to the NILs.

[75] http://www.hpcinthecloud.com/hpccloud/2012-09-18/grid_community_gathers_in_prague.html

[76] http://www.hpcinthecloud.com/hpccloud/2012-09-13/globus_and_grid:_blazing_trails_for_future_discovery.html?featured=top

[77] http://www.isgtw.org/feature/federating-clouds-aid-researchers

The communications team has supported the new EGI Champions scheme, advertising the launch and recruitment process, setting up the web pages and designing a launch pack and postcards which can be downloaded to display on campus or distributed at events. The team also launched the EGI / iSGTW Writing Competition, which has been advertised on AlphaGalileo, Cordis, iSGTW and to European journalists and closes in January 2013.

In collaboration with the NILs and NGIs, the communications team has also participated in the ENVRI VT, the Inter NGI usage VT, the Scientific publications VT and NGI Compendium VT. The dissemination team will help to publicise the new scientific publications repository and has edited the layout of the final version of the NGI Compendium.

4.2.2. Strategic Planning & Policy Support

One of the main outcomes of the EGI.eu Strategy and Policy Team (SPT) in PQ10 was the "EGI.eu Transition Plan to ERIC"[78] which describes motivation, governance and the transition plan for transforming EGI.eu in to an ERIC organisation. A dedicated working group has supported the work with members of the EGI Council who provided feedback to a number of drafts discussed over dedicated teleconferences. The deliverable has been discussed also within the EGI.eu Executive Board and Council. The SPT also authored two other important strategic documents: "Demonstrating Excellent European Science on EGI's shared resources"[79] and "Exploring how researchers can pay for EGI Resources"[80] that have been delivered to the EGI Council for supporting decisions on future evolutions of the EGI organisation.

The SPT also analysed the results from two surveys conducted within the EGI Council regarding ERIC and EGI Global Tasks, provided feedback from the EGI-InSPIRE 2nd year EC review, on the EGI Paper and on the Gender Action Plan. Following the collaboration with the gSLM project, the SPT provided support within EGI.eu for a proper definition of the EGI.eu service portfolio according to ITIL best practices.

As a result of a virtual team project for establishing an EGI Compendium, PQ10 saw the finalisation of a formatted, comprehensive report of the EGI Compendium[81]. The SPT brought to close another important VT related to the collection of scientific publications and related policies through a report including several recommendations[82]. Work to take forward collaborations in this area as continued to the OpenAIRE project. The SPT has recently proposed a new VT project for the classification of

[78] https://documents.egi.eu/document/1339
[79] https://documents.egi.eu/document/1415
[80] https://documents.egi.eu/document/1391
[81] https://documents.egi.eu/document/1424
[82] https://documents.egi.eu/document/1369

scientific disciplines used through EGI[83]. Activities will be taken forward during the next project quarter. Overall management of VTs comprises of communicating via email, chairing periodic phone conferences, updating the dedicated wiki page and authoring the final output with VT member support.

The SPT also establishes and coordinates agreements with projects, providers, organisations and communities for joint collaboration. A MoU with a new technology provider was signed (PSNC) relating to QosCosGrid software which offers advanced job and resource management capabilities while the activity to monitor the existing MoUs consisting of following up on milestone activities and reporting continued. Negotiation progressed with DANTE and is close to completion. The data provided to the ERINA+ collaboration has been refined to provide a more representative evaluation of the socio-economic impact of EGI-InSPIRE.

The SPT also strives to communicate on-going activities through both EGI communication channels and external ones. SPT wrote two articles for the EGI Inspired newsletter on involved with projects e-FISCAL and gSLM and a blog post on the ERA Communication. External articles covered the EGI Compendium for the e-IRG newsletter and one on EGI and Horizon 2020 for EuroFocus edition of International Innovation. The SPT also authored a section on security for the e-IRG Blue Paper on Data Management (http://www.e-irg.eu/publications/blue-papers.html).

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. EGI presented an accepted paper at the e-Challenges Workshop in Lisbon and also submitted abstract at the EU Science event. Regarding the second of EGI two major events; the EGITF 2012, the SPT was in charge of the Communication and Coordination Track, comprising of 11 different sessions of which 9 consisted of developing the programme agenda. In addition to Track Leader meetings SPT members provided presentations at the event and chaired several sessions.

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 a review and update of policy group ToRs including an approved version of OMB ToR, drafted disclaimer for use across EGI channels that originated through the AppDB, as well as a drafted new license for SPG policies. Part of the SPT responsibilities is offering secretariat support at policy group meetings. The SPT also submitted a request for closing the OAT and USAG policy groups, following a request from the related chairs.

During PQ10, STFC continues to chair and lead the Security Policy Group (SPG). A face-to-face meeting of SPG was organised and chaired during the EGITF 2012 where work continued on the

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

revision of the old top-level Security Policy and of the Accounting data handling policy. Several other minor policy issues were also discussed and agreed.
During PQ10, the SPG Chair also worked on the following security policy topics:

1) Attended regular EUGridPMA and TAGPMA (International Grid Trust Federation) meetings representing EGI and WLCG as a relying party. Particular topics addressed by the SPG 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 a collaboration between EGI, WLCG, OSG, PRACE, and XSEDE to build a standard framework for security policy and trust for interoperation. A face-to-face meeting was chaired by the SPG chair on 12-13 Sep 2012 in Lyon where a close-to-final draft document was prepared.
3) Represented the Federated Identity Management for Research (FIM4R) collaboration at a TERENA meeting on VO Architecture Middleware Planning (VAMP) in Utrecht on 6-7 Sep 2012. The goal of the workshop was to foster the deployment of identity management and collaboration tools within the research community. Good progress was made during the workshop looking at the identity management needs across many aspects of the research process. The SPG chair gave one of the opening talks setting the scene, followed later by a more detailed presentation of the FIM4R agreed set of requirements. It was agreed that future discussions on this topic will happen on the REFEDS mailing list.

FOM continued work with EUGridPMA and IGTF. The rapidly changing e-Infrastructure landscape around the world also poses challenges in keeping the authentication fabric accessible to all users. In some cases especially outside Europe, the user communities have shown more persistence than the e-Infrastructure - so guidelines have been proposed and solutions adopted to allow movement of authentication information between the identity authorities to allow continuation of end-user services. This has happened both in the Asia-Pacific as well as the Americas. In Europe, the use of the multi-national TERENA Certificate Service (TCS) is growing, in cases taking over from former NGI-sponsored identity services where such services disappear.

The continuous technical policy developments in the (commercial and government) identity space also lead to new guidelines being developed in the IGTF. These concerns cryptographic and secure digest developments, as well as the propagation of timely identity status information ("OCSP"). These policies are developed in close collaboration with resource centres and technically-oriented end-user communities. The EUGridPMA also agreed on the guidelines for operating attribute authorities, expanding its scope beyond pure identity management, but leveraging the experience in this related area. Two EUGridPMA meetings and two IGTF meetings (held in conjunction with Open Grid Forum CAOPS-WG meetings) focussed on the above issues, and resulted in guidelines and policies on migration timelines.

4.2.3. Community Outreach

The main outreach activity for PQ10 centred around the EGITF 2012. The EGI Champions scheme was launched formally at the NIL meeting on Monday as well as at the opening plenary Director's talk. An interview was conducted with eScienceTalk (http://youtu.be/30oCD5WIlvs) and business cards for the scheme were selectively distributed to potential Champions and others who could identify candidates.

The EGI Champions scheme followed months of preparation, firstly in the form of a VT project to define the scheme and secondly as a prepared launch where news stories, blog posts and cards were produced to be used to publicise the scheme. Arranging the launch to coincide with EGITF 2012 enable a number of prospective candidates to be approached face-to-face kick-start the process. A web page was prepared and also a wiki mini-site with further resources for the successful candidates and others to draw upon. Nineteen potential candidates were identified by the end of the Forum and these translated to 9 applications being received in time for the first meeting of the Oversight Committee (OC). The OC first convened on the 26th October and accepted 6 applications with two of these being conditional on the applicants expanding their outreach goals.

EGITF 2012 also saw successful use of Conference for Me (Conference4Me) app for Android devices. Synchronisation with Indico and timing issues in terms updates were fine-tuned in the run-up to the Forum in order to maximise the effectiveness of this increasingly popular mechanism for keeping track of the event. In terms of the programme for TF12, much work went into preparing Indico so that sessions were cohesive and well integrated. Parallel sessions were kept to a meeting as 'too much choice' had been a criticism of CF12.

Overall, TF12 went very well with a good mix of attendees from various backgrounds – research community, developers, policy makers, research group leaders and other complimentary projects interacting and promoting their activities. The informal nature of the conference dinner was reported by many to be particularly valuable in this respect. The keynote talks all worked well in terms of promoting the key themes of the event. These included an in depth examination of cloud computing and also the EISACT 3D (European Incoherent Scatter) project by Esa Turunen. The latter was valuable as it presented the assembled audience with a detailed look at the overall needs of what is potentially a significant new user community with a research infrastructure that is being used to investigate how the Earth's atmosphere is coupled to space.

Preparations for the EGICF 2013, to be held in Manchester, UK also began during PQ10. A site visit to Manchester took place on 23rd August 2012. This included the conference centre itself and the Gala Dinner venue also. The first meeting of the LOC took place in Prague.

