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Abstract

Report describing the EGI-InSPIRE project's activities from 1st November 2012 to 30th January 2013.

II. DELIVERY SLIP

	Name	Partner/Activity	Date
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Approved by	**AMB & PMB**		12th March 2013

III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	18/2/13	First draft	Steven Newhouse/EGI.eu
2			
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 community focus during PQ11 was the 'Evolving EGI' Workshop held in Amsterdam at the end of January 2013. Discussions relating to how to establish a pay-per-use system within EGI, how to allocate through peer review resources within a federated resource pool, establishing a scientific publications repository and scientific classification system, defining EGI's service portfolio, and understanding the cost and criticality to EGI of the services within the portfolio took place. Participation took place from across all internal activities and with many participants from the broader community. The discussions will be used to evolve these activities into future polices to be presented to the EGI Council for endorsement.

The operations technical roadmap for 2013 was prepared and discussed at the January OMB meeting. The Irish NGI and the IGALC federation in Latin America ceased operation during PQ11 with some of the resource centres in IGALC being transferred to the LA Federation. A new Distributed Computed Infrastructure (DCI) integration activity started in collaboration with EUDAT and PRACE. A workshop[1] was organized aiming at bring together EGI, EUDAT, PRACE, and user communities to discuss the requirements the latter have in sharing and using their data between different environments, which can be general infrastructures or domain specific facilities. The output of the workshop was the start of three pilot activities around: interfaces and protocols for data access and transfer across EGI, EUDAT and PRACE, and information discovery. The EGI operations wiki space has been significantly reorganized and new menus have been introduced to better find needed information. The EGI.eu OLA defining the expected service level targets provided by services operated by EGI.eu was created, and it will be finalized at the beginning of PQ12. The negotiation of Resource Infrastructure Provider MoUs with the Asia Pacific partners, Canada, the Latin America partners and OSG started in PQ11.

The main operational activity of PQ11 was the retirement campaign around the gLite middleware stack which is no longer being supported. At the end of PQ11 29 resource centres are still deploying one or more unsupported grid services: in most of the cases either these services are in scheduled maintenance or cannot be upgraded because of lack of equivalent production-ready software. Staged rollout effort in PQ11 contributed to the release of four UMD updates: UMD 1.9.1 (UMD 1 revision release for a security fix), UMD 2.2.2, UMD 2.3.0 and UMD 2.3.1 (one major release of UMD 2 and two revisions releases). In PQ11 a total of 25 software components from both IGE and EMI Technological Providers were released to production. Three new SAM instances were put into production: one for the monitoring of the operations and user support tools of EGI, one for the monitoring of obsolete software deployment, and one for monitoring of the Federated Cloud infrastructure. A campaign started for the publishing of user DNs into the central APEL accounting database. This activity is important to improve the accuracy and completeness of data that is needed for the production of inter-NGI usage reports. A few sites in Serbia and Romania will not publish User DNs because of restrictions due to local legislation. During PQ11 the accounting infrastructure made important steps towards the support of new resource types: cloud and storage.

As the support provided within EGI-InSPIRE for Heavy User Communities draws to an end the individual communities are continuing to implement their individual sustainability plans. For High

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

Energy Physics, the LHC shutdown provides an opportunity to reflect on how the experiences of the first years of data needs to be translated into changes in the software and services used by the community. For Life Sciences requirements around a web-based tool that will simplify the community's operational activities has been completed and the Hydra service is now part of EMI2. The Earth Sciences and the Astronomy and Astrophysics communities continue their integration of tools into the infrastructure and the community building needed to improve their individual sustainability. Tools such as GReIC for managing databases on the grid continues to make new releases and gain new users, and the Kepler workflos system is now using the OGSA-BES interface in GridWay to submit jobs into EGI and other infrastructures.

A new release of the quality criteria for middleware verification has been produced, with the extensions needed to include the new products in UMD. The verification technical infrastructure has been improved to allow verifiers to set up the testing environment in an easier way. The scheduled updates release frequency stabilized on one update per quarter, in the last three months there was one scheduled minor update for UMD-2, and two emergency revision updates containing high priority patches. The UMD-1 updates were limited to one revision update, since the first UMD major release entered in security support-only during the first part of PQ11, this means fewer updates but the updates being of medium-high. The EGI Software Provisioning process is being revised for the integration of the EMI-3 releases. Planning activities started for the revision of software provisioning processes and policies in preparation to the end of the EMI and IGE projects in April 2013.

EGInSPIRE continued to maintain a presence at events such as Supercomputing 2012 in Salt Lake City and SciTech Europe in Brussels, in addition to activity undertaken by partners in the NGIs. Preparation for the EGI Community Forum in Manchester continued, with the call for submissions and the review of these submissions taking place in PQ11 and leading to a draft programme. The EGI Champions scheme was established and the first group of six champions selected by the oversight committee following an open call for submissions took place. Reports around "Demonstrating Excellent European Science on EGI's shared resources" and "Exploring how researchers can pay for EGI Resources" were discussed by the EGI Council. The virtual team's ecosystem continued to develop with the Scientific Gateway and GPGPU completing. A number of new virtual teams were established: Scientific Discipline classification, Chemistry and Materials Science community building and a Technology Study for the Cherenkov Telescope Array. Ongoing activity covered the ELIXIR community in EGI, the Inter NGI Usage reports and the Environmental and Biodiversity community, with the Speech on the Grid activity reaching the wrapping up stage.

The project decided to reallocate effort within the project following suggestions from within the project for activities that would accelerate the achievement of EGI's strategic objectives and submitted an amendment to the grant agreement to record changes undertaken at the start of PY3 following the 2nd EC Review.

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1. OPERATIONS

1.1. Summary

The Irish NGI announced the end of its operations in December 2012 and started decommissioning its resource centres and NGI Operations Centre according to the established procedures. The IGALC federation – which had been supported by the GISELA project – also announced the end of its operations due to the end of the GISELA project. Some of the IGALC production sites were migrated to the Latin America federation to ensure the continuation of production activities.

The operations technical roadmap for 2013 was prepared and discussed at the January OMB meeting[2]. The partners responsible of EGI operations Global Tasks contributed to the Evolving EGI workshop by assessing the status of their activities and presenting the envisaged evolution of their task after April 2014. The result of this work is documented on wiki[3] and was presented on Jan 30th 2012[4]. The partners also contributed to the discussion on the prioritization of the EGI Global tasks; the results of this were presented at the Evolving EGI workshop.

In November 2012 the EGI Council approved the start of experimental activities around the development of policies and processes for the application, scientific review and pooled resource allocation of NGI resources. A resource allocation task force[5] with participants from user communities, NGIs and Resource Centres, was constituted to develop a model and the related processes for coordinated allocation of a federated resource pool. The task force started its works with the collection of information about best practices and processes that are already in place at a national level, the definition of different resource brokering models and the gathering of requirements from user communities and resource providers. An initial testbed will be established to test the processes and support tools.

The main operational activity of PQ11 which involved the entire production infrastructure (more than one hundred production service points) was the retirement campaign of the gLite middleware stack. At the end of PQ11 29 Resource Centres are still deploying one or more unsupported grid services: in most of the cases either these services are in scheduled maintenance or cannot be upgraded because of lack of equivalent production-ready software (the Worker Node tarball is not released by EMI and is being developed and tested as community effort). The Central on Duty team (COD) participated in this campaign with the responsibility of opening tickets to site administrators, collecting information about upgrade plans making sure that the retirement calendar was respected, checking that affected service end-points were put in downtime if they could not be upgraded in due time, and suspending unresponsive Resource Centres as extreme measure where needed. COD actively participated to the definition of the procedures for retirement of software, which are now approved and rolled to production: the Grid oversight escalation procedure and the Decommissioning of unsupported software procedure.

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[2] https://wiki.egi.eu/wiki/EGI-inSPIRE_SA1#2013

[3] https://wiki.egi.eu/wiki/SA1_EGI_Global_tasks_evolution

[44] https://indico.egi.eu/indico/contributionDisplay.py?sessionId=15&contribId=24&confId=1252

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

Staged rollout effort in PQ11 contributed to the release of four UMD updates: UMD 1.9.1 (UMD 1 revision release for a security fix), UMD 2.2.2, UMD 2.3.0 and UMD 2.3.1 (one major release of UMD 2 and two revisions releases). In PQ11 a total of 25 software components from both IGE and EMI Technological Providers were released to production.

The EGI Software Provisioning process is being revised for the integration of the EMI-3 releases. Planning activities started for the revision of software provisioning processes and policies in preparation to the end of the EMI and IGE projects in April 2013.

A new Distributed Computed Infrastructure (DCI) integration activity was kicked off in collaboration with EUDAT and PRACE. A workshop[6] was organized aiming at bring together EGI, EUDAT, PRACE, and user communities to discuss the requirements the latter have in sharing and using their data between different environments, which can be general infrastructures or domain specific facilities. The output of the workshop was the start of three pilot activities around: interfaces and protocols for data access and transfer across EGI, EUDAT and PRACE, and information discovery.

The GGUS Advisory Board[7] was constituted in November 2012 to facilitate the technical discussion of new features requested by user communities, operators and technology providers.

The Operations portal prototype v. 3.0.0[8] was deployed on 18-12-2012 and all interested parties were requested to provide feedback in preparation to the final rolling to production. The staged rollout of SAM Update-19 was successfully completed and released to production on 23-11-2012, while the SAM Update-20 staged rollout was completed in January 2013. Three new SAM instances were rolled to production: one for the monitoring of the operations and user support tools of EGI, one for the monitoring of obsolete software deployment, and one for monitoring of the Federated Cloud infrastructure. A new permanent working group was constituted to review the status and business logic of the EMI 2 Nagios probes prior to their integration into SAM Update 21.

A campaign started for the publishing of user DNs into the central APEL accounting database. This activity is important to improve the accuracy and completeness of data that is needed for the production of inter-NGI usage reports. The number of sites currently not publishing User DNs amounts to 14[9]. Resource Centres in Serbia and a few Resource Centres in Romania. These sites will not publish User DNs because of restrictions due to local legislation. The adoption of the APEL SSM v. 1.0 protocol for publishing accounting records as a replacement of the legacy method based on DB insertions is close to finalization. During PQ11 the accounting infrastructure made important steps towards the support of new resource types: cloud and storage. The Cloud Accounting Usage Record has been revised to enable cloud accounting data to be summarised more efficiently. In addition, a test storage accounting database is in place, along with the new version of SSM ready to receive test StAR from storage clients. The "Fomalhaut" version of the Accounting Portal was released, with many improvements on InterNGI usage, custom VOs, local job filtering and many fixes and improvements.

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

[7] https://indico.egi.eu/indico/categoryDisplay.py?categId=78

[8] https://operations-portal.egi.eu/next/

[9] https://wiki.egi.eu/wiki/List_of_sites_not_publishing_userDN

The EGI operations wiki space has been significantly reorganized and new menus have been introduced to better find needed information. For the EGI Operations newcomers, site administrators and end-users have been created pagers which gather all existing information to support their daily work. The EGI.eu OLA defining the expected service level targets provided by services operated by EGI.eu was created, and it will be finalized at the beginning of PQ12.

The negotiation of Resource Infrastructure Provider MoUs with the Asia Pacific partners, Canada, the Latin America partners and OSG started in PQ11.

1.2. Main achievements

1.2.1. Security

The incident response team handled one minor security incident involving a site in Estonia during PQ11 and issued just one security advisory. This relatively quiet period in terms of incidents was however used to make very good progress on the monitoring, persuading, and even forcing, all Resource Centres to upgrade or replace software that was no longer supported for security updates. A large number of components of gLite 3.2 were required to be removed by 1st November 2012. An intense upgrade campaign was necessary with many of the SA1.2 staff very actively involved both from the monitoring and the incident teams. This was very successful in that the vast majority of sites upgraded before the deadline and the remaining small number voluntarily removed the services from production. There was no requirement to suspend sites. The final components of gLite 3.2 had to be upgraded or removed before the end of January 2013. Again this campaign was very successful. Plans are now being developed for handling of the end of life of EMI 1 by the end of April 2013. The upgrading of all EGI instances of WMS services that were still affected by two vulnerabilities issued in PQ10 were also completed early in PQ11.

The security monitoring activity developed and deployed new custom security probes as required for monitoring for deployed software beyond end of support and also for implementing NGI SAM instances. A dedicated Nagios box[10] was established to monitor middleware components.

After the successful Security Service Challenge (SSC6) in PQ10, there has been little activity in this area during PQ11, as upgrades and modifications to the special RTIR service used for monitoring progress in these service challenges are being undertaken and partly because of all the activity on middleware upgrade campaigns. Plans have been made for a number of NGI SSCs which will happen in 2013.

The Software Vulnerability Group handled more than ten new vulnerabilities during PQ11 and issued/updated five advisories, one of which was High Risk. Work on the procedure for handling compromised certificates has started as has work to define the handling of software vulnerabilities in the period beyond the end of the EMI and IGE projects.

Preparations have been made for the next EGI-CSIRT security tutorial to happen at the ISGC2013 conference in Taipei in March 2013. An abstract on EGI security operations was also submitted to the

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[10] https://midmon.egi.eu/nagios/

conference and accepted for oral presentation. A poster on Security Training and best practice from the point of view of end users is being prepared for the EGICF13 meeting in April.

It has long been recognised that the deployment of a centrally run emergency user suspension service would be extremely useful for the CSIRT during the handling of an on-going security incident. The suspension of a compromised user identity, from the authorisation point of view, defined in one place and then automatically rolled out to all sites and services in a short period of time is currently missing. Technology, in the form of ARGUS, is now available to implement such a service. It also seems relatively straight forward to copy central suspension lists into other authorisation services. Discussions were held during PQ11 with Operations, SPG and the OMB and deployment mechanisms are being planned.

Members of TSA1.2 participated in a WLCG security meeting at FNAL in the USA on the 17-18 December. This brought together security staff from EGI, OSG and NDGF and included full discussion of many operational security and policy issues. Members of the IRTF participated in the TF-CSIRT/FIRST meeting in Lisbon at the end of January, including running the security hands-on training event.

1.2.2. Service Deployment and Integration

Staged rollout effort in PQ11 contributed to the release of four UMD updates: UMD 1.9.1 (UMD 1 revision release for a security fix), UMD 2.2.2, UMD 2.3.0 and UMD 2.3.1 (one major release of UMD 2 and two revisions releases). In total in PQ11 a total of 25 software components from both IGE and EMI Technological Providers were released into production. The EGI Software Provisioning process is being revised for the integration of the EMI-3 releases. Planning activities started for the adaptation of software provisioning processes and policies in preparation to the end of the EMI and IGE projects in April 2013.

Operations Integration

During PQ11 integration advanced in four areas: Unicore, Globus, Mapper and Federated Cloud.

- **Unicore**. With SAM Update 19 new tests (UNICORE.Job and unicore6.StorageFactory) were integrated. Publishing of service information about UNICORE/X into BDII will be possible with the EMI-3 release of the component. EGI documentation (the Resource Centre certification procedure and the testing manuals) was updated to reflect the needs of Resource Centres hosting Unicore services.

- **Globus**. The integration of Globus is complete with the exception of accounting. Grid Safe is being tested in production by NGI_DE (LRZ) and by UMD certifiers. Difficulties were encountered with the publishing of User DNs (which cannot be disabled if needed for policy reasons).

- **MAPPER/QCG**. With SAM Update 19 new tests were integrated into SAM. A discussion about the Mapper/QCG helpdesk strategy and the related ticket workflows took place. The MAPPER community will use a dedicated helpdesk instance (xGUS) interfaced with GGUS.

- **Federated Cloud**. Integration of cloud resources with all production operational tools is progressing and the status is documented in section 3.2.4.

A new Distributed Computed Infrastructure (DCI) integration activity was started in collaboration with EUDAT and PRACE. A workshop[11] was organized aiming at bring together EGI, EUDAT, PRACE, and user communities to discuss the requirements the latter have in sharing and using their data between different environments, which can be general infrastructures or domain specific facilities. The workshop featured the participation of VERCE[12] (earthquake and seismology), VPH[13] (Virtual Physiological Human), EPOS[14] (European plate observation), molecular and materials science, MAPPER[15] (multi-scale simulation), SCALALIFE (life science)[16] and DRIHM[17] (hydro-meteorology). The output of the workshop was the kick-off of three pilot activities around: interfaces and protocols for data access and transfer across EGI, EUDAT and PRACE, and information discovery.

1.2.3. Help desk & Support Activities

EGI Helpdesk

The GGUS Advisory Board[18] was constituted in November 2012 to facilitate the technical discussion of new features requested by user communities, operators and technology providers. The functionality of the prototype of the GGUS report generator – used to support various EGI reporting activities and supporting the monitoring of SLAs established with the technology providers, was assessed and a number of new developments were agreed. Most of the new features were implemented by the JRA1 by the end PQ11 and are described in section 1.2.5. The GGUS documentation section available on the portal was updated and the GGUS mail boxes migrated to a new mail infrastructure

The strengthening of the high availability configuration of GGUS is in progress. Switching from the master to the backup machines will be done using a management script that can be run by GGUS admins or the KIT on-call service at any time. The usage of GGUS for the handling of security operations is still under discussion with CSIRT; CSIRT has the action to provide user requirements.

In addition a workflow was discussed to ensure the automated closure of tickets that do not receive feedback from the submitter or from the supporter. These workflows are needed to automate the current ticket follow-up procedures that are labour intensive.

Grid Oversight

One of the major activities conducted by COD in PQ11 was the daily follow-up of upgrades of unsupported software. The Central on Duty team (COD) was responsible of opening tickets to site administrators, collecting information about upgrade plans making sure that the retirement calendar

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

[12] http://verce.eu/

[13] http://www.vph-noe.eu/

[14] http://www.epos-eu.org/

[15] http://www.mapper-project.eu

[16] http://www.scalalife.eu/

[17] http://www.drihm.eu

[18] https://indico.egi.eu/indico/categoryDisplay.py?categId=78

was respected, checking that affected service end-points were put in downtime if they could not be upgraded in due time, and suspending unresponsive Resource Centres as extreme measure if needed. The gLite retirement campaign started in PQ10 and was almost completed at the end of PQ11. COD actively participated to the definition of the procedures for retirement of software, which are now approved and documented in the Grid oversight escalation procedure and the Decommissioning of unsupported software procedure[19].

ROD performance index: since October 2011 COD is monitoring the status of NGI support activities, whose quality is reflected in the ROD Performance Index. The status of the SAM distributed infrastructure is being actively monitored to reduce the percentage of Unknown results.

COD participated in the review of the Resource Centre certification procedure with the objective of streamlining the steps and improving the internal business logic of GOCDB and other operational support tools. The output of this work was presented at the December OMB meeting[20].

A face to face meeting was held in November[21] to discuss the future evolution of this Global Task. In addition to the current daily duties it is proposed that COD contributes to service level management activities related to the Resource Provider Operational Level Agreement and the EGI.eu Operational Level Agreement[22]. These new duties include service quality assessment, reporting and follow-up, and can be extended to additional services for coordinated resource allocation and federated cloud provisioning. The full proposal was presented at the Evolving EGI workshop in January[23].

Software support: The revised 1st and 2nd level software support process, established at the end of PQ10, is now running smoothly, without any noticeable issues. In PQ11, 172 tickets were identified to be a software issue, and 52 (30%) were solved. The absolute number is higher with reference to PQ10 but comparable: the percentage of solved tickets remains the same, indicating a stable ratio of software defects (i.e. the tickets that are assigned to 3rd level support). Ticket solution times (average/median) are 19/4 days, slightly improved (however, these numbers tend to oscillate considerably, depending on the actual tickets solved). The discussion on how to proceed with the revision of the current technology provider SLAs started in the TCB.

User support Croatia

University Computing Centre – SRCE held the first Day of the Croatian e-infrastructure on 28th November 2012 in Zagreb. The program was dedicated to the exchange of knowledge, experience and reflection of the demand for further development and use of all elements of e-infrastructure, from the main network, via grid computing, HPC and cloud infrastructure, authentication and authorization infrastructure (AAI), all to the data layers. The event brought together users, supporters, partners and financial contributors to the current e-infrastructure of research and education, approximately 70 participants. The main conclusions of the first days of e-infrastructure are the following:

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[19] https://wiki.egi.eu/wiki/PROC16 and https://wiki.egi.eu/wiki/PROC01

[20] https://indico.egi.eu/indico/getFile.py/access?contribId=4&resId=0&materialId=slides&confId=1100

[21] https://indico.egi.eu/indico/getFile.py/access?resId=2&materialId=minutes&confId=1243

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

[23] https://documents.egi.eu/document/1529

- there is a need for convergence of e-infrastructure layers in terms of interfaces and use policy to allow scientists unobstructed access to resources needed for their research;
- such (multilayer) ecosystem will greatly reduce the need for scientists to manage their operational network, computer or data infrastructures;
- initial elements of e-infrastructure ecosystems exist in Croatia, therefore it is now necessary to jointly work on the further development and sustainability of individual components;
- good environment and culture of cooperation, joint procurement, use and sharing of research resources, all those elements are important for success and efficiency of e-infrastructure.

User support Finland

During PQ11 the number of registered users of the Finnish National Grid environment has grown from 134 to 157. Some new tools were installed such as the ARC Run Time Environments to the FGI environment. These tools include: quantum chemistry codes ORCA and Dirac and brain MRI image analysis tool FreeSurfer. A new command line grid interface: grid Exonerate, became on line on December 2012. This interface automatically distributes large Exonorate based sequence alignment tasks to FGI or to any ARC based grid environment. Information about this interface was added to the appdb.egi.eu site. In the same time an updated version of the grid BLAST sequence search tool was taken in use. In January 2013, FGI user guide was published as the first guide book in the emerging new web site of CSC[24].

User support Greece

- Problems dealing with the functionality of WS-PGRADE have been solved.
- Update of the HellasGrid site with the software packages installed at the various HellasGrid clusters.
- Official announcement of the HellasGrid WS-PGRADE portal to the HellasGrid users.
- Provision of credentials for accessing the HellasGrid WS-PGRADE portal through the HellasGrid access site[25].

User Support IberGrid.

- Several plenary sessions and debate forums were held at IBERGRID 2012[26] dedicated to applications and applications issues.
- DIRAC tutorial for end users at IBERGRID 2012.
- Follow up with the Spanish certification authority regarding issuance of ROBOT Certificates, a long standing problem for some web portal developers within the region.
- Promote DIRAC usage in the user community
- Continue the integration of the IBERGRID RT ticketing system of end users with GGUS

User support Italy

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[24] http://datakeskus.csc.fi/web/guest/fgi-user-s-guide

[25] https://access.hellasgrid.gr

[26] http://www.ibergrid.eu/2012/

During PQ11 NGI_IT user support activities for new communities focused on the following main areas:

- Continuation of the activity started in PQ10 to improve the HPC support within the IGI infrastructure. This activity is done in collaboration with various Italian Grid sites and user communities. Following the recent boost to parallel applications support within the EGI infrastructure provided by new features in the middleware and by dedicated working groups such as the EGI MPI Virtual Team, an HPC testbed involving five IGI production sites of different sizes (from 8 to 128 nodes, 2 equipped with low latency network connections) was set up. The readiness to run use cases and computing models on the testbed was tested. Issues that were found and addressed are mainly about: i) managing jobs of different types (serial and parallel) on the same sites minimizing the waste of resources ii) the checkpoint handling for applications requiring very long runs and acting on big datasets iii) the standardization of the way to publish information about site-specific applications available at the sites (i.e. compiled using libraries optimized for the site resources). A suite of six applications from different disciplines (oceanography, climatology, astronomy, quantum chemistry, molecular dynamics, relativistic astrophysics) were chosen to span over a wide range of requirements. The experience acquired and the facilities created within this activity contributed to improve the support to HPC jobs in IGI. The testbed resources are now permanently in production and the number of sites supporting parallel jobs increased from 3 to 13. The outcome of the activity was presented[27] at the PDP2013 conference at the end of February.

- The support to a new Earth Science user community (the Institute for Atmospheric Science and Climate of the National Research Council - Bologna department) continued. It was focused on the porting to the Grid environment of a self-developed climatological model called GLOBO. Two small production runs were carried out, and a bigger one (150000 CPU hours) started. The possibility is being investigated to create a high level web interface in the IGI portal for this application.

- Support to various COMPCHEM communities and applications, in particular to improve the porting of CRYSTAL[28] already started in PQ10, and to run productions of long dynamical parallel simulations of huge molecules needed by the CNR-ISOF institute (Bologna division).

- Submission of the proposal for the creation of a Virtual Team to support the creation of the Computation Chemistry and Material Science VRC. The VT was accepted and started.

- The support to a new Life Science user community, the BioComputing group of the Bologna University to create their Grid based computing model to run protein alignment applications. We are verifying the feasibility to run a production which requires about 750000 CPU hours using Italian national VOs and the BIOMED VO.

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[27] "The HPC testbed of the Italian Grid Infrastructure" - R.Alfieri et al. - In proceedings of the 2013 21st Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP'13), Belfast, Northern Ireland, UK

[28] http://www.crystal.unito.it/

- Porting of an application for the GAIA telescope mission in collaboration with the Italian National Institute for Astrophysics.
- Submission of a proposal for an EGI mini-project about interoperability between HPC and HTC.
- Tutorial to disseminate the high level interface created for the ANSYS suite (for INFN communities).

The collaboration with the Italian Elixir and EMSO communities needs to be strengthened as the activities started with them in the previous quarters are currently not progressing as expected.

User support Serbia

The number of Grid users within the NGI-AEGIS was significantly increased, so the total number of AEGIS VO members reached 134. A training event[29] was organised for AEGIS Grid site administrators at the School of Electrical Engineering of the University of Belgrade. The goal of this training was to introduce administrators of AEGIS Grid sites with installation of services based on the latest versions of Grid middleware as well as with EGI-InSPIRE monitoring and operations procedures. The second part of the training aimed to attract representatives of the existing academic clusters to join AEGIS/EGI-InSPIRE Grid infrastructure.

Support was provided to the Serbian chemistry community: from introduction of new users to Grid services, usage of already available applications, to porting of new computational chemistry applications to Grid infrastructure. As a part of porting activity, the ORCA[30] application was deployed to AEGIS01-IPB-SCL resource centre and made available to Grid users. This general-purpose tool for quantum chemistry features a wide variety of standard quantum chemical methods ranging from semi empirical methods to DFT to single- and multi-reference correlated ab initio methods. The NGI_AEGIS Helpdesk and the website[31] have been regularly maintained during PQ11 and after each new GGUS release our user support team participated in testing of GGUS-NGI_AEGIS Helpdesk interface functionality**.**

User support Turkey

- Attendance to the EGI ELIXIR VT video conference meetings. The latest status of the country was presented in the Country Presentation sections in EGI ELIXIR VT meetings[32].
- A survey is being prepared for the potential ELIXIR users and the results of the survey will be collected in PQ12. A closed meeting is scheduled with the potential ELIXIR users for planning the future activities in the country.

1.2.4. Infrastructure Services
Tools

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[29] http://egitraining.esc.rl.ac.uk/node/41932

[30] http://cec.mpg.de/forum

[31] https://helpdesk.aegis.rs/ and http://www.aegis.rs/

[32] ELIXIR VT meetings: https://indico.egi.eu/indico/categoryDisplay.py?categId=76 (Turkey on the 5th of Dec)

Two software upgrades of ActiveMQ brokers were performed in November 2012: version 5.5.1-fuse-08-15 was rolled to production on 07/11/2012 and version ActiveMQ 5.5.1-fuse-09-16 was deployed on 20/11/2012[33].

The Operations portal Prototype v. 3.0.0[34] was deployed on 18-12-2012 and all interested parties were requested to provide feedback in preparation to the final rolling to production. The current production operations portal provides NGI views, these will replace the support of distributed operations portal instances.

The staged rollout of SAM Update-19 was successfully completed and released to production on 23-11-2012, while the SAM Update-20 staged rollout was completed in January 2013, but the release to production is still in progress waiting for the validation by the WLCG community. Two NGI SAM instances were decommissioned (supporting Ireland and ROC_IGALC). At the end of PQ11 the following SAM/Nagios instances are in production: 28 NGI instances (serving 38 EGI Resource Providers), 3 federated operations centre instances (serving three Resource Providers) and two integrated SAM/nagios instances (serving Canada and the Latin America region).

A new central SAM instance was rolled into production to monitor the EGI operations tools supporting operations and user communities (Training Marketplace, CRM and Application Database). Availability statistics of these tools are now accessible through the MyEGI portal[35]. The Nagios tests used for monitoring of EGI services are documented on wiki[36].

An additional new centralized SAM instance for monitoring of middleware versions[37] of deployed software, was rolled to production. This SAM instance runs tests which extract and consume software version information published into the Information Discovery service (BDII). The instance was integrated with the Operations Portal so that the detection of obsolete software instances that are detected by the tests and generate alarms in the Operations Portal. By doing so, the NGI operations teams can proactively support their site managers according to the usual operations workflows in replacing obsolete software. The following tests ran by this instance were added to operational tests:

- eu.egi.sec.DPM - checks if the SRM DPM service endpoint is using gLite 3.2 middleware.
- eu.egi.sec.LFC - checks if LFC service endpoint is using gLite 3.2 middleware.
- eu.egi.sec.WN - checks if WN is using gLite 3.2 (or older) middleware.
- org.nagios.GLUE2-Check - checks if the site BDII is publishing GLUE2 information.