The User Community Board met on 21st August 2012[84] and 10th October 2012[85]. Attendance at UCB is not high however the discussions that ensue are perceived as valuable by those that do attend. The

[84] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1127
[85] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1169

August meeting also included technical presentations on 'VOMS proxy lifetime; security note and current practice', 'EMI long-term software maintenance plans' and 'Review of persistence policy of user DN information in the accounting repository'. Technical guest presenters appreciate having the opportunity to present and discuss such matters with representatives from user communities. This is a concept that will be built upon during the next quarter to promote involvement in the UCB.

Another key community that is being strategically targeted by EGI is the Digital Cultural Heritage (DCH) as a sub-group of humanities with emerging needs for distributed computing. DCH activity included the presentation of an EGI-InSPIRE paper at EUROMED 2012 in Limassol, Cyprus, a video presentation at the final INIDCATE project meeting in Turkey and the launch of the DCH-RP (DCH-Roadmap for Preservation) project in Rome. This project in which EGI.eu and other NGIs are partners is important for EGI-InSPIRE because it will take forward the use of the infrastructure by researchers from the DCH community through EGI's role as coordinator of the proof-of-concept trials. Various related news articles have appeared in DigitalMeetsCulture to support this work.

EGI has had a proposal accepted for a workshop at the European Geosciences Union General Assembly to be held in Vienna, Austria next April. This workshop was designed to complement the session being organised by the Earth Sciences VRC on Grid, Cloud and HPC computing. Unfortunately, the event coincides with EGICF 2013 so the session will be led by Monique Petitdidier while EGI.eu will assist in organising a set of contributors who will present relevant specialist technologies.

EGI-InSPIRE has installed its own instance of a CRM system, but to date this has been underused. An investigation was undertaken to analyse how this could be better utilised in terms of creating workflows to pass instructions between specialists at EGI to generate and follow up on leads. This work involved support from the team at LIP who are hosting the service. The CRM wiki pages are being expanded to support these changes.

The Community Outreach Team meets regularly with the other teams within NA2 including NA2.4. Specialist meetings are also held such as on with Steve Tuecke from Globus Online to discuss the launch of Globus Online on Europe. A meeting was also held with Lisa Green from Common Crawl who was visiting the Science Park. This resulted in interest in Common Crawl becoming a sponsor for EGICF 2013.

4.2.4. Technical Outreach to New Communities

The activities and achievements performed/achieved by the TONC group of EGI.eu in PQ10 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, as well as with new requests that came in since then. Each of three groups made good progress during the quarter; details are given in the technical service specific subsections below.

- During PQ10 one TCB teleconference meeting was held on 14th of September in 2012[86]. One topic (#1777 Increased stability and scalability for gLite WMS) consisting of six requirements has been delivered by technology providers through the TCB. They provided best practice document for the WMS service. Another topic which was delivered (#2731 Access rights synchronisation) consists of two requirements. The TCB solutions have been also delivered to the following requirements: #704, #1626, #3563, #1626. Two items have been returned to the user community with recommendations (#3404 and #924). UMD 2.1.0 release came out on the 06th of August addressing a JDL related requirement; #2968.UMD 2.2.1 release came out in October, 2012, providing fixes for two MPI-related requirements (#920 and #727). Other requirements did not need the involved TCB:
    - Requirement #909 was closed after the request for more automation within the LCG-until tools was rejected by the related middleware product team in the EGI Helpdesk.
    - Requirement #2985 was addressed and closed by UCST, implementing a process to collect information about user robot certificates usage[87].
    - Requirement #925 was closed after UCST collected and published information about the certificate authorities that provide robot certificates and clarified how the introduction of robot certificates at other CAs could be requested (through the NGI user support teams)[88].
    - Requirements #2877 was closed and STORM storage management system was offered as solution with recommendations from EGI Helpdesk.
- The team was involved in six Virtual Team projects: GPGPU requirements; Science Gateway primer, Fire and smoke simulation; Speech Processing on the Grid, Environmental & Biodiversity, Collaboration between EGI/NGIs and the ELIXIR ESFRI project. The Fire and smoke simulation VT published its final report during PQ10. The TONC team actively contributed to the report and in the follow up of recommendations from it. The team also supported a new VT proposal that would make recommendations on SSO and portal services for the CTA ESFRI project. The VT could start in PQ11.
- The TONC team run the VRE track of the EGITF 2012, including the following sessions:
    - 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 to support the Science Gateaway Primer VT
    - A session with various VRE-related contributions from the community

[86] All the requirements that are referred to in this paragraph by number can be found using these numbers on the http://go.egi.eu/requirements page.

[87] https://wiki.egi.eu/wiki/EGI_robot_certificate_users

[88] https://wiki.egi.eu/wiki/Robot_certificates

- A 2x90 minutes long 'Workflow community' workshop co-organised with the SHIWA and ER-flow EC projects.

- Hosting and working with Jelena Tamuliene, who spent three months as an 'Application expert' at EGI.eu between July and September 2012. During PQ10 this work resulted in a report[89] that provides a review of EGI AppDB and Computational Chemistry software registered in it, and making recommendations on improving these, as well as the Operations Portal where VOs used by these applications are registered. These recommendations are followed up by the TONC team with the respective software/service providers.
- Finished the setup of a new section on the EGI website[90] about the EGI Federated Cloud activities, about the infrastructure and support that exists for use cases that wish to use the EGI Federated Cloud testbed. Members of the team started working with two use cases: With OpenModeller in collaboration with the Biovel project and with PeachNote. The first milestone with the OpenModeller use case has been achieved at the end of PQ10, the work continues in PQ11.
- Gergely Sipos gave a presentation about Federated Identity Management activities in EGI at the VAMP Workshop[91]. After the talk a discussion document[92] has been written for the AAI workshop of the EGITF 2012 in order to facilitate integrated support for the access of EGI resources from web portals that are integrated with identity federations. The work will continue in PQ11 through the email list that has been setup after the AAI workshop.
- The team completed tests with the European part of the Globus Online service[93] that has been released in September. A summary about this has been presented to the EGI Technology Coordination Board in early November[94]. The presentation was found useful by the TCB, but the TCB agreed that the method suggested by the Cookbook that the TONC team prepared for EGI VOs (slide 11) on how to access SRM storages demonstrate a method that may lead to damage of storage systems. The TCB decided that EGI should not recommend this method to EGI VOs so the Cookbook has been changed accordingly. In PQ11 EGI.eu will have discussions with the DMP and dCache communities on possible safe configuration for DPM and dCache SRM servers that would allow the mixed use of these storages with SRM clients and with Globus Online.
- The team is involved in the planning of the EGI/EUDAT/PRACE data management workshop[95] that will be held in Amsterdam on the 26-27th of November.

Applications Database

[89] https://documents.egi.eu/document/1348
[90] http://go.egi.eu/cloud
[91] http://www.terena.org/activities/vamp/ws1/
[92] http://go.egi.eu/aaiworkshop
[93] http://www.globusonline.eu/
[94] http://go.egi.eu/tcb-14
[95] https://indico.egi.eu/indico/conferenceDisplay.py?ovw=True&confId=1228

Developments on the EGI Applications Database during PQ10 mainly focused on preparing for the EGITF 2012, assessing and responding to requirements created thereof, and further pursuing existing development plans. During the Forum, the EGI AppDB team held post at a presentation booth for the extent of day three, where the service was presented to inquiring individuals, in the form of adaptive interactive presentations, while gathering requirements and feedback. The session was quite productive, leading to a number of requirements that was followed up by the team.

More specifically, the need to modify certain aspects of the presentation layer became evident, leading at first to a partial revamping of the user interface, namely the addition of a navigation bar at the top of the screen, while lightening the navigation pane accordingly, by moving sections and contained items. Item lists got a face lift which made them more legible, while presenting additional useful information, such as rating and visit statistics. In addition, new software categories were separated from the existing Applications and Tools categories, resulting separate, more visible categories for "Science Gateways" and "Workflow Systems". In order to better serve the new categorisation some of the text on the graphical interface had to be changed (e.g. Applications token was renamed to the more general term Software where it refers to either Application, Science Gateway or Workflow.) Both actions above fall under EGI RT ticket #4335[96]. Other user interface changes include the improvement of auto-completion in search boxes, as well as the inclusion of links for so-called Top Charts, which display the highest rated, the most visited, the most recently registered, and the most recently updated software items from AppDB. (This is requirement ticket #4336[97]) Finally, work on creating an overall improved user interface has continued during PQ10, with major changes programmed to be released during PQ11.

Actions pertaining to existing development plans, released during PQ10 include search ranking and ordering according to requested criteria, this being the default for all searchers henceforth. A caching framework for all search queries has also been introduced, rendering searches faster and more responsive. A number of improvements to existing features have also been released; the FAQs page is now editable by people outside of IASA; people who possess admin, manager role in the system have this possibility. This currently includes members of the EGI.eu User Community Support Team, but granting permission for others is also possible. The broken links notification subsystem has been extended with an editable white-list, in order to manually filter out links that are flagged as broken by the system but are actually valid. The dissemination tool has also been extended with per-individual based access, upon request, and finally, per-software item custom middleware entries has have been improved, in order to include more information such as middleware home pages and to better the overall experience.

Client Relationship Management system (CRM)
The work in PQ10 was driven by the need to upgrade the EGI CRM software from vtiger version 5.3.0 to 5.4.0. The urgency of the upgrade was imposed by the necessity to track and follow the activity of

[96] https://rt.egi.eu/guest/Ticket/Display.html?id=4335
[97] https://rt.egi.eu/guest/Ticket/Display.html?id=4336

each individual CRM user, something that could not be achieved with the older vTiger version. The upgrade procedure was carefully tested at LIP and UPV and then applied in the CRM production instance. The major concerns regarding the upgrade work focused on the database migration (with corresponding schema updates and sanity checks) and on the reimplementation of the EGI customizations including modules reconfigurations and software redeployment.