A new centralized SAM instance for monitoring cloud resources was also deployed[38].

Accounting

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[33] A complete ActiveMQ changelog can be found at the following address: http://fusesource.com/wiki/display/ProdInfo/FUSE+Message+Broker+v5.5.1-fuse+Release+Notes

[34] https://operations-portal.egi.eu/next/

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

[36] https://wiki.egi.eu/wiki/OPS-MONITOR_profile_SAM_tests

[37] https://midmon.egi.eu/nagios

[38] https://vcl-1-166.srce.hr/nagios

A campaign started for the publishing of user DNs into the central APEL accounting database. This activity is important to improve the accuracy and completeness of data that is needed for the production of inter-NGI usage reports. The current number of sites not publishing User DNs amounts to 14[39]. Resource Centres in Serbia, and a few Resource Centres in Romania will not publish User DNs because of local legislation.

The adoption of the APEL SSM v. 1.0 protocol for publishing accounting records as a replacement of the legacy method based on DB insertions is close to finalization. NIKHEF site have migrated their publishing and are now sending Job Records to the new APEL server.

The Cloud Accounting Usage Record has been revised to enable us to summarise cloud accounting data more efficiently. A corresponding cloud message format has also been implemented and, along with the latest version of SSM (2.0) has been tested with two of the Federated Cloud Task Force sites (CESGA and CESNET). Cloud accounting records have been successfully sent to the Accounting Portal at CESGA so work on the visualisation of cloud accounting data can begin.

A test storage accounting database was put in place, along with the new version of SSM v2.0 ready to receive test StAR (Storage Accounting Record) from storage clients. The APEL team participated in OGF UR WG fortnightly phone conferences.

The "Fomalhaut" version of the Accounting Portal was released, with many improvements on InterNGI usage, custom VOs, local job filtering and many fixes and improvements. There were further improvements, like the automatic normalization of UserDNs to a common format, and remedial actions for some UserDN processing (see Issues below). The republishing of UserDNs proved too much for the existing consumer, and the volume of data republished interrupted the daily processing. It was agreed that sites would ensure they were publishing UserDNs going forward.

There were two major power outages in November resulting in the APEL systems being down for a day each time (7th/8th November and 20th/21st November). The systems were rebooted when power was restored and database tables checked. There was no loss of data on either occasion.

A failure with the summarization of site SiGNET caused a 300%+ increase in the size of the UserCPU table, slowing down the portal, and triggering failures on the UserDN decrypting process (the process took more than 24h before failing). The decrypting process was made to exclude the SiGNET site (cutting down the size of the table) and some fine tuning and optimization of the Java process slimmed down the decryption time to less than1h. The size of the table is regularly monitored to avoid downtimes.

Documentation

Documentation activities were focused on various areas: improvement of the EGI wiki, procedures, the rolling to production of the EGI discussion forum and the creation of new documentation. The EGI operations wiki space has been reorganized and new menus have been introduced to better find needed information. Unnecessary pages were removed or marked as deprecated. For EGI Operations newcomers, site administrators and end-users have been created pagers which gather all existing information to support their daily work. In addition, an EGI User start guide is being prepared to

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

provide documentation on how to use infrastructure and Regional User Documentation which collects links to end-user documentation provided by NGIs. A wiki guide was created for better use of this tool by EGI Wiki users.

The EGI discussion forum[40] was tested and rolled to production. Two new sub forums have been introduced for the operations community: Site administrator support and NGI administrator support. Both of them are moderated by Grid oversight activity and are supposed to be a place where inexperienced NGIs and site administrators can find support.

A large number of procedures were technically improved. The Availability and reliability monthly statistics page was reviewed and split into two pages: PROC04 Quality verification of monthly availability and reliability statistics (procedure) and Availability and reliability monthly statistics (reports). A new procedure has been created for handling of unsupported software.

The EGI.eu OLA defining the expected service level targets provided by services operated by EGI.eu was created, and it will be finalized at the beginning of PQ12[41]. The EGI service portfolio including all operational services currently delivered by EGI.eu and nationally by NGIs was finalized.

The negotiation of Resource Infrastructure Provider MoUs with the Asia Pacific partners, Canada, the Latin America partners and OSG started in PQ11.

1.2.5. Tool Maintenance and Development

The requirement "VO monthly A/R statistics"[42] was established to provide more user oriented metrics in their use of the deployed EGI services. A solution to satisfy it was designed in collaboration with the product teams following the steps below listed:

- Identifying the PTs to be involved and writing a design document[43].
- Defining the actions that should be performed by the PTs involved too satisfy the requirement.

The new GGUS advisory board started its periodic meetings[44]. During PQ11, JRA1 continued the activity to identify how to maintain the operational tools after the project. Representatives of almost all product teams attended the "Evolving EGI Workshop" which took place in Amsterdam on the 28th-30th January 2013.

GOCDB

- Progressed with the Doctrine ORM DB layer that will replace the current Oracle PROM DB. This is the main development task until v5 (release expected approx. ~May 2013);
- The OGF GFD document for GLUE2 XML rendering was completed and sent around the working group for comment[45];

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[40] https://forum.egi.eu/

[41] https://documents.egi.eu/document/1093

[42] https://rt.egi.eu/rt/Ticket/Display.html?id=4348

[43] https://documents.egi.eu/secure/ShowDocument?docid=1493

[44] https://indico.egi.eu/indico/categoryDisplay.py?categId=78

[45] http://redmine.ogf.org/dmsf/glue-wg?folder_id=31

- Failover instance updated. Nagios checks for the failover were updated;
- A number of new service types have been added to satisfy new users' requests or to update obsolete current types:
    - 'xrootd' - Scalable and fault tolerant access to different data repositories[46];
    - 'xrootd.redirector' - A component of the XRootD suite;
    - 'ch.cern.cvmfs.stratum.0' and 'ch.cern.cvmfs.stratum.1' - Components of the CERN VM file system[47];
    - 'emi.apel' - [Site service] The emi.apel hosts the site EMI 3 APEL Accounting client (a replacement for glite-APEL);
    - 'org.squid-cache.Squid'[48];
    - 'eu.egi.MPI' - [Site service] defines an MPI test probe that is independent of a grid information system. This service will allow testing of sites which are offering MPI functionality but are not broadcasting it, or sites which are broadcasting the MPI/Parallel support in an incorrect way;
- An abstraction for the GOCDB authentication logic was developed to simplify the integration of other authentication mechanisms.

Operations Portal

- **Dashboard refactoring**: A first prototype was delivered in December 2012 to ROD Operators for feedback which will be used to implement a second version that we will deliver in production in PQ12. The main new features are :
    - A complete history is available for an issue;
    - Automatic removal of alarms with ok status in the main view;
    - Alarms grouping mechanism with possibility to add /remove alarms after the ticket creation;
    - The possibility to detect issues on local or non EGI resources;

A refactoring of the helpdesk module has started and the connection to ticketing systems using a dashboard from operations-portal has been totally rebuilt to be able to connect, through interfaces, any distant or local helpdesk. This module is now based on independent components. Fully configurable, this standalone library is providing ticket workflow management, automatic form building and a flexible templating tool to describe content of each workflow's step.

- **Regionalisation**: The regional instances have been removed and regional views are provided of the different features when it is meaningful.

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[46] http://xrootd.slac.stanford.edu

[47] http://cernvm.cern.ch/portal/filesystem

[48] http://www.squid-cache.org/

- **Availabilities and reliabilities report system**: A new module and system will be implemented as an availabilities/reliabilities reporting system in the operations portal according to the following guidelines:
  - VO specific reports are generated monthly, using the OPS VO;
  - Only reports for "high activity" VOs are generated (as defined in the accounting portal) by:
    - CPU time consumed > 1 year/week;
    - CPU time consumed/month > 4 year/week;
  - The list of service end-points supporting VO x needs to be extracted from top-BDII;
  - Availability results are summarized on daily, weekly and monthly basis;
  - Apply the A/R calculation algorithm determined with SA1 team.
  - A first study and estimation of this work has been done and a technical document has been written.

Service Availability Monitor (SAM)

The main achievement in the past period is the development of SAM Update 20[49], which includes the new SAM/Nagios configuration called OPS-MONITOR (for monitoring operational tools). A central SAM Operational Tools Monitoring instance (https://ops-monitor.cern.ch/nagios/) and a preproduction (for testing purposes) instance (https://ops-monitor-preprod.cern.ch/nagios/) were deployed in November 2012. In addition, monthly reports were added to the central MyEGI and significant preparatory work completed for the integration of EMI probes. SAM Update 20: this release was mainly focused on the introduction of SAM Operational Tools Monitoring. In addition we worked on bug fixing identified during the wide deployment of SAM Update 19.

Messaging

- Upgrade of PROD MSG broker network endpoints scheduled and completed on the following two date sets:
  - 6th and 7th of November 2012;
  - 27th and 28th of November 2012;
- Investigation of issue related to DLQ purging has started in January 2013 and is still ongoing. The problem is related to messages arriving at the dead letter queue and not being purged resulting in a usage of a high number of physical resources (i.e. disk space) on the broker endpoints;
- Discussion with SAM on implementing authentication has started on December 2012. This task is on-going;
- Fixed an issue with NRPE module on AUTH and SRCE broker instances affecting their internal monitoring;
- Redesign of monitoring tools (i.e. Nagios probes for SAM) has started in January 2013.

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[49] Release notes: https://tomtools.cern.ch/confluence/display/SAMDOC/Update-20

EGI Helpdesk (GGUS)

During PQ11, two major releases have been delivered, the release note are available at https://ggus.eu/pages/owl.php.

Below the description of the main activities performed:

- Most features of the Report Generator have been implemented by end of January 2013. However some minor changes are still to be done.
- The extension of the user authentication mechanism (currently based on X.509 certificates) is being evaluated.
- Decommissioned support units: "LCG CE" and "GridView".
- Decommissioned VO: "cppm" and iintroduced a new VO: "ops.ndgf.org".
- Reviewed the VOs with low number of tickets or without any tickets in GGUS and checking the members of the VO mailing lists.
- Entries in the public diary of an incident record are now numbered chronologically and cross-pointers are now possible.
- Updated the info section with new "did you knows?".
- Added a check for duplicate attachment names and display attachment name in comment as link.
- ETA field now usable for tickets with priority urgent and less urgent.
- Send reminders to the notified sites.
- Fixed bugs in master-slave and parent-child relations.
- Implemented popup window showing the site being in downtime for team and alarm ticket submit form.
- Fixed bug in mail template of verification notifications.
- Restructured synchronization GGUS – VOMS.
- Interfaces with other ticket system:
  - Fixing bugs in interface to CERN ServiceNOW;
  - Implementation of interface for IBERGRID RT ticketing system on-going.

Accounting Repository

- Migrated NIKHEF and IN2P3 to new APEL server.
- Regional APEL server coding completed, now ready for testing by external site.
- Cloud: Revised Cloud Accounting Record (CAR) that allows cloud accounting data to be summarised more efficiently can be sent to the Accounting Portal. Tested new version of SSM and successfully sent CARs to the Accounting Portal at CESGA so work on the visualisation of cloud accounting data can begin.
- Storage: test database set up and new implementation ready to receive StAR from storage clients.
- Work has begun with the team at Hannover on their prototype for Application Accounting and future development to set up a repository at STFC to receive application accounting records using SSM.

Accounting Portal

- Improved UserDN country classification patterns;
- Improvements on usage by country;
- GET interface for CSV;
- Support new RFC 2253 UserDNs;
- Better support for custom VOs;
- UserDN NGI attribution;
- Support for local jobs, there are three options, selectable on most views:
    o Only Grid jobs (default);
    o Grid+Local jobs (In case there is a corresponding global VO, both are aggregated);
    o Only Local jobs;
- Moved InterNGI views to production;
- New Active Users View;
- New query publication percentage views;
- Shortened web service URLS;
- Fixed HEPSPEC06 computation on InteNGI views;
- New XML endpoint for VO activity;
- Server work and moving, database maintenance;
- Many fixes and optimizations.

Metrics Portal

- Quarter-dependent activities (for the decommission of SA3);
- Quarter-dependent metrics (for decommissioned, replaced and semantic-changing metrics);
- NGI summed metrics for NA2;
- New quarterly views and Excel report;
- Redundant views removed;
- New scrolling report layout;
- Internal changes in the auth system;
- Server work;
- Fixes and optimizations.

1.3. Issues and Mitigation

1.3.1. Issue 1: Operations Portal

One developer has left the team and consequently the manpower of the team has been reduced strongly. We are trying to hire a new person but the efficiency of the team will be affected in the coming months.

1.3.2. Issue 2: Albania is still not contributing resources to EGI.

Update. Albania currently has no plans about integrating production resources into EGI. Various operations support actions were undertaken in the previous quarters and the EGI discussion forum was set-up to support new NGIs and site administrators. Issue closed, it will be reopened if requested by the PMB.

1.3.3. Issue 3: Grid Software Maintenance and Support

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

Update. The Operations Management Board assessed the risk and the related affecting operations assets[50]. The min risks identified are: the availability of specialized support, the commitment to a timely delivering of fixes in case of high or critical vulnerabilities affecting the production infrastructure. DPM and LFC support will be continued through the establishment of a community project. The UMD software provisioning processes will be revised in preparation to the discontinuation of the EMI and IGE coordination functions.

The implementation of a UMD Release Team with the involvement of Product Teams and Platforms Integrators was discussed at the Evolving EGI workshop, and will be prototyped in the coming months. The evolution of the UMD into a set of core products, contributed products and community products is being defined. Contacts with Platform Integrators and Product Teams will be established in PQ12 under the coordination of the TCB. The issue is now being handled through a number of activities and can be closed.

1.3.4. Issue 4: NGI operations sustainability

A survey conducted in September 2012 indicated that a small percentage of NGIs improved its funding structure, as requested to compensate for the end of EC financial support to national operational activities in April 2014.

Mitigation: The impact of the current funding position of NGI operational activities will be assessed in a new survey in February and the outcome will be reported in the annual assessment of the NGI international tasks due in PQ12. In addition, a new survey was opened in PQ11 to collect expressions of interest of NGIs in federating their operational services with other partner NGIs. EGI.eu will support NGIs interested in this service provisioning model with its coordination function during PY4.