Among the introduced new capabilities (such as higher granularity of ACLs and permissions) the major enhancement was the introduction of the ModTracker module which stores historical data regarding changes in CRM records (accounts, contacts and documents). Based on information gathered by ModTracker, we will be able to produce summary tables and expose them through the auxiliary public web interface that was developed during PQ9, and that currently works as a central public point to obtain CRM activity metrics. The enhancement of the auxiliary public web interface is focused on the development of the software to interoperate with the ModTracker module information. This activity is currently on-going and will finish in PQ11. Following the upgrade, the CRM EGI Wiki documentation was reviewed and updated to reflect the new reality.

In order to increase the usage of the CRM tool by the EGI community, a talk has been given to the NGI International Liaisons at their closed meeting during EGITF 2012. One-on-one private discussions/training took place later that week with EGI.eu members and representatives of some of the VTs that should use the CRM for community engagement activities. These discussions resulted in the implementation of mechanisms to pass information regarding acquired leads between different EGI groups. Additional effort in currently being delivered on how to summarize information and follow up the activity focused on the gathered leads.

Some extra development work was focused on Web UI validations through JavaScript enhancements. Such developments avoid the introduction of malformed strings, strange characters and on the validation of selected options. Finally, the operation of the CRM continued in a regular basis which included several administrative tasks such as support to CRM users, addition of new users, creation of new users groups and small changes in the CRM reports requested by EGI.eu members.

Training Marketplace

During PQ10 the Training Marketplace has focussed efforts on increasing uptake of the tool and demonstrating its application to various new and existing communities. The number of relevant items (uploaded or verified within 12 months) and the number of gadgets deployed have all increased during PQ10. A demo was held at the EGITF 2012 and produced three posters that were displayed on the demo booth during demos and on the UK NGI booth at other times. During PQ10, the Training Marketplace was demonstrated at the UK's Digital Research 2012 conference (Oxford, UK) and a morning workshop to debate the sustainability of core tools and services, including the Training Marketplace, was held. The workshop was attended by leading representatives from the distributed computing community, policy representatives from government and advisory groups, and funding agencies. In October Claire Devereux attended a Research Council (EPSRC) meeting to discuss training the next generation of researchers in the UK. She discussed the Training Marketplace with

representatives from the major academic training providers and gained significant interested from many to trail usage of the Training Marketplace. This has since been translated into uptake. She was also asked to lead on a proposal for the Research Council to take to a governmental advisory committee to consider the long term funding of a UK Training Marketplace, which would allow the UK to continue offering the EGI a Training Marketplace post EGI-InSPIRE.

The Training Marketplace deploys CAPTCHA mechanisms to reduce the occurrence of spam reaching the comments fields (which is otherwise published without verification). During the EGITF 2012 a number of spam comments were received reaching one event (~90). These were manually deleted and an improved technical solution was sought because CAPTCHA can be machine-solved and has been overtaken by more sophisticated anti-spam tools. ReCAPTCHA is the leading one and it was deployed on the live site. This solution should eliminate almost all machine generated spam. Despite the solution we still received spam, although in smaller amounts. We created monitoring and alerts for site access logs over a period of time which proved that ReCAPTCHAs are being solved in a small number of cases - almost certainly by a person and not a machine. The number of spams received since the ReCAPTCHAs is small. If it does become more of an issue we will consider site-wide implementing blocking of IPs relating to probable spammers.

During PQ10 Matt Heeks left STFC and has been replaced by Tom Morrison. The transition was smooth and there was a 5 week handover. Looking forward we will continue pushing the Training Marketplace to increase its uptake. In PQ10 we received double the number of site visits than the previous quarter and are receiving the backing of the UK community, which should lead to many more events being published. We will be designing and implementing increased functionality and improved appearance of the Training Marketplace gadget. The next version of the gadget will be able to filter by project and by discipline as well as by country, making it more versatile and applicable and increasing gadget uptake.

4.2.5. Community Activity

4.2.5.1. VT - SPEEch on the griD (SPEED)

Project Lead: Ing. Milan Rusko (NGI_SK)

Start Date: 7/Mar/2011; status: Active – draft report is being updated.

This Virtual Team aims to establish a speech processing Virtual Research Community on EGI by

- Porting of parallel implementations of the speech processing applications to the European Grid Infrastructure.
- Identifying the potential users from the speech processing community, that would benefit from using their applications ported to the EGI platform.
- Providing support for the communities to become users of the EGI platform.
- Promotion of community cooperation activities on the development of the grid-enabled applications in the speech processing.

The main expected output of this project is two-fold:

1. Making a Grid computing available to a wide scientific community of researchers dealing with speech processing.
2. 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.

Membership of project team: speech processing researchers from 9 countries (Austria, Finland, Ireland, Republic of South Africa, Switzerland, Slovakia, UK, US, Netherlands), and Slovak NGI group.

Principal stakeholders:

- Milan Rusko (leader, Institute of Informatics SAS, Bratislava)
- Miloš Cerňak (Idiap research institute, Switzerland).

Preliminary experiments with parallel computing enabled acoustic model training on the computer cluster were made to test the behaviour of the algorithm when ported to highly parallel computing environment. Miloš Cerňak (IDIAP) and Ján Astaloš (Slovak NGI) has built a framework for parallel acoustic model training based on HTK (Hidden Markov Toolkit) data parallelism.

By our opinion, some of the experts from above mentioned countries could start to use grid infrastructure after they will receive more information (and encouragement regarding user support) from these countries NGIs. We will prepare a list of identified contacts and who should be connected to the local NGIs to introduce them to each other.

4.2.5.2. VT - Science gateway primer

Project Lead: Robert Lovas (NGI_HU)

Period of operation: Started 16 May 2012 with initial completion targeted for mid Dec 2012.

The principal aims of project are firstly to gather and document a set of gateway developer guidelines covering best practices for building gateways, currently available solutions and advice on how gateways can be integrated with EGI services. Secondly, the project aims to improve the EGI AppDB to better support Science Gateways registry entries. The project deliverables are being developed as follows:

- Up to date and complete information in the EGI Application Database about EGI science gateways and science gateway enabling technologies
- Recommendations on how to improve the data structure of the EGI Application Database and the EGI website to better support science gateway developers
- A comprehensive document, an 'EGI Gateway Primer' that contains a collection of information about technologies, policies, solutions that exist from the EGI community for gateway developers.

There are 35 team members with different roles under the scope of this project – 10 are active in developing the Primer and another 25 stakeholders are participating as observers.

Two new relevant topics for the Primer document emerged over the last quarter: Science gateways and clouds; Visualization of data. The key ‘requirements’ from VT members for the AppDB EGI service are being collected into EGI RT system. AppDB developers are already engaged in responding to

these ‘requirements’ and developing corresponding solutions. Public dissemination of the work being done by the VT started at the EGITF 2012 and is now being continued in the EGI Forum tool.

Looking ahead, the following issues will be progressed over the next weeks up to completion of the project:

- Feed new terms to the EGI Glossary Coordination group
- Final review of all Primer contents for consistency
- Ask for external review of the Primer using EGI communication channels
- Finalize set of requirements towards AppDB before committing to development effort

The VT’s Primer document will be the first that the team is aware of that brings together all major topics relevant for the Science Gateway developers community.

4.2.5.3. VT - GPGPU requirements (General-Purpose computation on Graphics Processing Units)

Project Lead: John Walsh (NGI_IE)

Period of operation: Started 21 May 2012; status: investigation complete and report in course of final preparation.

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 and sought 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 collected ‘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 comprised 20 members, including representatives from the FP7 funded Mapper project.

Two surveys were conducted, the findings of which can be summarised as follows:

- The vast majority of resource centres that use GPGPUs plan to extend their GPGPU offerings;
- We expect the number of sites offering GPGPUs to double (based on the responses);
- Users would use these resources if they were available via a grid mechanism;
- Most users and developers will use CUDA (a third would like to use OpenCL, which is portable across GPGPU platforms);
- Most users would like double precision capabilities, but some could cope with single precision.

Moving forwards:

- The technical integration has some challenges, and we would like to set up an interest group to define best practices and develop an integration strategy;
- There were a few Resource Centres who are very interested in helping with the technical implementations.

The VT has essentially completed its investigation and the findings were presented during the EGI Technical Forum in Prague in September. The presentation was well received and all that remains is for the final project report to be tabled – this expected in late November. The next stage is expected to be the establishment of an interest group to drive the technical proposals forward.

4.2.5.4. VT - Inter NGI Usage Report (second phase)

Project Lead: Kostas Koumamtaros (NGI_GR) and Sara Coelho (EGI.eu)

Period of operation: Started 30 May 2012 with initial completion targeted for end of Dec 2012.

Principal Aims of Project:

- Produce the first EGI Usage Report[98] .
- Document caveats / accounting restrictions / and other assorted problems that make an accurate inter-usage analysis difficult.

Intended outputs:

- EGI Usage Report, including a list of caveats / accounting restrictions / and other assorted problems that make an accurate inter-usage analysis difficult.

Membership of project team and principal stakeholders comprised 7 NGIs plus EGI.eu and the Accounting Portal team. The work carried out was broken down into 2 broad tasks as follows:

- Task 1: Identify and then provide a list of revised requirements to Accounting Portal. This was completed with RT ticket n.3596 (https://rt.egi.eu/rt/Ticket/Display.html?id=3596)
- Task 2: Add the required new views to the Accounting portal; the solutions are currently under development.

Significant findings so far:

- The VT established that there is a view (table / pie) showing percentage of foreign users by country. What is now required is the inverse: a view (table / pie) showing percentage of foreign usage. The requirement has been accepted and data is already being compiled by the Accounting Portal; additional views currently being developed.
- The VT met for a F2F meeting at the TF2012
- The Table of Contents generated in the previous VT is currently being discussed and updated

[98] https://wiki.egi.eu/wiki/VT_Inter-Usage_Report,_part_II

4.2.5.5. VT - Environmental & Biodiversity Project

Project Lead: Yannick Legré (NGI_FR)

The project was accepted by the EGI.eu management team in June but started on October 1st, 2011. It is scheduled to complete February 28th, 2013. The VT has been initiated by the Environmental cluster of ESFRIs (ENVRI) and by the CReATIVE-B project and it aims to involve all the relevant actors and NGIs in Europe. Its defined goals are twofold:

- Collect information and have an extensive overview about Environmental and Biodiversity research communities present in the participating NGIs as well as Environmental ESFRIs participants in whatever countries/NGIs they belongs to.
- First steps to prepare the creation of the VRC -After the successful completion of the first phase, the current VT project will be followed by the VT in charge of the VRC building involving members of Environmental & Biodiversity communities.

The expected outputs of the VT after 6 months are:

- CRM information completed and up to date in the fields of Environmental & Biodiversity
- Main potential added value of EGI and EGI.eu to these communities
- A list of key persons in the field of Environmental & Biodiversity to be involved in the VRC creation VT.

The current team membership comprises members from 12 NGIs + EGI.eu while the stakeholders we are consulting with are spanning more than 45 countries both in Europe and beyond. Projects people are involved in include more than 10 ESFRIs in the Environmental area, plus National, European and International funded projects.

General description of work completed/planned: The main work done so far has been to investigate the EGI CRM tool, checking the information already registered in the system and assessing the possibility for the VT members to check it and input new data. It appears the functioning of CRM is a bit difficult for non-experts and so its data has been exported to an Excel file for review by stakeholders. The new file has yet to be distributed to VT members to review. Up to now the VT has started information collection gathering more than 300 names worldwide. This information still has to be transformed into a format that can be reinserted into CRM and people have to be associated with appropriate projects. The work will continue in that direction over the next quarter.

4.2.5.6. VT - ELIXIR

Project Lead: Pavel Fibich (NGI_CZ)

Period of operation: Started 1 Oct 2012 and scheduled to complete by 30 March 2013.

The project aims are firstly to establish a social network of ELIXIR-related people within individual NGIs (ELIXIR liaisons in NGIs). This network should then become a basis for international collaboration at both technical and organizational levels between ELIXIR and EGI. Secondly, the project will propose a coordinated approach for EGI to collaborate with and support ELIXIR.

Project team membership comprises representatives form most of the nations who have an established MoU with the ELIXIR project and the ELIXIR Project Manager. A drive to expand membership to all stakeholder nations is underway, together with creating clear working links between national ELIXIR representatives with their corresponding NILs. Meetings are conducted on a weekly basis and the VT is working effectively towards its goals.

4.2.5.7. VT – Scientific Publications Repository

Project Lead: Sergio Andreozzi (EGI.eu)

The VT Scientific Publications Repository was created with the goal to define a set of recommendations that should lead to a better demonstration of the EGI scientific impact through the accurate tracking of the related scientific publications. The VT operated from Jun 2012 to October 2012, was led by the EGI.eu Strategy and Policy Manager and saw the active participation of NGIs from Germany, France, Turkey plus contribution from the Asia-Pacific partner. The VT successfully completed his work by delivering documentation about current practices in various organisations around the world. Additionally, a set of 6 recommendations were documented for the EGI management bodies that, if implemented, would put in place processes and tools for the efficient and effective collection of scientific publications relating to EGI. (https://documents.egi.eu/document/1369).

Following the release of the above document, Recommendation 1 has lead to active collaboration with the OpenAIRE project where effort is dedicated to establishing an MoU between the two organisations. It is intended that the EGI use case will be presented at the OpenAIRE conference (http://www.openaire.eu/en/programme). A new VT titled "Scientific Discipline Classification" is in course of start-up as a direct result of Recommendation 6.

4.2.5.8. VT - Fire and Smoke Simulation

Project Lead: Ing. Ladislav Hluchý (NGI_SK)

Start Date: 21/12/2011; Final report published 14/09/2012[99].

This Virtual Team aimed to establish a fire and smoke simulation Virtual Research Community on EGI by

- Porting three types of parallel implementations of the FDS application to EGI.
- Identifying user communities for the ported application.
- Providing support for the communities to use the FDS application on EGI.
- Further developing the FDS application based on the feedback from the users.

The expected output of this project was:

- Parallel implementations of the FDS application on the EGI, together with guides for users and software administrators.

[99] https://documents.egi.eu/public/ShowDocument?docid=1341

- A European community actively using the FDS application on EGI.
- Support services provided for the FDS user community in multiple NGIs.

All FDS models (sequential, MPI parallel, OpenMP, combined model) were compiled and executed on EGI infrastructure using Slovak NGI resources. The sequential and OpenMP model were carried out within the "esr" and "voce", and parallel MPI models were carried out within the "mpi-kickstart" VO (only this VO provided the environment for executing MPI applications). The submission of jobs was realized through the middleware EMI 1 (gLite) and the tool MPI-Start. FDS models were successfully verified using as input simple fire scenarios in order to obtain results in a reasonable time period. The FDS application is included in EGI AppDB. The FDS simulation of a real fire scenario represents a long-time job (the order of several days) which claims special conditions on the computing resource.

The VT collected information about fire and smoke simulation applications from those communities that could be reached through the NILs who responded to the VT project call. The response rate was lower than expected, resulting in a VT with members from three countries (Slovakia, Spain, and Portugal). While the survey that was setup by the VT reached researchers in 12 countries, responses came back only from those three that were directly involved in the VT. The low interest and response number indicate that either the size of the fire and smoke simulation research community is small, or that NGIs are not connected to fire and smoke simulation communities and cannot be used to reach such communities.

One of the recommended follow up actions of the report is to connect the NGIs to the identified, active fire simulation research groups. Leaders of the VT sent out direct emails to the EGI user support contacts (to the NILs where this is available) at the beginning of October and introduced them to the active fire simulation research groups. Emails went out to Italy, Serbia, Belgium, Germany, Czech Republic, France, Greece, Poland, Turkey, UK, Portugal and China. The emails asked these EGI contacts to get in touch with the respective national fire simulation teams on behalf of their NGI and on behalf of EGI, to inform these research groups about the services the NGIs can offer to them, and to identify areas for possible collaborations. From these individual discussions the specifics of a distributed and collaborative computing infrastructure for fire simulation will hopefully emerge, and a VRC with one or more VOs could be established to address these needs.

4.2.5.9. VT – EGI Champions

Project Lead: Steve Brewer (EGI.eu)

Information about existing community schemes relating to ‘champions’ or ‘ambassadors’ from within EGI were collected from the UK, Hungary and Switzerland NGIs. This information gathering phase coincided with PQ9 and the plans and processes were presented to the NILs at the EGITF 2012. The scheme was well received at the launch and a number of NGIs volunteered to actively support and evaluate the processes. The EGI Oversight Committee convened a selection meeting on 26th October 2012 where upon 4 candidates were selected from a total of 9 applicants. The scheme is now promoted via both the EGI website and via EGI’s Wiki pages while effort is now focused on developing the initial “Induction Briefings” and the promotional material (brochures, exemplar ‘use cases’ etc) that

our Champions will need in the course of their ambassadorial work to drive forwards with the EGI cause.

4.3. Plan for the next period

Planning for the EGICF 2013 has started with preparation of materials such as web banners, the sponsorship guide and the exhibition guide in addition to updates to the event website. The event will also be advertised in the November issue of the Inspired newsletter and promoted by our media partners iSGTW, HPCwire, HPCinthecloud, Datanami and Hostingtecnews. An animated event banner also appears on the scienceomega.com website, on the homepage and the science solutions page.

During PQ11, the communications team will host booths at SC12 in Salt Lake City, an event which will gather 10,000 delegates and SciTech 12 in Brussels in November aimed at policy makers. The Director will deliver a master class to the delegates and participate in a discussion panel featuring Lord Robert Winston, media science communicator and Fellow of the Academy of Medical Sciences in the UK.

Further case studies will be published on the EGI website, and disseminated through the EGI newsletter, NIL Bulletin, *iSGTW* and *Public Service Review: Science & Technology*. Migrating the format of the EGI newsletter to Mailchimp will be explored, to provide a more engaging email interface to the online version of the newsletter. The communications team will work closely with the TONC team to provide downloadable case study brochures using a CSS template.
Training on editing the EGI website will be delivered in November, and the new website will be fully documented. The Campus Champions will be added to the website and the scheme promoted via EGI's communications channels

During PQ11, the EGI.eu SPT will support the planning for the EGICF 2013 by both participating in the program committee and also by inviting submission from relevant partners. The SPT will work on the implementation of the recommendations from the scientific publication repository by collaborating with the OpenAIRE project; it will also update the questionnaire for the EGI Compendium 2012 and engage with TERENA to plan for a common data collection tool. The SPT will also run the new VT on Scientific Discipline Classification. Following the decision of the EGI Council, the SPT will follow up on the ERIC implementation plan, pay-for-use models for EGI and on improving the demonstration of excellence in Science. The SPT will also revise the EGI strategic metrics and will also work on the organisation of a series of workshops at the end of January in preparation for the update of the EGI sustainability plan.