1.4. Plans for the next period

1.4.1. Operations

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[50] https://indico.egi.eu/indico/getFile.py/access?contribId=2&resId=0&materialId=2&confId=1096

- **Security.** The improvements to the RT/RTIR ticketing system for the tracking of Security Service Challenges will be finalised. Work will continue on requiring the timely migration from unsupported software, this time for the retirement of EMI 1 middleware and services, by the end of April 2013. SSC6 will be fully analysed and one or two NGIs will perform national SSCs. The new release (an alpha release) of Pakiti will take place in PQ12. Developments will be made to security monitoring to track all Software Vulnerability Group and CSIRT alerts and advisories as required. The EGI CSIRT operational procedure for compromised certificates will be finalised and submitted for approval. The Software Vulnerability Group handling procedure for post EMI/IGE will be completed. Security training will be given at the ISGC2013 conference in Taipei in March 2013 and SA1.2 staff will attend the EGICF 2013 to facilitate discussions on security issues.
- **Service deployment.** The whole software provisioning processes – including Staged Rollout, together with the structure of the UMD repository, will be revised to prepare for the end of EMI and IGE and the discontinuation of the release coordination function that they have been providing.
- **Operations integration.** Interoperation task in PQ12 will mainly focus on integration of accounting for UNICORE, Globus and QCG, on information discovery (ARC and UNICORE), and on the addition of new tests for the Operations Portal for Desktop Grid and QCG operations.
- **Operations tools.** APEL SSM2 publishers will be rolled into production in PQ12. In order to enable sites to publish accounting data securely to the production message broker network, gLite-APEL nodes need to be authorized. The component for retrieving the list of gLite-APELs DNs from GOCDB will be implemented and deployed on the production message brokers. A new version of Operations Portal containing Availability and Reliability VO views will be deployed in production.

  SAM Update 21 will integrate Nagios probes provided by EMI. Once released to production all NGI instances will need to be reinstalled, as an upgrade from gLite UI to the EMI version is required. The development of probes for two centralized SAM instances for middleware monitoring and cloud monitoring will continue. The cloud monitoring SAM instance will be moved to the egi.eu domain (cloudmon.egi.eu).
- **Accounting**.
  - Testing of the regional APEL server with external sites.
  - Create Summary Cloud Accounting record format to be sent on to the Accounting Portal for visualisation.
  - Migrate IN2P3 sites to new APEL server.
- **Helpdesk**. Several new requirements will be implemented in the GGUS report generator. As to the GGUS structure, the CMS VO (one of the larger user communities) will replace the current usage of Savannah with GGUS. The implementation of ticket workflows to integrate with the PRACE helpdesk will be discussed, and the implementation of the interface with the DANTE ticketing system will be completed.
- **Software support**. We will focus on implementation of the agreed ticket follow-up process, which is still not fully in place for the low-priority tickets. The new model of software support after the end of EMI and IGE will be defined (the software support coordination currently delivered by

EMI and IGE will be discontinued). The internal activities of the Software Support unit (triage, ticket handling and follow-up) will not be affected in the short term.

1.4.2. Tool Maintenance and Development

GOCDB
- Continue to develop Doctrine ORM layer to replace current PROM DB. This is the main development for PQ12.
- Continue to push GLUE2 working group for comments on XML rendering.

Operations Portal
The developments in PQ12 will be focused on the delivery of the VO Availability and Reliabily report system. A prototype will be delivered in April.

Service Availability Monitor (SAM)
SAM Update 21. This release will focus on the integration of EMI probes, which involves:
- Major repackaging of SAM and developments necessary to adopt new libraries (from EPEL);
- Determining how to map the EMI probes to the current EGI metrics;
- Coordination of probe development with EMI[51], which includes opening tickets and follow-up;
- Helping EMI to test the developed probes in an integrated SAM/EMI environment as well as contribution to establishing EMI2RC testbed;
- Analyzing impact of changes in EMI probes to EGI operations;
- Changes and development fixes in all the components that can pop-up during this integration.

In addition, bugs identified during the deployment of SAM Update 20 will be fixed.

Messaging
- Investigation of issue related to DLQ purging not being handled automatically;
- Redesign of monitoring tools (i.e. Nagios probes for SAM);
- Investigate potential benefits of LevelDB.

EGI Helpdesk (GGUS)
- GGUS report generator: Implement some minor requirements that came up lately.
- GGUS structure: Integration of Operations Portal in GGUS. This is scheduled for the February release. Define a concept for allowing additional access to GGUS without certificates. Fully integrate CMS VO in GGUS and retire interface to Savannah.
- Interfaces with other ticketing systems: Implement interface to PRACE RT and DNATE system. Finish interface with IBERGRID RT.

Accounting repository (APEL)
- Test regional APEL server with external site (Hannover).

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[51] https://twiki.cern.ch/twiki/bin/view/EMI/NagiosServerEMITestbed0022012

- Create new summaries of Federated Cloud Resource Providers cloud accounting records and send to Accounting Portal.
- Receive StAR from multiple client sites.
- Continue work to define application accounting message format/record.

Accounting portal
- New accounting views and InterNGI changes;
- Updates from scientific-discipline-classification VT;
- New XML endpoint format;
- Nagios probe for UserDN publication.

Metrics portal
- Auth improvements;
- Cross-browser integration;
- New metrics implementation;
- Promote better information system publication.

2. DOMAIN SPECIFIC SUPPORT AND SHARED SERVICES & TOOLS

2.1. Summary

With the LHC shutdown there is an opportunity for the HEP community to reflect on the experiences of the first years of data taking. It will also allow these experiences to be translated into new requirements to be implemented in the software and tools need by the HEP experiments. The work undertaken within SA3 during PQ11 has continued the established sustainability strategy of broadening the collaborations and usage across the tools with work focused into the core elements of the different tool frameworks.

The Life Sciences community consolidated their requirements for a web based community management tool. Developments of the Hydra service, which enables the redundant distributed storage of keys needed for the encryption/decryption of data, continued with the release in EMI-2 of the documented service. However, the client components are still not part of the worker node release.

GReIC has provided in PQ11 a production-level release of the DashboardDB application, a production-level release of the GRelC Desktop, a strong dissemination activity with two new GRelC services registered in the DashboardDB system, two new use cases adopting the GRelC service for national projects in the Environmental domain and an implementation plan toward EMI1 and EMI2.

Kepler is using the OGSA-BES interface in GridWay to submit jobs into EGI and other infrastructures. Earth Sciences and the Astronomy and Astrophysics communities continue their integration of tools into the infrastructure and the community building needed to improve their individual sustainability.

2.2. Main achievements

2.2.1. Dashboards

2.2.1.1. HEP Dashboard Application

Following the evolution of the computing models of the LHC experiments, the major effort during PQ11 was given to the data management monitoring tasks, in particular data transfer and data access. In parallel, the functionality of the Site Status Board which is widely used for operations by ATLAS and CMS was extended. Multiple improvements were introduced in the job monitoring applications.

2.2.1.2. Job monitoring

New versions of analysis and production task monitoring and of the job monitoring accounting portal were deployed in production for the ATLAS community. New functionality was enabled in the applications following user feedback. A tutorial for ATLAS analysis users was held as a part of the ATLAS offline software tutorial.

2.2.1.3. Data Management monitoring

A new version of the WLCG Transfer Dashboard was deployed in production. This version provides the ability to monitor not only data transfers handled by FTS, but also data transfers and data access performed by ATLAS and CMS on federated storage (xRootD). The next step is to deploy in production a version with the integrated xRootD traffic of the ALICE experiment. WLCG Transfer Dashboard with ALICE xRootD traffic was prototyped and deployed to the integration server. After validation by the ATLAS community, a new Distributed Data Management Accounting portal was deployed in production. Two new production releases of the ATLAS DDM Dashboard were deployed in production in November and January. Major improvements were made to the ATLAS DDM Dashboard, consisting of enabling staging and registration monitoring. This functionality is very important for daily operations.

2.2.1.4. Site/services Monitoring

Multiple improvements were performed in the Site Status Board application. Caching of data on the client side was implemented, which improves the performance of the user interface. The possibility to modify metric values from the user interface was enabled. The CMS production team evaluated SSB for resource usage monitoring. As a result of this evaluation a new production view was created in the CMS SSB instance. This view is now used by the CMS production operators. The SSB workshop was held for the SSB user community. During the workshop the SSB developers demonstrated new functionality of the application. SSB users from different LHC experiments shared their experience and provided feedback to the development team.

2.2.1.5. Life Science Dashboard Design

The LSGC ("Life Sciences Grid Community" VRC) technical support team continuously monitors grid resources allocated to Life Sciences users, more particularly to the biomed VO. It works in close collaboration with NGI's operation teams and with the developers of VO-level monitoring tools, to improve the tools available for administrating the community users, operating and troubleshooting resources, and therefore to improve the quality of service delivered to the users.

During this period, the technical support team has continued improving and developing tools and web reports to allow for the monitoring and accounting of VRC resources. Together, they form a set of LSGC Dashboard tools, integrating:

- Upgrade of the dedicated Nagios server[52], deployed by the French NGI.
- Life Sciences Web gadget interfaced to the Applications Database[53], Requirement Tracker[54] and Training marketplace[55].

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[52] https://grid02.lal.in2p3.fr/nagios/

[53] http://appdb.egi.eu/

[54] https://rt.egi.eu/rt/

[55] http://www.egi.eu/services/support/training_marketplace/

- Community files management gadgets to monitor storage space consumed VRC-wise, anticipate problems of storage resources filling up, handle SE decommissioning and file migration procedures.
- Centralized view of VO resources that are currently not up and running (e.g. sites in downtime or not in production etc.).
- Evaluation of future resource needs by projecting existing accounting data.
- Monitoring of computing resources to complement Nagios alarms with more easily exploitable VO-specific data.
- Miscellaneous tools for facilitating daily follow-up of issues, manual checks, etc.

In addition, during this period the technical support team has also worked on the consolidation of a list of features that are today either not addressed or addressed by disparate tools, in order to come up with the specification of VAPOR, the VO Administration and operation PORtal, whose goal it is to help small to medium-size grid user communities perform daily administrative and operational tasks. The effort required to develop this portal can hardly be provided under the current volunteering-based model where LSGC members willingly contribute effort to the LSGC technical team. Consequently, a project has been submitted in reply to the call for mini-projects by EGI.eu, with the aim of developing this portal.

2.2.2. Tools

2.2.2.1. Ganga

During PQ11, work has largely focussed on working towards a new major release (version 6.0) of Ganga. Ganga 6.0 sees the introduction of many changes over the last version, both visible to the user and behind the scenes. Previously, users specified files that they wanted returned to their local machine by using the "outputsandbox" and files that they wanted uploaded to a mass storage using the "outputdata" attributes of the job object. The destination of the "outputdata" files depended on the location that the job was running on, for example, a job running on the Grid using the DIRAC workload management system would send output to a DIRAC grid storage element.

As of Ganga 6.0, the system for defining output has been completely re-worked, offering a more scalable and powerful approach. Specifically, both "outputsandbox" and "outputdata" have been deprecated and surpassed by the "outputfiles" attribute, with which the user is free to directly specify where they would like their output through the use of distinct "File" type objects. The result of this is that they can easily redirect the output destination of their data by changing a single attribute. As these new developments require changes to how users interact with Ganga, detailed documentation has been produced and the Ganga development team intend to provide tutorials in the near future.

In addition to the above, work has continued on bug fixing, implementing new features and maintaining documentation.

2.2.3. Services

2.2.3.1. Hydra

During this period, Hydra has been officially released as part of EMI2. In addition, EMI has made significant efforts to produce useful documentation that was severely lacking. Nevertheless, the service remains hardly usable for production: some bug fixes are still on-going at EMI, while some concerns about the way Hydra should be deployed and operated in a production environment have not been clarified yet.

Finally, the decision of EMI not to make the Hydra client package mandatory in the Worker Nodes distribution suggests that VOs willing to use the service will have to either (i) deploy this package as VO-specific software on the computing elements they wish to use, or (ii) negotiate with each and every resource centre supporting the VO the deployment of the package.

Therefore, so far, the service delivered 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. GRelC

During PQ11, the following activities have been carried out:

- **GRelC Desktop**: A second version of the web desktop application including the two DashboardDB gadgets (registry and monitoring) has been released. The new release fixes some minor bugs at the presentation layer related to the YouTube and Twitter gadgets. The second release can be considered a production-level environment.
- **Globus libraries**: A new version of the Globus libs (external libraries for GRelC) has been released for the SL5. This new version fixes an issue related to the creation of symbolic links at the end of the installation step. The new rpm replaces the old one for the GRelC release on gLite 3.2 as well as it will be needed by the forthcoming EMI1/EMI2 compliant GRelC releases on SL5 x86_64. The GRelC rpms[56] and repository[57] (both available at IGI level) have been updated and tested accordingly.
- **Dissemination Activities**: During PQ10, some grid-database services and data providers were contacted to register/publish their own data resources/services into the DashboardDB system. Two sites, one in Catania (INFN-CATANIA) and another in Naples (GRISU-NAPOLI) have respectively updated and installed the gLite 3.2 version of GRelC and registered their service instance on the DashboardDB system. As pointed out during QR, this process will last until the end of PY3. New GRelC resources are expected to be registered and published in the next months.

  Another activity related to the dissemination task has been the participation to the Super Computing 2012 conference in Salt Lake City (November 10-16, 2012, USA). A video related both to the DashboardDB application and to the GRelC Desktop (prepared during PQ10) has been included into a longer video presenting all the IGI activities and displayed in the IGI booth. Other minor dissemination activities are related to: (i) a new version of the documentation for the installation process, (ii) updated news on the GRelC website, and new tweets on the DashboardDB

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[56] Rpm repository (3_2_0 - x86_64) http://repo-pd.italiangrid.it/mrepo/ig-cert_sl5-x86_64/RPMS.3_2_0/

[57] GRelC metapackage http://repo-pd.italiangrid.it/mrepo/ig-cert_sl5-x86_64/RPMS.3_2_0/ig_GRELC-3.2.0-0_ig26_sl5_test09.x86_64.rpm

Twitter account[58] (available on the GRelC Desktop application through the Twitter gadget) about the most relevant and interesting results and activities.

Meetings were held in January at CMCC about the GRelC service and its main application use cases. As a consequence of these meetings, starting from February 2013, the GRelC service will be used as grid metadata service in the context of an Italian national project on "Situational Sea Awareness" (3-year project started in 2012) and as grid front-end to a data analytics service for analysis and mining of climate change data (NetCDF format) into another national project (4-year project, started in 2011). The results on these two new use cases will be available during PQ12 and new grid-database service instances and database resources will be respectively registered in the DashboardDB monitoring and registry.

Finally the two DashboardDB gadgets have been published on the EGI gadgets website, as a result of the implementation of the dissemination plan jointly defined with NA2 representatives to promote and publicize the two gadgets.

- **DashboardDB**: The new DashboardDB application released during PQ10 has been extensively tested. Few minor bugs have been detected and fixed. A memory leak (not critical) on the information provider responsible for collecting and storing the availability metrics has been fixed too. The DashboardDB is now in a mature and robust and can be considered a production-level application. In PQ10, the two main gadgets (registry and monitoring) have been proved to be stable (no errors have been detected over the last 3 months). So far, three different web-applications are importing the two gadgets (EGI Website, GRelC Website, GRelC Desktop application).