STFC will complete the final drafts of the revised top-level main Security Policy document and on the security aspects of Data Privacy will be completed. Planning will start for SPG activities during 2013. A meeting of "Security for Collaborating Infrastructures" will take place in Rome on 16-17 January 2013 at which assessments will be made of the extent to which EGI and other networks meet the



requirements expressed in the SCI document. Work will continue on FIM4R activities, in particular on the FIM pilot project for WLCG and related policy issues.

5. CONSORTIUM MANAGEMENT

5.1. Summary

Routine activity continued in PQ10 with frequent project meetings of the Activity Management Board as needed, meetings of the Project Management Board (27th August 2012 & 19th September 2012) and of the Collaboration Board on the 20th September 2012. Further more fundamental changes to the project were blocked until feedback had been obtained from the EC Review and had been reflected on by the project.

5.2. Main Achievements

5.2.1. Project Management

Work continued during PQ10 responding to queries from the European Commission relating to the financial reporting around PY2. During this period the report from the 2nd EC Review was also received by the project. The project provided a response to the European Commission detailing the number of significant errors and inconsistencies in the report which took over two months to be produced following the review meeting in Amsterdam.

With the acceptance of the costs for PY2 and the 2nd EC review report, work could commence on the changes needed in the Description of Work that were proposed at the end of PY2. This involved the redistribution of effort between partners to provide resources for the federated cloud activities to become part of the SA2 and the integration of second line support for deployed middleware and the operational tools within SA1.7. These changes to the project structure were:

- WP4E: Coordination tasks for EGI.eu started in 1/09/12
- WP5: TSA2.5 CLOSED end of PQ9 (July 2012). Activity merged within TSA1.7E and sub-tasks.
- WP5: New Task TSA2.6 created to support the ‘’Federated clouds service’’ activity

The efforts reported in PQ9 have been updated after submission of QR9 milestone due to the delay in implementing the tasks changes (Amendment N2). This has resulted in a change in the worked PMs changing from 503.1 to 525.5PMs.

5.2.2. Milestones and Deliverables

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*) [100]	Revised delivery date(*)	Status (**)

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

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

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*) [100]	Revised delivery date(*)	Status (**)
D1.10	WP1	Gender Action Plan	R	EGI.eu	28	29	PMB approved
D2.17	WP2	EGI-InSPIRE Paper	R	EGI.eu	28	28	PMB approved
MS119	WP1	Quarterly Report	R	EGI.eu	28	28	PMB approved
MS231	WP2	Review of website content	R	EGI.eu	28	28	PMB approved
MS421	WP4	Integrating Resources into the EGI Production Infrastructure	R	SRCE	28	30	PMB approved
D4.6	WP4	EGI Operations Architecture	R	EGI.eu	29	30	PMB approved
D2.11	WP2	EGI.eu transition plan to ERIC	R	EGI.eu	30	31	PMB approves
MS232	WP4	EGI forum	R	EGI.eu	30	30	PMB approved

5.2.3. Consumption of Effort

Selected period: PM28 to PM30 (August 2012 to October 2012. Report extracted on 26 November 2012

Project Quarter 10

Type	Work Package	Worked PM Funded	Committed PM	Achieved PQ10 PM %	Achieved PQ9 PM %
MGT	WP1	19,6	21,1	93%	98%
COORD	WP2	86,8	112,5	77%	79%
SUPPORT	WP4	316,5	309,7	102%	100%
SUPPORT	WP5	27,0	31,6	85%	73%
SUPPORT	WP6	54,4	62,6	87%	96%
RTD	WP7	21,6	21,5	100%	91%
	Total	525,9	559,0	94%	93%

The detailed breakdown of effort contributed to each work package by each partner is provided in the following tables for PQ10. 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:

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

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

Selected period: PM28 to PM30 (August 2012 to October 2012)
Report extracted on 26 November 2012

Project Quarter 10

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

	Q10		
Partner	**Worked PM Funded**	**Committed PM**	**Achieved PM %**
1-EGI.EU	9,2	9,3	99%
Total:	9,2	9,3	99%

WP1-M - WP1 (NA1) - NA1 Management

Partner	Q10		
	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	10,4	11,2	93%
Total:	10,4	11,2	93%

WP2-E - WP2 (NA2) - NA2 Community Engagement (EGI)

Partner	Q10		
	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	32,1	33,4	96%
12A-CSIC	0	0,6	0%
16A-GRNET	1,4	2,2	61%
16E-IASA	1,8	0,7	271%
26A-FOM	0,4	0,3	118%
29-LIP	0,2	0,8	29%
34A-STFC	1,8	3,1	57%
Total:	37,6	41,1	91%

WP2-N - WP2 (NA2) - NA2 Community Engagement

Partner	Q10		
	Worked PM Funded	Committed PM	Achieved PM %
2-UPT	0	2,5	0%
3-IIAP NAS RA	0	0,6	0%
5A-IICT-BAS	0	1,4	0%
7A-ETH ZURICH	0	0,4	0%
7B-UZH	0,8	0,6	146%
7C-SWITCH	0,0	0,7	0%
8-UCY	1,4	1,0	133%

9-CESNET	1,4	2,4	59%
10B-KIT-G	5,3	4,6	114%
12A-CSIC	6,6	1,4	472%
12D-UPVLC	3,0	2,7	112%
13-CSC	1,1	3,0	36%
14A-CNRS	2,1	2,9	71%
14B-CEA	0,6	1,1	50%
15-GRENA	0,4	0,4	100%
18A-MTA KFKI	0,1	0,5	26%
18B-BME	0,1	0,5	15%
18C-MTA SZTAKI	0,7	0,6	125%
19-TCD	0,6	1,4	41%
20-IUCC	0	0,8	0%
21A-INFN	7,4	4,3	171%
22-VU	0,4	2,9	12%
23-RENAM	0,1	0,2	95%
26A-FOM	0,5	0,5	94%
26B-SARA	0,3	0,5	62%
27A-SIGMA	0	1,0	0%
27B-UIO	0	0,7	0%
27C-URA	0	1,5	0%
28A-CYFRONET	0,8	1,4	57%
28B-UWAR	2,1	1,4	156%
28C-ICBP	0	1,0	0%
29-LIP	0	2,6	0%
30-IPB	1,8	1,8	100%
31-ARNES	0,3	2,3	11%
31B-JSI	0	1,2	0%
32-UI SAV	2,5	3,5	72%
33-TUBITAK ULAKBIM	3,2	3,4	94%
34A-STFC	2,8	3,0	94%
34C-UG	0,2	0,3	47%
34D-IMPERIAL	0	0,4	0%
34E-MANCHESTER	0	0,4	0%

36-UCPH	0,8	3,0	26%
38-VR-SNIC	0	0,2	0%
38A-KTH	0,9	1,4	64%
39-IMCS-UL	0,1	2,1	4%
40A-E-ARENA	1,1	1,3	85%
Total:	49,2	71,5	69%

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

	Q10		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	9,3	5,9	159%
9-CESNET	2,4	5,9	42%
10B-KIT-G	5,2	4,5	118%
10D-JUELICH	0,6	0,8	80%
12A-CSIC	4,6	1,1	433%
12B-FCTSG	0,6	0,8	78%
13-CSC	0	0,5	0%
14A-CNRS	0,8	0,8	100%
16A-GRNET	2,1	4,4	48%
17-SRCE	3,7	2,4	151%
21A-INFN	2,9	5,4	54%
21B-GARR	1,3	0,8	175%
26A-FOM	1,1	0,8	142%
26B-SARA	1,5	1,4	104%
28A-CYFRONET	0,8	1,4	56%
29-LIP	0,4	1,8	20%
34A-STFC	3,8	4,9	77%
35-CERN	0,5	3,7	14%
38A-KTH	0	0,7	0%
38B-LIU	0,9	0,8	126%
Total:	42,5	48,4	88%

WP4-N - WP4 (SA1) - SA1 Operations

Partner	Q10		
	Worked PM Funded	Committed PM	Achieved PM %
2-UPT	0	2,0	0%
3-IIAP NAS RA	2,0	1,2	169%
5A-IICT-BAS	0,6	6,8	9%
5B-IOCCP-BAS	0,4	0,5	80%
5C-NIGGG-BAS	0	0,5	0%
6-UIIP NASB	0	1,9	0%
7A-ETH ZURICH	0,9	2,1	40%
7B-UZH	0,2	1,1	14%
7C-SWITCH	1,4	2,1	66%
8-UCY	1,8	3,0	60%
9-CESNET	6,9	7,8	88%
10B-KIT-G	7,1	7,0	102%
10C-DESY	2,8	1,9	143%
10D-JUELICH	0,9	1,4	60%
10E-BADW	1,1	3,0	35%
10G-FRAUNHOFER	2,1	1,9	111%
10H-LUH	1,1	1,4	80%
11-UNI BL	3,5	4,7	74%
12A-CSIC	5,1	2,8	185%
12B-FCTSG	8,0	4,2	192%
12C-CIEMAT	3,9	2,4	165%
12D-UPVLC	1,7	1,8	96%
12E-IFAE	2,6	2,9	92%
12F-RED.ES	6,8	3,3	210%
12G-UNIZAR-I3A	3,0	3,3	92%
12H-UAB	2,6	2,5	105%
13-CSC	8,3	4,2	197%
14A-CNRS	12,6	15,2	83%
14B-CEA	9,0	4,0	225%

15-GRENA	1,1	1,2	92%
16A-GRNET	7,6	7,7	99%
16B-AUTH	0	0,8	0%
16C-CTI	0,5	0,8	68%
16D-FORTH	2,3	0,8	287%
16G-UI	0,5	0,5	105%
16H-UP	0,7	0,6	113%
17-SRCE	4,7	4,5	103%
18A-MTA KFKI	4,7	4,1	114%
18B-BME	2,4	1,8	133%
18C-MTA SZTAKI	1,9	1,5	123%
19-TCD	2,8	5,9	48%
20-IUCC	1,8	1,6	116%
21A-INFN	33,3	22,3	149%
21B-GARR	0,3	0,8	34%
22-VU	1,7	1,4	125%
23-RENAM	1,6	1,3	121%
24-UOM	2,7	4,4	60%
25-UKIM	5,4	4,4	122%
26A-FOM	4,8	2,0	239%
26B-SARA	6,3	7,6	82%
27A-SIGMA	0	2,5	0%
27B-UIO	4,4	1,8	252%
27C-URA	1,8	0,9	200%
28A-CYFRONET	7,8	7,2	108%
28B-UWAR	1,8	0,4	428%
28C-ICBP	3,7	1,1	330%
28D-POLITECHNIKA WROCLAWSKA	1,6	1,0	165%
29-LIP	1,9	6,7	28%
30-IPB	7,3	7,4	99%
31-ARNES	4,5	2,7	167%
31B-JSI	4,3	3,2	136%
32-UI SAV	5,5	6,0	91%
33-TUBITAK ULAKBIM	8,7	8,2	107%

34A-STFC	5,5	6,5	85%
34C-UG	3,0	3,6	83%
34D-IMPERIAL	5,2	3,6	143%
34E-MANCHESTER	4,6	3,6	127%
35-CERN	0,6	0,3	201%
36-UCPH	1,7	5,1	33%
38A-KTH	0,3	0,4	79%
38B-LIU	1,4	1,9	75%
38C-UMEA	3,3	3,0	110%
39-IMCS-UL	1,6	3,3	49%
40A-E-ARENA	0,6	0	#DIV/0
40B-SINP MSU	2,6	1,3	207%
40C-JINR	1,0	0,8	126%
40D-RRCKI	1,0	0,8	126%
40F-ITEP	0,9	0,8	126%
40G-PNPI	0	0,8	0%
51A-ICI	1,7	1,4	118%
51C-UPB	0	0,8	0%
51D-UVDT	2,0	0,6	352%
51E-UTC	0	0,6	0%
51H-INCAS	0	0,2	0%
51J-UB	0,2	0,1	132%
Total:	274,0	261,3	105%

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

	Q10		
Partner	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	0,8	2,3	36%
9-CESNET	3,8	3,8	101%
12A-CSIC	2,9	3,3	87%
12B-FCTSG	1,6	1,1	147%
16A-GRNET	2,6	3,5	73%
16B-AUTH	0	0,8	0%
16E-IASA	1,8	0,8	217%
16F-ICCS	2,1	0,8	253%
21A-INFN	0	0	#DIV/0
29-LIP	2,3	4,4	52%
Total:	17,7	20,7	86%

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

	Q10		
Partner	Worked PM Funded	Committed PM	Achieved PM %
9-CESNET	0,7	0,4	188%
10B-KIT-G	1,5	1,5	97%
10D-JUELICH	0,6	0,8	78%
10H-LUH	0	0,5	0%
12B-FCTSG	0,9	0,8	116%
14A-CNRS	0	1,3	0%
21A-INFN	2,1	2,8	76%
26B-SARA	0,5	0,8	62%
32-UI SAV	1,9	1,5	128%
34F-OXFORD	1,2	0,8	156%
Total:	9,3	10,9	85%

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

Partner	Q10		
	Worked PM Funded	Committed PM	Achieved PM %
10G-FRAUNHOFER	2,8	2,3	126%
12A-CSIC	1,1	2,3	48%
12C-CIEMAT	1,8	1,5	120%
13-CSC	0,9	1,5	57%
14A-CNRS	3,0	5,8	51%
14B-CEA	0	0,7	0%
14C-HealthGrid	0	0,5	0%
19-TCD	1,1	1,8	65%
21A-INFN	0	2,0	0%
21C-INAF	2,7	2,5	106%
21D-UNIPG	0	0,8	0%
21E-SPACI	1,5	2,3	67%
28C-ICBP	0,4	0,5	90%
31B-JSI	1,7	0,3	667%
32-UI SAV	0	0,7	0%
35-CERN	37,5	34,4	109%
37-EMBL	0	3,1	0%
Total:	54,4	62,6	87%

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

Partner	Q10		
	Worked PM Funded	Committed PM	Achieved PM %
10B-KIT-G	2,8	2,9	97%
12B-FCTSG	0,5	0,8	70%
14A-CNRS	0,8	0,8	100%
16A-GRNET	0,3	0,8	39%
17-SRCE	0,8	0,8	105%

21A-INFN	1,8	1,5	122%
34A-STFC	1,4	1,5	94%
35-CERN	5,4	0,8	716%
Total:	13,8	9,7	143%

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

	Q10		
Partner	Worked PM Funded	Committed PM	Achieved PM %
10H-LUH	1,5	1,5	101%
12B-FCTSG	0,1	1,5	7%
14A-CNRS	4,3	4,4	97%
21A-INFN	0,2	2,2	8%
34A-STFC	1,7	2,3	75%
Total:	7,7	11,8	65%

5.2.4. Overall Financial Status

	Q10				
Partner	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
1-EGI.EU	61,9	62,1	100%	549.573	321.037
2-UPT	0	4,5	0%	0	0
3-IIAP NAS RA	2,0	1,8	113%	5.992	1.977
5A-IICT-BAS	0,6	8,2	7%	3.663	1.209
5B-IOCCP-BAS	0,4	0,5	80%	2.442	806
5C-NIGGG-BAS	0	0,5	0%	0	0
6-UIIP NASB	0	1,9	0%	0	0
7A-ETH ZURICH	0,9	2,5	34%	7.301	2.409
7B-UZH	1,0	1,7	58%	6.976	2.302
7C-SWITCH	1,4	2,8	51%	19.846	6.549
8-UCY	3,2	4,0	79%	27.374	9.033
9-CESNET	15,3	20,2	75%	100.411	40.116
10B-KIT-G	22,0	20,5	107%	195.345	76.697

10C-DESY	2,8	1,9	143%	24.677	8.143
10D-JUELICH	2,0	2,9	70%	18.189	6.904
10E-BADW	1,1	3,0	35%	9.446	3.117
10G-FRAUNHOFER	5,0	4,2	119%	44.173	16.348
10H-LUH	2,6	3,4	78%	23.317	8.638
11-UNI BL	3,5	4,7	74%	14.268	4.709
12A-CSIC	20,2	11,4	177%	158.319	62.779
12B-FCTSG	11,6	9,0	130%	90.996	33.636
12C-CIEMAT	5,7	3,9	148%	44.725	15.744
12D-UPVLC	4,7	4,5	106%	36.937	12.189
12E-IFAE	2,6	2,9	92%	20.642	6.812
12F-RED.ES	6,8	3,3	210%	53.346	17.604
12G-UNIZAR-I3A	3,0	3,3	92%	23.394	7.720
12H-UAB	2,6	2,5	105%	20.596	6.797
13-CSC	10,2	9,2	111%	105.659	35.489
14A-CNRS	23,5	31,0	76%	202.643	73.460
14B-CEA	9,5	5,8	166%	82.484	27.220
14C-HealthGrid	0	0,5	0%	0	0
15-GRENA	1,5	1,6	94%	3.690	1.218
16A-GRNET	14,0	18,6	75%	108.054	43.964
16B-AUTH	0	1,6	0%	0	0
16C-CTI	0,5	0,8	68%	4.246	1.401
16D-FORTH	2,3	0,8	287%	18.045	5.955
16E-IASA	3,5	1,5	241%	27.285	13.642
16F-ICCS	2,1	0,8	253%	15.922	7.961
16G-UI	0,5	0,5	105%	4.069	1.343
16H-UP	0,7	0,6	113%	5.484	1.810
17-SRCE	9,1	7,7	119%	45.189	18.672
18A-MTA KFKI	4,8	4,6	104%	18.938	6.249
18B-BME	2,5	2,3	108%	13.879	4.580
18C-MTA SZTAKI	2,6	2,1	124%	15.787	5.210
19-TCD	4,5	9,0	50%	43.704	15.196
20-IUCC	1,8	2,3	78%	23.491	7.752
21A-INFN	47,6	40,4	118%	350.766	121.746