- **GRelC services with EMI1 and EMI2**: After the preliminary study about the compatibility of the GRelC software with the EMI distribution carried out during PQ10, an implementation plan has been jointly defined with the IGI release group in PQ11. Some installation tests to port the GRelC software on EMI1 and EMI2 are already on-going. A preliminary EMI1-EMI2 compliant release of GRelC is expected by the end of February. A production-level release of GRelC, both for EMI1 and EMI2, is expected by the end of PQ12 according to the initial plan.

2.2.4. Workflow & Schedulers

Work in PQ11 has focused on the integration of Kepler-GridWay. The new OGSA-BES interface to the GridWay meta-scheduler has been selected as a mechanism to efficiently delegate the job management. This is justified because the BES interface is an accepted standard, based on the JSDL format, which has demonstrated high performance with Grid Way in grid environments and is compatible with different infrastructures. Other solutions would require one to install Kepler in the same machine as a GridWay instance, which limits the deployment of the solution. Thus, new Kepler actors have been implemented to bind GridWay BES interface in order to submit jobs, check their status and store IDs, as well as other tools necessary to simplify the creation of JSDL files or the automatic delegation and renovation of user credentials. A new Kepler module has been created,

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[58] https://twitter.com/dashboardDB

including actors and examples. Additionally, in this period Astrophysics workflows involving the submission of large number of jobs have become possible.

2.2.5. MPI

During PQ11, the MPI activity has continued with the development of the new probes for MPI. These probes are now ready for deployment in the production infrastructure as soon as the new MPI service type is included in GOCDB. CSIC is monitoring the process in collaboration with partners from the MPI-VT.

CSIC has also created a page[59] in the EGI Wiki that collects and provides information about the MPI services and support mechanisms for application developers and resource providers. This was one of the open actions from the MPI-VT. The page contains links to the relevant documentation for both users and administrators about the MPI services in the EGI infrastructure.

The SA3 MPI team members have continued with the support in GGUS of MPI related issues via the MPI support unit.

2.2.6. SOMA2

SOMA2 is a versatile modelling environment for computational drug discovery and molecular modelling. SOMA2 is operated through a WWW-browser and it offers an easy access to third-party scientific applications. The SOMA2 environment offers a full scale modelling environment from input of molecular data to visualization and analysis of the results, and provides the ability to combine different applications into automatically processed application workflows.

By September 2012 CSC had used all of the allocated funding. This work is therefore now unfunded and the development effort is focused primarily at the national level. CSC has supported the existing SOMA2 services and it is foreseen that this will also suffice the needs of the international SOMA2 service (SOMA2 EGI pilot).

The outcome of PQ11 was a public release of SOMA2 version 1.5.0 Silicon, which was made available in SOMA2 web site during January 2013. This release contains all development efforts of PQ9 and PQ10.

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[60]. The LHCbDIRAC framework is the DIRAC extension specific to the LHCb experiment, which has been formally separated from DIRAC in order to streamline the implementation of features requested by the LHCb community. The support

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[59] https://wiki.egi.eu/wiki/MPI_Services

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

of LHCbDIRAC began under the EGI-InSPIRE project in October 2010 and finished in December 2012.

During PQ11 the activity has focussed on documentation of the work completed during the previous two years:

- The popularity service has been reviewed and then taken over by other developers, who committed to follow up with support and development of the service, according to the requirements of the LHCb user community.
- The service for storage resources accounting, extensively used for data management, has been documented and other data management experts will support this service.
- The system for consistency checks between storage elements and file catalogue has been reviewed and documentation has been provided to the LHCb data management team.
- The activity started during PQ10 aimed at optimizing the LHCb production management and reducing the man power needed to run the production system has been continued in collaboration with other members of the production team, who will take over and finish this work.

2.2.7.2. CRAB Client

During PQ11 a new version of the CRAB2 Client was released. This was intended to:

- Improve the support for remote Glidein;
- Support the new set of versions of CMS software;
- Fix a security issue in the job wrapper;
- Resolve various bug fixes.

On the development side CRAB3 has been completed with most of the basic functionality needed and version 3.1.4 has been released. On this release integration and beta testing were performed obtaining useful feedback, which have demonstrated the improvement of the tool.

During this period the CRAB3 components have been evaluated with the PanDA server as core system for the job life cycle management replacing the WMAgent system. The study's main goal has been to evaluate the future possibility of a common distributed analysis system for the ATLAS and CMS experiments. This study has led to a proof of concept prototype which has demonstrated to be able to run CMS jobs through the PanDA system already in production for the ATLAS experiment.

2.2.7.3. Persistency Framework

During PQ11, activity has focussed on the implementation of CORAL Server monitoring. The CORAL server is responsible for handling access to an Oracle database for multiple data requests from a large number of clients. Its architecture consists of several layers of proxies (about 3000) and a server. When a client submits its data query, a connection with a proxy in the first proxy level is established. If the data demanded are already present in the cache of the connected proxy the client receives the set of data requested. In the event that the data are not present in that proxy, the query is forwarded to the next levels of proxies. If no proxy level is able to fulfil the request, the proxy in the upper level contacts the server that, in turn, establishes a new connection to the Oracle DB and submits the query. This procedure implies some variable delay and latency of the response due to the topology of the path used to retrieve the data. Some issues have been observed due to the overload of

clients request on the same proxy. Therefore, monitoring of the CORAL server is essential to improve the understanding of the whole system and optimize its performance. Following a period of investigation and assessment, the technology selected for this purpose was the Hadoop framework, which provides for a distributed analysis of the log files from each proxy. Hadoop has a distributed file system able to collect those log files, perform the analysis and provide a final output to be used for histogram production. The log files should be stored as temporary files on the corresponding proxy and deleted very quickly to avoid any disk saturation that could in principle interfere with the smooth operation of the CORAL application. With the aim to study the scalability of the proposed procedure, the software architecture has been implemented using socket programming.

2.2.7.4. ATLAS and CMS Common Analysis Framework

The Common Analysis Framework described in QR10 proposes several components of PanDA as the core for the workload management system of ATLAS and CMS. As a potential common solution, effort has been invested in two topics during PQ11:

1. The adaptation of the PanDA pilot to make use of the gLExec security tool. A python wrapper has been written around MyProxy and gLExec, and has been validated running standalone tests. At the same time, some of the main pilot modules are being re-factored to include the usage of the aforementioned python wrappers. During the re-factoring, effort is specifically being spent on making the code more modular and therefore improving the pilot's long-term sustainability. The re-factoring is work in progress.
2. The automation of site exclusion/inclusion in the PanDA. A central system will receive the input from different agents (e.g. *HammerCloud* exclusions from site functional tests and *Switcher* exclusions from site downtimes), will combine the input and calculate the final status of each PanDA site. The final status of the sites will then be updated to the PanDA server, who will use the information for the brokerage. This work is being carried out as a qualification task with supervision by TSA3.3 funded manpower.

2.2.8. Life Sciences

During this period, the "Life Sciences Grid Community" (LSGC) VRC has kept on developing and maintaining management tools to provide a VRC-wide vision of the activity and facilitate the VRC VOs administration and operation. The LSGC technical support team has regular phone meetings (every one or two weeks) to coordinate its activity and organise duty shifts. It monitors infrastructure resources allocated to the community, and invests significant effort in anticipating technical failures through proactive monitoring and periodic testing of the resources. This continuous approach aims at lowering the impact of infrastructure and middleware-related faults from a user perspective and improves the grid user's experience.

Following discussions at the EGITF 2013, EGI.eu has set up a Resource Allocation Task Force[61]. The LSGC technical team is a member of this work group. Based on the experience gained so far, it provides return on experience and is a representative use case of such a study.

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[61] https://wiki.egi.eu/wiki/Resource_Allocation_Task_Force

Additionally, during this period, the LSGC technical team has engaged and completed several important technical milestones to ensure the sustainability of its activity, including:

- Upgrade of its dedicated Nagios server to take benefit from new EMI-enabled probes and new topology builder based on VO feeds.
- Migration of the gLite VOMS server to EMI VOMS.
- Creation of an EMI UI virtual machine image made available for tests and deployment to the community.

2.2.9. Astronomy and Astrophysics

Activities carried out in task TSA3.5 of EGI-InSPIRE during PQ11 include the following:

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.
d) Harvesting of astronomical workflows and applications to be ported on several distributed e-Infrastructures.

2.2.9.1. VisIVO, HPC, parallel programming and GPU computing

The study and the porting of the VisIVO MPI version to gLite continued. 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, AVU-GSR (Astrometric Verification Unit - Global Sphere Reconstruction) which will calculate the catalogue parameters for 100 million stars, is being ported to gLite and is currently being tested.

The main goal of ESA's Gaia mission is the production of a microarcsecond-level 5 parameter astrometric catalogue - i.e. including positions, parallaxes and the two components of the proper motions - of about 1 billion stars. This code has been developed with a mixed paradigm of MPI+OPENMP and the global solution will be run on an HPC system. Preliminary tests have been carried out on the IBM BlueGene/Q using 32768 CPU cores and 32GB RAM. It is important that the use of the grid as an auxiliary resource provides astronomers with the capability to make a large number of runs with a reduced number of stars as a validation step of the whole process. Some tests are in progress with the Italian NGI test-bed in which resources are selected with a global memory and a high speed network, such as the one provided by INFN-PISA and UNI-NAPOLI sites.[62]

The integration of VisIVO on Grid nodes where GPUs (Graphics Processing Units) are available has required 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 has been carried out. This required the design and implementation of

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[62] Preliminary reports of this activity are detailed in, "The HPC Testbed of the Italian Grid Infrastructure" (R. Alfieri et al.) to be presented at the PDP 2013 conference.

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 deployed using a Science Gateway designed for this purpose. [63]

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 conceived and implemented as a visualization tool for astronomy, recently VisIVO evolved in a generic multi-disciplinary service that can be used by any other community that needs 2D and 3D data visualization.

2.2.9.2. Coordination of the A&A community

The effort aimed at strengthening the presence of the community in EGI and to enhance the ability of the community to make use of DCIs continued during PQ11, with the majority of this activity dedicated to the big transnational astronomical projects (especially the ESFRI projects) given their ability to attract new communities of end users. Although contacts with small projects and research groups are not neglected, priority was given in this period to big projects in order to rapidly increment the number of end users and also for reasons related to the long-term sustainability. Contacts were established with SKA, Euclid and CTA. Each of them acts as the reference projects for a specific branch of the astrophysical research (radio, astroparticle physics, etc.) with a strong ability to aggregate large fractions of the astro end users community. During PQ11 this activity mainly concerned the CTA ESFRI project with the creation of a VT (Virtual Team) for CTA and more in general for the whole Astro-Particle Physics community. The roadmap for the VT, finalized during the autumn of 2012, was submitted to EGI at the end of November 2012 and approved by EGI in early December. The VT has been running since January 7th 2013 and will be disbanded on July 7th 2013. The VT has been created to achieve the following objectives:

a) Gather requirements from end users for what concerns Science Gateways and the SSO authentication system;
b) Identify and put in place an identity federation model for the CTA collaboration and for the whole astroparticle physics community.
c) According to the outcome of the user requirements gathering process, identify the most suitable technological solutions for the implementation of the SSO system and of one or more specialized Science Gateways.
d) To define during PQ12 (which marks the end of SA3) a roadmap for the design and implementation of the SSO system and of the Science Gateways after the completion of the VT activities. Following on from the VT proposals for joint activities with other large astronomical projects (SKA, Euclid and others) will be formulated.

2.2.9.3. Access to databases from DCIs and interoperability with the VObs (Virtual Observatory) data infrastructure

The interoperability between DCIs and data infrastructures remains one of the hot topics in astrophysics; this objective is of strategic importance in astrophysics as it enables the construction of

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[63] A report of this activity is given in: "VisIVO: a web-based, workflow-enabled Gateway for Astrophysical Visualization" (A.Costa et al.), ADASS XXII conference.

working environments useful for astronomers. Two entities are now in place for the achievement of this objective: the Astro-CG (Astro Community Group) in OGF and the GWS (Grid and Web Services) group in IVOA.

The outcome of the first Astro-CG at OGF36, which was reported at the IVOA interoperability meeting in Autumn 2013, raised the great importance of a good coordination of activities carried out within Astro-CG and GWS, so a joint effort is necessary to put in place applications and astro workflows able to access and exploit both computing and data resources. For this reason a joint session Astro-CG (OGF) – GWS (IVOA) will be organized at the next IVOA interoperability meeting in Heidelberg in May 2013; the outcome of the joint meeting will be then reported at OGF38 that will take place in the summer of 2013. The preparation of this event is already in progress and will continue in the next three months.

2.2.9.4. Harvesting of astronomical workflows and applications to be ported on several distributed e-Infrastructures

The harvesting of astronomical workshops and applications has become one of the core activities closely related to the coordination of the A&A community. Astrophysical applications and workflows have been recognized as excellent test beds for e-Infrastructures and their correlated tools and services, therefore several projects and organizations ask contributions in terms of applications and workflows to our community. This is one of the main activities performed in task TSA3.5 of EGI-InSPIRE; recently this key activity was enforced through the participation of the astro community to other projects and collaborations recently activated; among them, the EU funded FP7 ER-flow is one of the most important as it is expressly finalized to achieve this objective. The harvesting of workflows and applications indeed is an endless activity, not limited to a specific project or collaboration, which requires to continuously look for new contributors (Institutes, research groups, individuals) and implies tight interactions once these contributors have been identified.

2.2.10. Earth Sciences

The services for Earth Science task is focussed on 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 and a command-line python program for managing the discovery/authentication/certificate/download from ESGF data (synchro-data).

During PQ11, development of the tools continued. The newest VO, verce.eu is supported by two sites and seismological software (e.g. ObsPy) has been installed in the VO software area. An official Memorandum of Understanding between EGI.eu and the VERCE EU project is under preparation. Members of the Earth Science Grid community have again arranged for a session at the General

Assembly of the European Geosciences Union. The session in question is ESSI2.8: Earth Science on Cloud, HPC and Grid.

The Command Line Interface (CLI) and Text User Interface (TUI) gsearch, based on ncurses has been adapted to allow a more comfortable use and a better overview of the different search results. Moreover some misleading navigation errors have been resolved. In order to limit the load on the different opensearch sites, gsearch now by default only requests a limited number of results. The user triggers the next request by hand or in the TUI case by going to the last page of the results (pagination). In CLI mode, gsearch has a new batch system, which automatically downloads the requested resources and creates a job submit script. In addition, the user can provide a template containing the user application and settings, which will be used to generate the job submission script and is able to be directly submitted. There is on-going effort to separate the opensearch specific parsing and request engine of gsearch into a dedicated development library. Third-party software or simulation applications could directly use the API to access data from opensearch sites and thus benefit from the development done by gsearch for a reliable access to ES data. Although many different cases and scenarios were tested, there are still sites which respond in an unexpected manner. Over the next months these issues will be further addressed and resolved.