21B-GARR	1,6	1,5	104%	11.525	5.444
21C-INAF	2,7	2,5	106%	19.539	7.816
21D-UNIPG	0	0,8	0%	0	0
21E-SPACI	1,5	2,3	67%	11.115	4.446
22-VU	2,1	4,2	49%	17.306	5.711
23-RENAM	1,7	1,4	118%	5.079	1.676
24-UOM	2,7	4,4	60%	6.370	2.102
25-UKIM	5,4	4,4	122%	21.686	7.156
26A-FOM	6,7	3,6	187%	68.352	25.024
26B-SARA	8,5	10,3	83%	87.516	31.494
27A-SIGMA	0	3,5	0%	0	0
27B-UIO	4,4	2,5	180%	43.688	14.417
27C-URA	1,8	2,4	73%	17.398	5.741
28A-CYFRONET	9,4	10,1	94%	80.874	27.868
28B-UWAR	3,9	1,8	219%	33.713	11.125
28C-ICBP	4,2	2,6	160%	35.599	12.016
28D-POLITECHNIKA WROCLAWSKA	1,6	1,0	165%	13.996	4.619
29-LIP	4,8	16,3	29%	26.114	11.277
30-IPB	9,1	9,2	99%	49.900	16.467
31-ARNES	4,7	5,0	95%	28.386	9.367
31B-JSI	6,0	4,6	131%	36.067	12.602
32-UI SAV	9,9	11,7	85%	79.206	26.138
33-TUBITAK ULAKBIM	11,9	11,5	103%	83.424	27.530
34A-STFC	17,0	21,2	80%	174.283	70.905
34C-UG	3,2	4,0	80%	32.411	10.695
34D-IMPERIAL	5,2	4,0	129%	53.301	17.589
34E-MANCHESTER	4,6	4,0	114%	47.242	15.590
34F-OXFORD	1,2	0,8	156%	12.044	3.974
35-CERN	43,9	39,7	111%	632.456	290.627
36-UCPH	2,5	8,1	30%	27.211	8.980
37-EMBL	0	3,1	0%	0	0
38-VR-SNIC	0	0,2	0%	0	0
38A-KTH	1,2	2,5	48%	13.559	4.474
38B-LIU	2,3	2,6	89%	26.863	10.709

38C-UMEA	3,3	3,0	110%	38.049	12.556
39-IMCS-UL	1,7	5,3	32%	13.272	4.380
40A-E-ARENA	1,7	1,3	128%	6.534	2.156
40B-SINP MSU	2,6	1,3	207%	10.268	3.388
40C-JINR	1,0	0,8	126%	4.045	1.335
40D-RRCKI	1,0	0,8	126%	4.045	1.335
40F-ITEP	0,9	0,8	126%	3.734	1.232
40G-PNPI	0	0,8	0%	0	0
51A-ICI	1,7	1,4	118%	10.062	3.320
51C-UPB	0	0,8	0%	0	0
51D-UVDT	2,0	0,6	352%	12.026	3.969
51E-UTC	0	0,6	0%	0	0
51H-INCAS	0	0,2	0%	0	0
51J-UB	0,2	0,1	132%	1.002	331
Total:	525,9	559,0	94%	4.490.539	1.803.724

5.3. Issues and mitigation

5.3.1. Issue 1

In SA3 overall the work package is on track although the EGI Global Task efforts are overspent due to excessive efforts declared by CERN and meantime the General activities under the plan due to FCTSG and INFN underreporting.

5.4. Plans for the next period

The under/over reporting is tracked by the Project office and a summary of the budget used for the first two years of the project versus the budget is at the PMB for review. This may results in decision to shift budget among partners, whenever activities could not/cannot be provided by the responsible partners.

6. PROJECT METRICS

6.1. Overall metrics

No	Objective Summary	Metrics	Value PQ10	Target PY3
PO1	Expansion of a nationally based production infrastructure	Number of resource centres in EGI-InSPIRE and integrated partners (M.SA1.Size.1)	351	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)	94.52%	95% (96%) (97%)
		Reliability of NGI functional services (MSA1.Operations.4)	99%	97% (98.5%) (99%)
		Reliability of critical operations tools (MSA1.Operations.6a)	(*)	97% (98.5%) (99%)
PO2	Support of European researchers and international collaborators through VRCs	Number of papers from EGI Users (M.NA2.5)		70 (80) (90)
		Number of jobs done a day (M.SA1.Usage.1)	1.78 M	1.2M (1.4M) (1.5M)
PO3	Sustainable support for Heavy User Communities	Number of sites with MPI (M.SA1.Integration.2)	87	120 (130) (140)
		Number of users from HUC VOs (M.SA1.VO.6)	11,208	12,000 (15,000) (17,000)
PO4	Addition of	Peak number of cores from desktop	4,284	1,000

No	Objective Summary	Metrics	Value PQ10	Target PY3
	new User Communities	grids (M.SA1.Integration.3)		(5,000) (7,500)
		Number of users from non-HUC VOs (M.SA1.vo.5)	10,326	10,000 (12,000) (13,000)
		Public events organised (attendee days) (M.NA2.6)		15,000 (17,000) (19,000)
PO5	Transparent integration of other infrastructures	MoUs with resource providers (M.NA2.10)		4 (5) (5)
PO6	Integration of new technologies and resources	Number of HPC resources (M.SA1.Integration.1)	36	50 (50) (50)
		Number of resource centres part of the EGI Federated Cloud (M.SA2.19)	11	10 (15) (20)

(*) This metric will become available from PQ11

These are now available from the EGI Metrics Portal – metrics.egi.eu/QR10

7. ANNEX A1: DISSEMINATION AND USE

7.1. Main Project and Activity Meetings

See details in https://indico.egi.eu/indico/categoryDisplay.py?categId=3

7.2. Conferences/Workshops Organised

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
8-12/8/2012	Abingdon	Using e-Infrastructures for Research	29	Summer School: http://www.ngs.ac.uk/communities/using-e-infrastructures-for-research-summer-school-2012
20/8 - 12/10 2012	University of Eastern Finland. University of Jyväskylä. University of Oulu. Tampere University of Technology. Aalto University University of Helsin Viikki University of Helsinki Kumpula campus		119	FGI national dissemination Tour
27-31/8/2012	Karlsruhe, Germany	GridKa School 2012	140	Training in Grid, Cloud, and virtualization

5-6/9/ 2012	Karlsruhe, Germany	Long Term Sustainability of Operational and Security Tools F2F		https://indico.egi.eu/indico/conferenceDisplay.py?confId=1132
12/09/ 2012	Prague	Open Cloud Initiative		http://www.meetup.com/zhgeeks/events/70109912/
17-21 9/2012	Prague	EGI.eu Technical Forum	500	LS VRC building and management meetings
21-23/ 09/2012	Lyon	Security for Collaborating Infrastructure	50	http://indico.cern.ch/conferenceDisplay.py?confId=207432 David Kelsey organised and chaired the meeting. Produced version 1 of the document describing the requirements and best practices
23-29/ 9/2012	Coral Bay Hotel, Paphos	Theory and Practice of Digital Libraries Conference (TPDL 2012)	125	Theory and Practice of Digital Libraries Conference (TPDL 2012), organised by the Cyprus University of Technology (CUT) in collaboration with the University of Cyprus and the City University London http://www.tpdl2012.org/
26/09/ 2012	Amsterdam	BiGGrid and Beyond workshop	50	http://www.biggrid.nl/big-grid-and-beyond-26-september-2012/
1-3/10/ 2012	Bologna	V site managers school	20	web site event (in italian)

1-3/10/ 2012	Paris, France	Journées scientifiques mésocentres et France Grilles	371 147 registered and 224 unique views through webcast during the event	http://mesogrilles2012.sciencesconf.org/ 12 oral scientific presentations, 10 posters, 3 demonstrations, all related to grid or HPC scientific users in France presentation of France Grilles as French NGI.
4/10/ 2012	Amsterdam	NL-HUG	60	http://www.nlhug.org/events/83737952/
05/10 2012	Valencia, Spain	Mini workshop SuperComputing + Grid	5	IFIC: Programme available at http://ivicfa.uv.es/wp-content/uploads/2012/10/Programme_oct-5.pdf
23-24/ 10/2012	Karlsruhe, Germany	Workshop of NGI-DE general operations "Grid in Germany"	NGI-DE grid sites	Prepare common and sustainable Operations Procedures for NGI-DE (EGI compatible) valid for 2013 and beyond.
25/10/ 2012	EVO	GGUS Advisory Board	10	https://indico.egi.eu/indico/conferenceDisplay.py?confId=1215

7.3. Other Conferences/Workshops Attended

Date	Location	Title	Participants	Outcome (Short report & Document Server URL to presentations made)
1-3/8/ 2012	Macugnaga, Italy	N4U plenary meeting	30	Discussion on EGI infrastructure usage for the N4U community.
12/08/ 2012	Karlsruhe (DE)	GridKa school	2	Various topics of interest for Grid site administrators, community networking

23-26 /08 2012	Brussels, Belgium	EuroSciPy	1	
27-31/8/ 2012	Karlsruhe	GridKa School 2012	2	http://indico.scc.kit.edu/indico/conferenceDisplay.py?ovw=True&confId=6
29-30/8/ 2012	Panama City	TAGPMA Meeting	1	Representing interests of EGI and WLCG: http://indico.rnp.br/conferencedisplay.py?confId=142
3-5/9/ 2012	Liverpool	VERCE Training	LRZ staff	Training in VERSE platform: a service-oriented architecture and a data-intensive platform delivering services, workflow tools, and software as a service for the seismology community
4-6/9/ 2012	Karlsruhe	Operational Tools Sustainability	3	http://www.ogf.org/OGF36/
6-/9/2012	Utrecht	TERENA VAMP Meeting	1	2 presentations on FIM4R activity
10-12 /9 2012	Lyon, France	26th EU Grid PMA meeting	27	https://agenda.nikhef.nl/conferenceTimeTable.py?confId=2083 1 NGI_IE ops member (DO'C) attended
18-20/ 9/ 2012	Palma, Spain	FisEs'12	2	IFISC-GRID: Poster presentation "Grid computing for statistical and non-linear physics", http://www.gefenol.es/FisEs/12/uploads/contributions_pdf/e9fbf696006238538938398a7ad88377b4d97849.pdf -
17-21/9/ 2012	Prague	EGI.eu Technical Forum	12	web site event

23-29/9 2012	Coral Bay Hotel, Paphos	Theory and Practice of Digital Libraries Conference (TPDL 2012)	125	Theory and Practice of Digital Libraries Conference (TPDL 2012), organised by the Cyprus University of Technology (CUT) in collaboration with the University of Cyprus and the City University London http://www.tpdl2012.org/
26-27/9/ 2012	Oxford	GridPP29	10	GridPP Collaboration http://www.gridpp.ac.uk/gridpp29/
27-28/9/ 2012	Ljublana	Terena TF-SCIRT Meeting	1	
2-4/10/ 2012	Tarragona, Spain	1st International Conference on the Theory and Practice of Natural Computing	1	CETA-GRID: Programme available at http://grammars.grlmc.com/tpnc2012/
10-11/10 2012	Mediterranean Hotel, Limassol	Annual Privacy Forum 2012 (APF 2012)	75	Annual Privacy Forum 2012 (APF 2012): Closing the loop from research to policy. Co-organised by the European Network and Information Security Agency (ENISA) and the European Commission Directorate General for Communications Networks, Content and Technology (DG CONNECT), with the support of the Department of Computer Science of the University of Cyprus. http://privacyforum.eu/
12/10/ 2012	Lugano (CH)	Lugano (CH)	5	Talk: 'Disk Pool Manager Storage Systems at the Universities of Bern and Geneva' S.Gadomski (UNIGE-DPNC) and G.Sciacca (UNIBE-LHEP)

14-18/10/2012	Shonan, Japan	Grid and Cloud Security	1	http://www.nii.ac.jp/shonan/
15/10/2012	Ankara, Turkey	INDICATE final conference	30	Presentation on EGI's support for DCH given remotely via EVO from the Collaboratorium in SARA. http://www.indicate-project.eu/index.php?en/181/indicate-final-conference
15-19/10/2012	Beijing, China	HEPiX Fall Meeting	3	http://indico.ihep.ac.cn/internalPage.py?pageId=3&confId=2664
17-18/10/2012	CERN	Atlas Software and Computing Workshop	2	
17-19/10/2012	Georgia, Tbilisi	The 6th International Conference on Application of Information and Communication Technologies	AICT was joined by hundreds of participants from several countries including Azerbaijan, Uzbekistan, Sweden, Canada, China, Finland, Turkey, Russia, Georgia, Romania, Moldova, Iran, ...	(http://aict.info/2012/) AICT2012 topics include, but are not limited to, the following research and development areas/fields (more than 80 topics for more information visit Sessions / Topics):

23-26/10 2012	Tbilisi, Georgia	Tbilisi, Georgia	72	This event follows on from the first workshop (SCSWT'2010) in October 2010 that brought together for the first time the ATLAS groups from the South Caucasus countries (Armenia, Azerbaijan and Georgia) to discuss common computing related issues. It aims at fostering contacts between ATLAS collaborators and computing people in these countries and experts in ATLAS software and Grid computing technologies. R. Kvatadze made presentation "E-Infrastructure for Science in Georgia" http://dmu-atlas.web.cern.ch/dmu-atlas/2012/index.html
25/10/12	York, UK	OSS-METER project kick-off	15	S Brewer invited as External Advisor. Presentation given on EGI and opportunities for collaboration. Resulted in interest in a workshop at CF13 to be organized by the National Centre for Text Mining, UK.
31/10/-1/11/ 2012	Limassol, Cypress	EuroMed2012	100s	Presentation on EGI's involvement with ad support for Digital Cultural Heritage community. Participation in session organized by EC t osupport interation between infrastructure providers and projects and DCH community. http://www.euromed2012.eu

8.4 Publications

Publication title	**Journal / Proceedings title**	**DOI code**	**Journal references** *Volume number Issue Pages from - to*	**Authors** *Initials*	**Authors** *Surname*
Using Adaption Strategies to Improve Grid Operations	EGI Technical Forum 2012	Prague, September 2012		F. J. J.P.	Křikava Rojas Balderrama Montagnat Colle

Service Availability Monitoring (SAM)	EGI Community Forum 2012 / EMI Second Technical Conference.	Munich, Germany, March 2012		P.	Andrade et. al.
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 a Truong Huu Montagnat
Gestión Eficiente de Recursos Grid Basada en la Búsqueda Dispersa. Facilitando la Auto-adaptación de Aplicaciones	Proceeding of the "XXIII Jornadas de paralelismo 2012"		Available online at http://www.jornadassarteco.org/?page_id=166 (See Section #2C)	M. M.A. F.	Botón-Fernández Vega-Rodríguez Prieto
Despliegue Adaptativo de Aplicaciones en Sistemas Grid Basado en el Concepto de Autómatas Celulares	Proceeding of the "XXIII Jornadas de paralelismo 2012"		Available online at http://www.jornadassarteco.org/?page_id=166 (See Section #2C)	M. M.A. F.	Botón-Fernández Vega-Rodríguez Prieto
Nature-inspired Algorithms Applied to an Efficient and Self-adaptive Resources Selection Model for Grid Applications	Adrian Horia Dediu, Carlos Martín-Vide, Bianca Truthe (Eds.): Theory and Practice of Natural Computing - First International Conference, TPNC 2012, Tarragona, Spain, October 2-4, 2012.		Lecture Notes in Computer Science 7505 Springer 2012, pp. 84-96, ISBN 978-3-642-33859-5	M.A	Vega-Rodríguez
Use of High Performance Computing infrastructure for solving the complex problems of economic modeling	Collection of scientific works: VI International School - Symposium "Analysis, modeling, management, development of economic systems" (Amur-2012), Ukraine, Sevastopol, 17-23 September 2012; TNU them. V.I. Vernadsky		2012 pp. 53-58; ISSN 2222-0704.	P. E. G.	Bogatencov. Elvira. Secrieru.
ACCESS TO THE REGIONAL SCIENTIFIC COMPUTING INFRASTRUCTURE	The Fourth International Scientific Conference "Supercomputer Systems and Applications" (SSA `2012): Conference Reports. - Minsk, UIIP NASB, 2012		2012, ISBN 978-985-6744-76-4, pp. 42-46	P. G. N.	Bogatencov. Secrieru. Liuha.

Computing Infrastructure and Services Deployment for Research Community of Moldova.	Proceedings of the "The 6th International Conference on Application of Information and Communication Technologies" (AICT2012), Georgia, Tbilisi, 17-19 October 2012.		IEEE, Red Hook, NY, USA, 2012, ISBN 978-1-4673-1740-5, pp. 499-503.	P. N. G.	Bogatencov. Iliuha. Secrieru
Development of high-performance computing infrastructure for scientific research in Moldova	Proceedings of the sixth international conference "Parallel computations and control problems", Russia, Moscow, 24-26 october 2012		Volume 3, Moscow, Institute of Control Sciences, 2012. ISBN 978-5-91450-124-9, pp. 299-305.	G. P. B. N.	Secrieru. Bogatencov. Rybakin. Iliuha
From Percolating to Dense Random Stick Networks: Conductivity Model Investigation	Phys. Rev. B		86 (2012) 134202; DOI: 10.1103/PhysRevB.86.134202	M. I.E.	Zezelj. Stankovic.
Insights into the Charge Carrier Terahertz Mobility in Polyfluorenes from Large-Scale Atomistic Simulations and Time-Resolved Terahertz Spectroscopy	J. Phys. Chem. C.		116 (2012) 19665; DOI: 10.1021/jp3055262	N. C.S. H.	Vukmirovic. Ponseca Jr. Nemec.
Electron-Phonon Coupling in Crystalline Organic Semiconductors: Microscopic Evidence for Nonpolaronic Charge Carriers	Phys. Rev. Lett.		109 (2012) 126407; DOI: 10.1103/PhysRevLett.109.126407	N. C. V.M.	Vukmirovic. Bruder. Stojanovic.
Electron and Hole Contributions to the Terahertz Photoconductivity of a Conjugated Polymer: Fullerene Blend Identified	J. Phys. Chem. Lett		3 (2012) 2242; DOI: 10.1021/jz301013u	C.S. H. N.	Ponseca, Jr. Nemec. Vukmirovic.
Disordering of the Correlated State of the Quantum Hall Bilayer at Filling Factor ν = 1	Mod. Phys. Lett. B		26 (2012) 1250134; DOI: 10.1142/S0217984912501345	Z. M.V.	Papic. Milovanovic.

Toward to the Development of an Integrated Spatial Data Infrastructure in Armenia	ICT Innovations 2012 conference, 12-15 of September 2012, Ohrid, Macedonia			H. Astsatryan. W. Narsisian. V. Ghazaryan. A. Saribekyan. Sh. Asmaryan, V. Muradyan, Y. Guigoz, G. G. Giuliani, N. Ray