The web interfaces internal search was completely redesigned and now supports threading. Also, the full query at the catalogue sites is now made on user requests. So far, all GI-Cat attached catalogues have been immediately queried without user interaction. Now, based on preliminary information (such as "os: totalResults") users can decide which site they want to query for full result information (including the file links etc.) The credential handling and job submission with jSAGA were extended and minor bugs have been fixed.

Synchro-data has a new web page[64] where all information like release notes, installation and usage manuals are collected. Several bugs have been fixed and new features including multi-threaded searches and the output of searches can now be paginated.

2.3. Issues and Mitigation

2.3.1. Life Sciences

The LSGC technical team still expends most of its effort in performing basic monitoring of the grid resources and services accessible to the VRC. It can hardly focus on application domain-specific tasks. Discussions are continuing with Operations to improve and mutualise infrastructure monitoring tools and dashboards.

The increasing demand for computing resources of the community is hardly satisfied as most sites only provide opportunistic access to their resources for this VRC. In the model, many resource centres do not allocate any computing slots to the VOs in practice, although they will accept and queue biomedical computing tasks (jobs starvation). Initial discussions with EGI.eu, NGIs and the largest

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[64] http://forge.ipsl.jussieu.fr/prodiguer/wiki/docs/synchro-data

sites' administrators to improve the VRC resources allocation policies have led EGI.eu to set up the Resource Allocation Task Force[65], which the LSGC technical team is a member of.

2.3.2. Hydra Service

The Hydra port as an EMI package is in too early a phase for production use (see above for details).

2.4. Plans for the next period

As PY3 is the final year of the SA3 work package, the focus is now 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

The production deployment model of the Hydra service remains unclear and discussions continue with the EMI team developing Hydra, in order to understand the best deployment model, and find answers to the concerns that remain unclear. Verification is expected from this team prior to migrating the current test environment to the stable EMI release.

2.4.2. GRelC

A key activity for PQ12 is "community outreach" – to disseminate the main results of this activity, attract new users and register new grid-database resources. Moreover, since most of the current use cases are connected with Environment and Bioinformatics, more emphasis and efforts will be concentrated on attracting new users and defining new use cases in other domains (like for instance A&A). During PQ12, 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 apps and it will be publicized among different 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. Concerning EMI & GRelC the porting activity will be completed by the end of PY3.

2.4.3. LSGC dashboard

Besides the continuation of the current community support activity, discussions are continuing with Operations colleagues to improve and mutualise infrastructure monitoring tools and dashboards. The VO Administration and operation PORtal (VAPOR) is expected to help VOs mutualise their administration and operation effort, and save time for more community-specific activities. The significant effort required to develop this portal can hardly be provided in the current volunteering-based model where LSGC members willingly contribute effort to the LSGC technical team. Consequently, a project has been submitted in reply to the call for mini-projects by EGI, with the aim of funding the development of this portal.

2.4.4. MPI

Plans for PQ12 include:

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[65] https://wiki.egi.eu/wiki/Resource_Allocation_Task_Force

- Final deployment in the production infrastructure of the Nagios probes.
- The planned release of EMI-3 will bring improvements in the accounting and improved information regarding a site's capabilities for MPI jobs. This will be tested and the documentation on the wiki for users and administrators will be reviewed and updated

3. SOFTWARE PROVISIONING

3.1. Summary

In PQ11 SA2 continued the regular provisioning of UMD updates. The UMD release process did not significantly change, as the workflow has demonstrated to be flexible and efficient.

A new release of the quality criteria has been produced, with the extensions needed to include the new products in UMD[66]. The verification technical infrastructure has been improved to allow verifiers to set up the testing environment in an easier way. The verification of new criteria – such as the SHA-2 certificates compliance – caused some fluctuations in the effort required to verify some components, but it will stabilize as the verifiers become familiar with the new tests.

The scheduled updates release frequency stabilized on one update per quarter, in the last three months there was one scheduled minor update for UMD-2, and two emergency revision updates containing high priority patches. The UMD-1 updates were limited to one revision update, since the first UMD major release entered in security support-only during the first part of PQ11, this means fewer updates but the updates being of medium-high.

3.2. Main Achievements

3.2.1. Quality Criteria

The Quality Criteria team has continued the production of the 5th release of the Quality Criteria documents following the established roadmap. This release includes the necessary changes for supporting the QosCosGrid components: QCG-Broker, QCG-Notification, QCG-Computing, QCG-Accounting and QCG-Monitoring. A mapping with the criteria applicable to these components was created for producing the templates that the verifiers will use during the software provisioning workflow. The roadmap for Quality Criteria documents was updated to include the planning for the 6th release, which will be due in August 2013.

The wiki page with recommended testing procedures was updated to reflect the last changes in the criteria and a list of minimal mandatory tests was identified. The criteria in this list must be checked for every product verification performed by the SA2.3 team.

3.2.2. Criteria Verification

During PQ11 the SA2.3 team has improved the VM contextualisation mechanism to include new virtual machines into the verification testbed. The new procedure is based on the OCCI API and the work of the EGI Federated Cloud Task Force. SA2 verifiers will be able to instantiate their own VMs without TSA2.3 team intervention. Until now verifiers had to wait for TSA2.3 team to instantiate new VMs. Using the new rOCCI server and X509 authentication, SA2 verifiers will start/stop/remove their own virtual machines running a few OCCI client commands. The new procedure was successfully tested by SA2.2 team and now it is available for all SA2 verifiers. The new contextualisation also

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[66] https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Dissemination

includes the verifier SSH public key and SHA-2 host certificate automatically. The new SHA-2 certificates were issued by Spanish CA pkIrisGrid to assess the QC Authentication Capability. EGI verifiers have tested 34 products during the last months, and since PQ10 most of them are also available for debian6 OS.

3.2.3. Support Infrastructure

During PQ11 TSA2.4 continued to support SA2 software provisioning activities as usual, more details are contained in the following tables.

For UMD-1, the following release was published:

Release	Date	Type	Content
UMD 1.9.1	19 December 2012	Emergency revision	• IGE Update: GridFTP, GRAM5

For UMD-2, the following releases were published:

Release	Date	Type	Content
UMD 2.2.2	14 November 2012	Emergency revision	• EMI Update: dCache
UMD 2.3.0	20 November 2012	Scheduled minor	• EMI Updates: CREAM, dCache, LFC, WN, LB, UI • EMI New releases: AMGA, EMIR • IGE Updates: GSISSH, GRAM5 • IGE New release: SAGA
UMD 2.3.1	17 December 2012	Emergency revision	• EMI Update: GridSite, DPM, LFC, dCache • IGE Update: GridFTP

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

Release	Date	Type	Content
CA Update 1.52-1	19 December 2012	Scheduled minor	Regular EUGridPMA trust anchor update

During PQ11 TSA2.4 performed regular maintenance and upgrade of the EGI instances of the Stratuslab marketplace (http://marketplace.egi.eu/) and appliance repository (https://appliance-repo.egi.eu/) to be used by TSA 2.3 in a pilot service that will offer virtual machines with preinstalled middleware services.

3.2.3.1. Repository Front End Activities

• Admin support for the web front end (wordpress upgrades, minor changes in the content)
• Minor bug fixes and enhancements (support for the display version feature) for the rss plugin

- Updated the look and feel to match the look and feel of www.egi.eu.
- Added VOMS authentication for the appliance repository.

3.2.3.2. Repository Backend Activities
- Proposed plan to integrate AppDB and repository backend to support community repositories
- Participated in discussions about the development of a community repository and its integration with the AppDB service. The effort needed for this attempt should be considered that will be equally acquired from both TNA2.5 and SA2.4 activities. Actually, the AppDB will be acting as a front-end for the aforesaid repository, giving the ability to the user to submit releases of the registered products populated through the AppDB.
- 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
- Finalised to new version of Hadoop tools
- Created a test user to Hue user interface for a web demo
- Final testing to all tools (Hive, Ooze, flume-ng, Python scripts)

3.2.3.4. It Support and RT Activities
- Maintenance of the EGI web site
- Updated the look and feel of the EGI web site
- Discussed possibilities of reusing EGI back-office for other projects
- Set up EGI IdP to cooperate with ER-Flow Liferay portal at SZTAKI
- Set up EGI IdP to cooperate with PPT in CERN
- Monthly updates of inspire-members list from PPT
- Updated bouncer repositories for IGE 3
- Updated bouncer repositories for QCG
- Implemented deletion of user for EGI SSO
- On-going back office administration, maintenance and user support.
- Configured the EGI services to provide a back office infrastructure to the DCH-RP project
- Added Support for IGE 32bit packages/repositories

3.2.4. EGI Federated Cloud
The integration of cloud resources into the current EGI production infrastructure is proceeding as planned. Three new types of endpoints have been created within GOCDB and the resource providers that are contributing resources to the federation test bed of the task force are now registering their OCCI, CDMI and accounting endpoints.

A SAM instance dedicated to cloud resources has been deployed. Data is retrieved from GOCDB and the state of the federated cloud resources is monitored thanks to a set of dedicated probes. Furthermore, the profile we created for the accounting usage records is undergoing a peer-review updating process while the cloud accounting infrastructure is being merged within the EGI production-grade APEL service.

The integration of cloud resources within the production infrastructure is being completed by making available two general-purpose OCCI clients that will allow every EGI user to access federated cloud resources in a transparent and standardised way. Two use cases have been successfully supported via the federated cloud test bed and two more are in the pipeline.

The Task Force has been pushing requirement for the OCCI implementations currently available, establishing a close relationship with the OCCI development community. This effort included setting up dedicated meetings between the task force and those communities; collecting and prioritising requirements for capabilities on the base of the task force use cases; providing extensive testing and feedback of the available implementations.

A support unit in the EGI Helpdesk has been created, establishing a direct relationship with eight resource communities enforcing dedicated links between the community leaders and the resource providers and the management team of the task force.

3.3. Issues and Mitigation

3.3.1. Scattered "known problems" documentation

Issue: The 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: Technology providers have general concerns to maintain their known issues in the EGI wiki pages, as this would mean a duplication of the information, which is hard to keep synchronized. Integrating DMSU with verification/staged rollout known issues is feasible and will be followed up in PQ12.

Status: Open

3.3.2. End of the main European middleware projects

Issue: The EGI technology providers, namely EMI and IGE, are currently supported by the European Commission will end in PQ12. Most of the product teams, based on the information currently available, are planning to continue the support of their products, although with different effort level. The most significant gap is the end of the coordination effort carried out by the EMI and IGE projects across their respective product teams in order to have coherent and integrated releases.

Actions: SA2 is designing a new UMD structure to be more flexible to accommodate more and less coordinated product teams. Discussions are on-going with EMI to identify the new workflows. The role of IGE will be partly replaced by EGCF; therefore the situation for the Globus products is less critical.

Status: Open

3.4. Plans for the next period

The work of SA2 in the Q12 will be focused in two main directions, the release in UMD of the components featuring the EMI 3.0 release and updates, following the current process and the design of the new UMD structure and workflows to continue the software provisioning after the end of EMI and IGE. The release of updates from EMI-2 and security patches for UMD-1 will continue as needed.

The Quality Criteria definition team will continue with the roadmap established for creating the Quality Criteria documents. The team will also monitor the process for including QosCosGrid products in the software provisioning workflow by checking the mapping with the developers and preparing dry-runs of the complete process with a set of selected components.

The VM authentication work is still on-going. Verifiers are able to instantiate virtual machines using their user certificates but the next version will include VO support. The verification testbed only will grant access to verifiers with a valid VO proxy. Another important improvement is to decrease the verification effort during UMD release candidates testing. TSA2.3 team is writing a new script to perform these checks in an automated way. The new program will find repository inconsistencies for each TP product and OS (SL5/SL6 or debian6), this program is still under development but it will be available in the next UMD release.

During PQ12 the software provisioning infrastructure developments will be focused around the changes in the supplier's organizations. The first development will be the community repository (CR), a repository-as-a-service tool. The repository will be integrated with the AppDB, which will provide the user interface to access the service.

The work planned for the coming months within the Federated Cloud Task Force includes setting up multiple demos for the upcoming EGICF 2013; the opening of the test bed to generic users; the use of the federation test bed as the back-end for multiple scientific portals.

4. COMMUNITY ENGAGEMENT

4.1. Summary

EGInSPIRE continued to maintain a presence at events such as Supercomputing 2012 in Salt Lake City and SciTech Europe in Brussels, in addition to activity undertaken by partners in the NGIs. Preparation for the EGI Community Forum in Manchester continued, with the call for submissions and the review of these submissions taking place in PQ11 and leading to a draft programme for the programme committee to provide feedback on. Regular communication channels around the NILs (through a dedicated monthly newsletter) and the broader community through the monthly Director's letter and quarterly Inspired newsletter continued. The EGI Champions scheme was established and the first group of six champions selected by the oversight committee following an open call for submissions took place.

The Strategy and Policy team contributed to the EGI Council meeting that took place in PQ11 through the preparation of community discussion documents around "Demonstrating Excellent European Science on EGI's shared resources" and "Exploring how researchers can pay for EGI Resources". These discussion documents were endorsed and a workshop – Evolving EGI – was held at the end of January 2013 in Amsterdam. This allowed further discussion on these policy areas to take place, and for community input to be gathered on the priorities of the different EGI Global Tasks.

Technical Outreach to New Communities continued with the team supporting a number of virtual teams and continuing to drive the development of the Training Marketplace, Customer Relationship Management and Applications Database Tools. The virtual teams continued to develop with the Scientific Gateway and GPGPU VTs completing. A number of new virtual teams were established: Scientific Discipline classification, Chemistry and Materials Science community building and a Technology Study for the Cherenkov Telescope Array. Ongoing activity covered the ELIXIR community in EGI, the Inter NGI Usage reports and the Environmental and Biodiversity community, with the Speech on the Grid activity reaching the wrapping up stage.

4.2. Main Achievements

4.2.1. Marketing & Communication

The Marketing & Communication and Community Outreach teams continue to work together on joint planning of outreach and attendance at events. PQ11 focused on the Supercomputing'12 event in Salt Lake City, which gathered over 9000 delegates. EGI hosted a booth and EGI also featured in two presentations given by Domenico Vicinanza at the NASA booth at the event, presenting sonified data from Voyager 1. As a result, Domenico was invited to write a long piece of music to be used at the AMES Space Centre in California. The piece is 18 min long and uses sonified data that is a collection of 4093 magnetic field measurements (1 year worth of data) captured at a distance of about 123 AU (15 billion miles) from Earth by Voyager 1. The article about the sonification of Voyager 1 for Supercomputing[67] is the first in the top-rated articles on the international Science Grid This Week

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[67] http://www.isgtw.org/feature/where-no-musician-has-gone

website, has featured on two NASA websites and it is one of their (only 18) feature stories of 2012. Without grid computing, the sonification would have required several weeks on a standard home computer. Thanks to GEANT and EGI, it took only 20 minutes.

EGI also hosted a booth at SciTech'12 in Brussels in November, an event targeted at policy makers. The Director delivered a master class to the delegates and participated in a discussion panel featuring Lord Robert Winston, media science communicator and Fellow of the Academy of Medical Sciences in the UK. This event was featured in a spotlight article in iSGTW[68].

Activities in PQ11 have focused on events, including the preparation of materials for the EGICF 2013 in Manchester, such as web banners, the sponsorship guide and the exhibition guide in addition to updates to the event website. The event has also been advertised in the November issue of the EGI-InSPIRED newsletter and promoted by our media partners iSGTW, HPCwire, HPCinthecloud, and Datanami. An animated event banner also appears on the scienceomega.com website, on the homepage and the science solutions page.

Training on editing the EGI website was delivered in November 2011, and the new website is also now fully documented. The EGI Champions scheme and the profiles of the first Champions have been added to the website and the scheme has been promoted via EGI's communications channels, with a prelaunch announced on 28 January.

Further articles about EGI were published in *PanEuropeanNetworks: Science & Technology, iSGTW*, *International Innovations*, *Public Service Review, HPCwire* and the *CERN Bulletin*. Two Director's letters were issued in November and December. The communications team also continued to publish the new monthly NIL Bulletin and the EGI InSPIRED winter newsletter was issued in a new email format using MailChimp. This format will provide better data on who is reading and interacting with the newsletter, and also provides direct web links to the articles for readers.

The EGI / iSGTW Writing Competition, was advertised on AlphaGalileo, Cordis, iSGTW and to European journalists and closed in January 2013. Some articles were received but not enough to form a shortlist. However the writers of the articles have been invited to publish their work on the EGI website and in iSGTW. There are also now 15 case studies published on the website, including case studies from astronomy and astrophysics, earth sciences, physics and climate change, life sciences, chemistry, mathematics and engineering.

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. The communications team has also announced a call for joint collaborative use examples with EGI and XSEDE, which will also feature as a workshop at the EGICF in April.

4.2.2. Strategic Planning & Policy Support

During PQ11, the SPT finalised two important policy papers for the EGI Council: "Demonstrating Excellent European Science on EGI's shared resources"[69] and "Exploring how researchers can pay

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[68] http://www.isgtw.org/spotlight/predicting-future-science-and-technology-europe

[69] https://documents.egi.eu/document/1415

for EGI Resources"[70]. Both documents were submitted to the EGI Council and adopted for further development. Following this, the team organised the "Evolving EGI Workshop"[71] that was co-located with the final workshop of the e-FISCAL project[72]. The SPT led the organisation of the workshop including the agenda definition, speakers' invitation, logistics and chair nominations. In preparation for the workshop, the SPT launched a survey to NGIs to understand the willingness to participate in a EGI Pay-for-Use experiment. Results from the survey and other supporting documents have been prepared: Pay-for-use experiment, Pay-for-Use Survey summary and VAT Taxation Issues paper[73] and the cost analysis of EGI Global Services to support a discussion around prioritisation. Concerning the federated resource allocation topic, the SPT authored the Scientific Review Committee (SRC) Terms of Reference that was presented and discussed at the workshop. The goal of this committee is to handle the scientific review of resource allocation process to be performed by EGI.eu on behalf of NGIs. During the workshop, the SPT delivered six presentations, run the workshop, took notes, captured feedback from the workshop and chaired many of the sessions.

The SPT also developed a mature version of the EGI.eu Service Portfolio in collaboration with the EGI.eu managers. The EGI.eu service portfolio served as a basis to update the cost analysis of EGI Global Tasks according to the new service decomposition (service category, service name, supporting activity, funding priority and cost). Each supporting activity was further broken down by operations, maintenance, development, coordination and support staff[74].

The SPT presented the work on the implementation of the recommendations from the scientific publication repository and plans for future collaboration with the OpenAIRE project on the workshop. In terms of EGI mini projects, the SPT submitted a proposal for accelerating the collaboration with the OpenAIRE initiative in order to provide an EGI Scientific Publications Repository service. The EGI-InSPIRE PMB accepted the mini project.

During PQ11, the SPT published the final version of the first edition of the EGI Compendium referring to year 2011. The questionnaire for the EGI Compendium 2012 was drafted and the data collection will be launched in February 2013. In addition, the SPT organised a meeting with TERENA representatives to discuss plans for a common Web tool to collect the data on a yearly basis for both EGI and TERENA Compendium.

The SPT also supported the implementation of the EGI Balanced Scorecard by defining a balanced scorecard data dictionary[75] document that describes more clearly the various strategic metrics explaining the motivation of their usefulness in measuring the impact on the related strategic objective, clarifying how to measure it, how to interpret the value and possible actions to improve the targets. The contribution will be included in the annual review of the EGI quality plan.

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[70] https://documents.egi.eu/document/1391

[71] http://go.egi.eu/Evolving-EGI-WS-2013-Registration

[72] http://efiscal.eu/

[73] https://documents.egi.eu/document/1391

[74] https://documents.egi.eu/document/1552

[75] https://documents.egi.eu/document/1581

The SPT is leading the activity of the Scientific Disciplines Classification VT that started in December 2012[76]. The team aims at developing a new classification of scientific disciplines for EGI user communities that should be adopted across all EGI services. Meetings have been regularly organised, notes taken, actions assigned and reviewed so that the activity is on schedule. The Scientific Disciplines Classification VT work was presented at "Evolving EGI Workshop" as well.

The SPT analysed two European Commission's surveys. One survey was related to the "State of Play concerning ERA"[77] while the second one was the "DG Connect Stakeholder Survey"[78]. The SPT continued to support establishment and coordination of agreements with projects, providers, organisations and communities for joint collaboration. The progress of existing MoUs has been regularly reviewed. A new MoU was signed with DANTE.[79]

The SPT also supports the formulation and development of policies and procedures through the EGI policy groups (e.g. security, technology coordination, operations management). During PQ11, the SPT regularly updated the list of policies and procedures on the EGI.eu website and implemented the policy development process for three new Operations procedures[80]. Part of the SPT responsibilities is offering secretariat support at policy group meetings. During PQ11, the SPT provided secretarial support for three TCB meetings[81] and one SCG meeting[82]. Finally, the SPT facilitated official closure of User Services Advisory Group (USAG) and Operations Automation Team (OAT).

The SPT revised the data provided to the ERINA+ project for the socio-economic impact assessment of the EGI-InSPIRE project. The final report has been revised and feedback contributed to improve the understand of the evaluators of the nature of the EGI-InSPIRE project with regards to the infrastructure and reinforced the message that limited research activities are performed (JRA) while most of the work is devoted to managing the operations evolution towards sustainability.

In the area of communication, the SPT published blog posts related to the DRI ERIC, EGI Pay-for-Use, EGI Compendium 2011 and SciTech Europe event. In addition, the SPT published a news article about to inform about EGI and OpenAIRE collaboration and an EGI Inspired newsletter article about 'Adding Pay-for-Use Models within EGI proof of concept'. The SPT also provided their contribution to NIL monthly digest on regular basis.

During PQ11, the SPT developed Terms of Use and Privacy Policy for *.egi.eu websites that are waiting to be approved. In addition, the SPT collected info on cookies used by EGI.eu website and drafted an EGI Cookie policy. Harmonisation of copyright licenses in EGI.eu/EGI-InSPIRE documents was also developed together with an IPR statement defined for the EGI policy groups and VTs.

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

[77] http://ec.europa.eu/research/era/survey2012_en.html

[78] http://ec.europa.eu/information_society/newsroom/cf/dae/itemdetail.cfm?item_id=8851

[79] https://documents.egi.eu/document/501

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

[81] https://indico.egi.eu/indico/categoryDisplay.py?categId=57

[82] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1264

Finally, SPT supported the work on standardising common VT documents template and provided feedback on processes/procedures being defined for VTs. The SPT supported drafting of the GGUS Advisory Board ToR that will be finalized during PQ12. In addition, the SPT drafted paper on demonstrating advantage of shared services.

STFC focused on chairing and leading the Security Policy Group (SPG). A modified Service Operations Security Policy document was finalised and sent around for feedback. This included a policy statement on the requirement for resource centres to deploy the central emergency user suspension system. This may be used by the EGI Security Officer and the CSIRT to urgently ban a compromised user during the handling of a security incident. A meeting was chaired to discuss the implementation of such a service with all of the stakeholders. Work continued on the revision of a number of other policy documents and several minor policy issues were also discussed and agreed. Planning for SPG activities during 2013 has started. The SCI document (see below) is being used to define a gap analysis and road map for EGI security policy.

During PQ11, 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. One topic of particular concern addressed by the SPG chair was the planning for the migration from SHA-1 to SHA-2.
2. Continued work on the activity called "Security for Collaborating Infrastructures" which is a collaboration between EGI, WLCG, OSG, PRACE, EUDAT, CHAIN 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 16-17 Jan 2013 in Rome where V1 of the SCI document was produced and an initial self-assessment of PRACE, EGI and CSC, Finland was made as to how the requirements of the paper have been satisfied.
3. Work continues in the Federated Identity Management for Research (FIM4R) activity. Prioritisation of the requirements specified in the FIM4R paper was completed and negotiations continue with REFEDS and GEANT. It is clear that the various pilot projects of the communities are an important way of making progress and the SPG chair participated in the WLCG/HEP group leading the related FIM Pilot project.

FOM continued in his liaison role with EUGridPMA and IGTF. The increasing integration of identity management systems offers both possibilities and challenges for the infrastructure. On the one hand sources of identity become more accessible: through the TERENA Certificate Service (TCS), by leveraging web-based single sign-on for audited and trustworthy portals that on the back end use generic credentials, and via automatic translator services such as Security Token Services (STS). On the other hand, where the e-infrastructure moves closed to commodity and commercial systems their requirements are more likely to be driven by the web community instead of being negotiable from the EGI or IGTF, plainly due to the sheer size of the web community. New policies and best practices developed by the IGTF on initiatives led by EGI and collaborating infrastructures such as PRACE-RI in Europe and XSEDE in the US follow these developments.

The authentication profiles for the IGTF have been more closely aligned with the assurance levels defined by the Kantara Initiative, where Kantara LoA level 2 (to which several university systems in Europe have already aligned for their students) has been formally recognised as sufficient for the IGTF

Classic Profile (and thus for EGI). Although not strictly needed, this formal recognition helps convince university identity providers to participate in the TERENA TCS services and thus lower the entrance barrier to EGI e-Infrastructures for their complete student base. The EUGridPMA is also developing new policy guidance for STS, and is investigating the definition of variant assurance levels to support use cases where the user community itself already performs a significant amount of identity vetting.

On the technical policy side, EGI needs to prepare for the moment where the web community at large changes cryptographic technologies at short notice in response to incidents. These concern 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. Progress has been made on defining the requirements for OCSP services, and the time line for the introduction of more modern hashes revised in response to user community and intercontinental feed-back. One EUGridPMA meeting was held in this period, focussed on the above issues, and resulted in guidelines and policies on migration timelines.

4.2.3. Community Outreach

Establishing a cadre of 'ambassadors' (EGI Champions) who would act as enthusiastic and proactive promoters of EGI, was launched during the EGITF 2012. Since then, the practical implementation of this concept has been established via the EGI Web site and Wiki pages. This provided greater detail to the new initiative and subsequently supported the recruitment of the 1st cohort of six EGI Champions who were selected in November 2012. An initial 'induction' teleconference was conducted on 13 December during which the EGI.eu Director and staff provided advice and guidance on how the new Champions would promote EGI's production infrastructure and services and additionally, how EGI.eu would support the Champions in their role. The EGI.eu Director undertook to underpin the Champions in their attendance at future EGI Forums through a financial support allocation (underwriting the full costs of their attendance at the Forums). A routine of regular feedback teleconferences has been established to ensure regular and effective dialogue between the EGI headquarters and its Champions and as of 28 January 2013, a further recruitment round for a 2nd cohort of Champions has been started.

Planning for the EGICF 2013 has continued apace and close to 150 contributions have now been accumulated, reviewed and incorporated into the week long programme which will take place in Manchester from 8 to 12 April. As is now a well-established routine, the timetable for the week starts with the Monday dedicated to a co-hosting participant, in this case Globus, and the remainder of the week follows EGI lead with a 5 track programme supplemented by a variety of supplementary specialist workshops and demonstrations together with a number of EGI InSPIRE internal meetings.

4.2.4. Technical Outreach to New Communities

The activities and achievements performed/achieved by the TONC group of EGI.eu in PQ11 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 (AppDB, CRM & Training Marketplace) made good progress during PQ11 and details are given below. A presentation about the uptake of

the services within the NGIs was given at the 'Evolving EGI workshop. The presentation indicated that the use of CRM and TMP services need to be increased, so in PQ12 the teams and UCST will focus on the promotion and training of the tools to NGIs and projects. UCST supported the AppDB service to implement the changes that were requested by the 'Science Gateway Primer' Virtual Team for science gateway developers and users, and by the SA2 activity for certain types of middleware product teams and users.

- The team was involved in five active Virtual Team projects: Science Gateway primer, Environmental & Biodiversity, Collaboration between EGI/NGIs and the ELIXIR ESFRI project, Technology Study for CTA, Scientific Discipline Classification. The team also supported the establishment of a VT project titled 'Towards a Chemistry, Molecular & Materials Science and Technology (CMMST) Virtual Research Community (VRC)'. The VT will start in PQ12.

- During PQ11 three TCB meetings were held: one teleconference meeting and two face to face meetings. Two[83] user community requirements topics (consisting of five requirements) and one additional[84] requirement have been discussed during these meetings. The TCB rejected (returned) the requirements to the submitters with detailed explanations of why these cannot be implemented within the UMD framework. One[85] user requirement topic consisting of two requirements was partially delivered by technology providers through the TCB during the same period. Other requirements that did not need the involvement of TCB did not progress much, because these requirements depend on the EMI-3 release which will happen in April 2013.

- Organised a teleconference with Antonio Parodi from the DRIHM project and began collaborating with the project in the technical area of workflow development and integration using services from the ER-flow project. The ER-flow application porting workshop (in PQ12) will lift the technical collaboration to the next level, with training DRIHM (and other communities) on integrating their applications with EGI using ER-flow workflow services.

- Support continued for the OpenModeller use case on the EGI Federated Cloud testbed. The use case is currently under finalisation by developers from the BioVeL and EUBrazilOpenBio projects, who report directly to the EGI Federated Cloud Task Force.

- New gadgets for the Grelc service has been tested and added to EGI gadget portfolio. NGIs were informed about the gadget and invited to use it in their websites: http://go.egi.eu/gadgets.

- The preparation for the EGICF 2013 has begun. UCST is involved in the preparation of several workshops, demos and presentations about VRE topics. The UCST coordinator is also member of the PC.

- Helped the EGI community stay up to date with activities of our partner projects, UCST collected the list of dissemination channels (News, Newsletters, RSS feeds) and event websites of the ESFRI, ESFRI cluster and EC e-infrastructure projects, then made these available on a single Wiki

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[83] #1778 2.Better (more verbose and informative) error messages (topic / container), #2733: 6.2 Stability and scalability of Data Management Services (topic/container).

[84] #3406 implementation of realistic cyclic and dynamic Workflows,

[85] #2731 6.1 Access rights synchronisation (topic/container)

page: https://wiki.egi.eu/wiki/Projects_events. The NILs and the outreach teams have been informed about the table.

- UCST organised teleconferences with those portal developer teams (IGI, CloudBroker), who are interested in making their portals compatible with the EGI Federated Cloud testbed, and providing high level user environments for EGI FedCloud users. The teleconferences were focussed on the technical connections between the portals and the cloud. The tools will be demonstrated/presented at the EGICF.
- UCST with EGI Operations gave a webinar training about EGI, and the EGI platforms to the ENVRI WP3 leader, who is working on the mapping of ENVRI project requirements to e-infrastructure services. The presentation was in late January reused for a similar training for the Dutch e-Science Centre. The presentation slides are available in the EGI Training Marketplace, and in EGI DocDB[86].
- Reviewed the TNA2.5 service availability and reliability views in the MyEGI portal and provided feedback to the EGI.eu Operations team.
- Checked VO homepages that are registered in the VO ID Cards of the Operations Portal, identified broken links and sent them to EGI.eu Operations team to fix these with the VOs.
- Work with the TCB chair on the description of an engagement framework that could be used by EGI.eu after the end of EMI and IGE to liaise with technology providers. The framework would allow three types of engagement for a technology provider with EGI. The framework has been presented and discussed at TCB-15 and TCB-16: http://go.egi.eu/tcb-15. (See the document attached to the agenda) The EGI Applications Database will be used to engage with the 'contributing' product teams. (one of the three options).
- UCST members attended the Open Source Conference 2012 event in Amsterdam (http://www.opensourceconference.nl/) and established the following collaborations:
  o With MongoDB - potential technology to provide "database as a service" on the EGI Federated Cloud Task Force.
  o With ISAAC – a company that built an identity federation for ~150 schools. Can be relevant for the CRT Technology study VT that identifies requirements for a CTA Single Sign On system.
  o LifeRay community - Their new Social Office framework could be used in the EGI Collaboration Platform as a system to create and host EGI platform specific services for VOs and VRCs. A related mini-project proposal has been prepared and submitted by UCST in January to EGI-InSPIRE.
- Prepared and submitted two EGI-related presentation abstracts to the European Geosciences Union (EGU) General Assembly 2013: One about the EGI Federated Cloud and one relating to the workflow support by the ER-flow project. The abstracts have been accepted in the "ESSI2.8 Earth science on Cloud, HPC and Grid" workshop of the "Earth & Space Science Informatics" session. Because EGU is just at the same time as the EGICF but in Vienna, the abstracts will be presented

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[86] https://documents.egi.eu/document/1559

by a representative from SZTAKI, Hungary. SZTAKI is an ideal candidate because it provides a site in the EGI Federated Cloud testbed, and is involved in the ER-flow project.

- UCST was involved/led the preparation and submission of three mini-projects to EGI-InSPIRE.

Applications Database

Work for the EGI Applications Database during PQ11 was split between making improvements to existing and adding new functionality to the 3.x series of the service, following the path set in PQ10, while, in parallel, preparing the next major release v4.0.0, marked by significant changes, for early PQ12.

Version 3.6.0 of the service was release mid-November, featured ten new functionality requests and as many more extra features and improvements. The release was aimed towards a better overall user experience, after certain usability studies conducted by the EGI UCST, serving as a prelude to the forthcoming 4.x series. In particular, the VOs section was removed from top level views, and relevant information is now only available through individual software details pages. Software details editing forms received certain minor modifications pertaining to usability as well. A history button was added in software details pages, which allows users to view previous states, in a manner similar to what wiki systems provide. Moreover, a rollback button allows administrators, managers, and software entry owners to revert a software entry to a previous state though the history view. Finally, on the front of dissemination, software details pages now feature a follow button which allows users to easily subscribe to RSS feeds about each individual entry, notification subscriptions have been set to enabled for all old and new users, unless explicitly specified, software entry owners and related people are now automatically notified about changes made to software entries, and users receive real-time notifications about messages in their inbox. The initial 3.6 release was followed by two revision releases, fixing some minor regression bugs.

The 4.x branch is scheduled for release in February 2013. This version focuses mainly on a significantly re-designed user interface[87]. This involves a new logo and banner, modified dimensions that better fit to netbooks and mobile devices, a new colouring schema, better grouped information, simplified navigation pane, and a new top menu with action items and options. Additional work items include a captcha-protected feedback page, revised FAQ section, better IE9 support and an improved caching framework delivering noticeable speedups.

Client Relationship Management system (CRM)

The work performed during PQ11 focused on supporting the existing users of the CRM – few NGI International Liaisons (NILs) and the Environmental and Biodiversity Virtual Team members. Several videoconference meetings were held with these users, followed up by email exchanges, to allow the identification of issues and the definition of new requirements. Among the short-term problems that were identified, the authorization policy that was limiting the possibility to change or edit information to specific groups of EGI users was rapidly addressed since it was limiting the way how those communities could deliver work. The problem was solved by implementing a new policy that allowed read and writes permissions to every NIL on all objects and read and write permissions to all members

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[87] https://rt.egi.eu/guest/Ticket/Display.html?id=4461

of the B&E VT on all objects. The experience from existing users also demonstrated that the current setup needed to be fine-tuned in order to accommodate the workflows from those communities. The users also suggested enhancements to the user interfaces of the CRM tool. For example the introduction of new projects and institutions categorizations (ESFRI Cluster and Company), an enhanced mechanism to associate institutions and their associated person contacts to the projects they are working on, a finer grained definition of contact roles dependent on the associated project or institution, and a standardized / multi-selection method to introduce the scientific disciplines associated to each project and institutions and to their associated person contacts. Some of the proposed enhancements require strong development work, which is under process, and focused to enhance the usability of the EGI CRM user interface. Other enhancements, such as the standardized scientific discipline categorization, are being discussed in a wider scope by the SDC Virtual Team elaborated to establish a new model for the scientific discipline categorization and assess the impact of the imposed change.

Another important line of action developed during PQ11 was the implementation of a CRM portal where EGI members can query and consult the performed activity during a given time period (https://crm.egi.eu/Metrics).The portal exposes information gathered via php backends, and that extract relevant information stored in the CRM MySQL database. Simultaneously, activity monthly reports (in pdf format) are produced based on the same technology. The most recent report NIL dispatch included a pointer to the CRM reports[88] and invited the NILs to monitor the use of the CRM within their country via these reports.

Finally, the CRM team participated in the 'Evolving EGI workshop', and provided input and feedback for the discussions and work focused on the workshop.

Training Marketplace

Uptake of the Training Marketplace continues to grow and page visits have again shown an increase. The Training Marketplace continues to attract advertisements for training events and resources and the number of relevant entries in its database have increased again this quarter, from 3865 to 3930 entries. A growing number of new training providers have been attracted to use the Training Marketplace for their events, such as NSCCS in the UK. Interestingly, more events are being advertised in the Training Marketplace (approximately 75 per annum) than were advertised during the final year of the EGEE-III project (under 50 per annum), despite there being no direct funding for training during EGI compared to a large training activity in EGEE-III.

Dissemination of the Training Marketplace continues. Claire Devereux attended the NSCCS User Meeting in December and demonstrated the Training Marketplace to both NSCCS and to a representative from the UK's HPC facility, HeCTOR. Following this NSCCS have started using the Training Marketplace to advertise their events and HeCTOR were able to give valuable usability feedback. HeCTOR expressed an interest in using a customised version of the Training Marketplace that could show events relevant to their community, which is functionality already being developed in the next version of the gadget tool (filtering by project and research field as well as by location). The

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[88] CRM reports: https://crm.egi.eu/Reports

number of deployed gadgets has risen from six to eight and a significant proportion of traffic to the TMP now arrives via gadgets deployed outside of the EGI website.

The main development in PQ11 has been to increase the functionality of the gadget by increasing the number of filters that can be applied. This will go into production before the EGICF. Smaller features and bug fixes have included the implementation of the ReCAPTCHA module to reduce machine-initiated spam, release of a mail list for gadget owners to receive updates from the TMP, creating a script to email event owners following event completion. The email asks the event owner to send the number of event attendees in an email to UCST. The training map view have been updated to show additional countries, improving the appearance of the calendar, adding permalinks for events and online training, changing the event notification message process and email content, and writing documentation for the Training Marketplace which has been stored in DocDB.

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: Final report is in course of being submitted during PQ12.

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 EGI.
- 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.

VT SPEED confirmed that the Speech processing community represents a significant group of potential grid users – a significant number of contacts were identified though this project. However, the community is unfortunately not organized in a way that would make it easy to synchronize its activities for 'gridification' of their software and full integration of massive computing into their workflow. As the first attempt of the VT SPEED to inform and contact the potential partners via e-mail failed, a new procedure of call for partners was proposed for a possible follow-on SPEED II project:

- Advertisement in journals - The list of the most important journals was collected.
- Presentation at conferences - The list of the most important conferences was collected. (to be accomplished by EGI champions)
- Informing the laboratories by the NGIs - The most important laboratories and institutes in the area were identified and contacts were collected. (person to person communication)
- Informing the same laboratories by the SPEED VT members (person to person communication)
- Broad e-mail information of as many of the members of the community as possible - A pool of several thousands of e-mail addresses of the people working in speech processing was prepared.

The main software tools used by the community were identified by the project. Few of the tools have grid versions and there are also considerable licensing issues that have to be solved in order to start

using them on the grid. The full list of the software tools will be included in the final report. The Hidden Markov Model Toolkit (HTK) is probably the most widely used toolkit in academic research. It was successfully tested by the SPEED team on a computer cluster but as for other similar software, licensing precludes its use on the grid.

4.2.5.2. VT – Science Gateway Primer

Project Lead: Robert Lovas (NGI_HU)

Period of operation: 16 May 2012 - 31 Dec 2012. Status: Complete

The principal aims of this project were 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 aimed to improve the EGI AppDB to better support Science Gateways registry entries. The project deliverables were 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 were 35 team members with different roles under the scope of this project – 10 were active in developing the Primer and another 25 stakeholders participated as observers and contributed in the reviewing process.

The Primer collected information about technologies, policies, and solutions concerning EGI web based science gateways, i.e. about community-specific set of tools, applications, and data collections that are integrated together via a web portal, providing access to resources and services from EGI. During the preparation of the Primer the VT project also reviewed the content and services that the EGI Applications Database provides for science gateway users and developers.

The Primer has already been circulated for review and contributions to the EGI community, then handed over[89] to EGI.eu UCST for final editing. This will happen in PQ12. The AppDB related recommendations have been submitted and discussed with EGI.eu UCST however there are still open actions that need to be followed up after the lifetime of Virtual Team. These actions are described in the VT final report and are also summarized as follows:

- Action 1: AppDB and EGI.eu reviewed the recommendations and their implementations in January 2013. Once the AppDB recommendations are implemented, all AppDB gateway contacts will be informed if there is the need for them to update their AppDB gateway software entry profiles. This action will be performed by EGI.eu UCST.
- Action 2: The VT gave the opportunity to all the stakeholders to contribute to the Primer document but due to the partial inactivity in the VT, the latest version of the Primer reflects the

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[89] https://documents.egi.eu/document/1463

view of only parts of the EGI ecosystem. EGI.eu UCST has taken on responsibility for the Primer as it currently stands, with the intent to move this further forward by expanding is content to reflect a much broader cross-section of the full community.

As a summary; EGI.eu UCST accepted the Primer document as a valuable contribution from the authors of the VT, and after the end of VT' timeframe, EGI.eu will be responsible for broadening the Primer's scope, involving more stakeholders from the EGI communities as necessary.

4.2.5.3. VT –GPGPU Requirements (General-Purpose Computation on Graphic Processing Units)

Project Lead: John Walsh (NGI_IE)

Period of operation: May 2012 – Nov 2012; Status: Complete.

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 collected detailed requirements from existing and new EGI user communities and their support teams about using GPGPU services in the European Grid Infrastructure. The conclusions of the VT's work were reported and accepted during the EGITF and in the QR10. This outcome was made available on the VT project wiki page[90]. .

4.2.5.4. VT – Inter NGI Usage Report (Second Phase)

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

Period of operation: Started: 30 May 2012; Planned end of work: April 2013.

The goal of the VT is to produce the first Inter-NGI Usage Report across EGI. In addition to the report there will be an analysis of the accounting restrictions and other assorted problems that make an accurate inter-usage analysis difficult and propose long-term actions to possibly resolve some of these problems[91]. Work undertaken by the VT through the 7 NGI representatives, EGI.eu and the Accounting Portal team include:

- Task 1: Send list of requirements to Accounting Portal. Status: completed via RT ticket n.3596 (https://rt.egi.eu/rt/Ticket/Display.html?id=3596).
- Task 2: Add the required views to the Accounting portal. Status: completed.
- Task 3: Compile the first report. Status: the task is in progress and will be completed in time for the EGICF.

Significant findings so far: The Accounting Portal has implemented views requested by the VT and additional views are currently being developed. The Table of Contents generated in the previous VT is currently being discussed and updated. The first draft of the report was delayed due to inadequate

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[90] https://wiki.egi.eu/wiki/VT_GPGPU

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

number of sites publishing User DNs. The VT is now re-evaluating the accounting data in order to produce a report for the EGICF.

4.2.5.5. VT - Environmental & Biodiversity

Project Lead: Yannick Legré (NGI_FR)

The project was accepted by the EGI.eu management team in June 2012 but only started on October 1st, 2012. It is scheduled to complete February 28th, 2013. The VT was 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 were:

- 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 of members from 12 NGIs and EGI.eu while the stakeholders available for consultation spanned more than 45 countries both in Europe and beyond.

Early activity focused on investigation of the EGI CRM tool, checking the information already registered in the system. The CRM was felt to be complex and potentially cumbersome and as a result, the tool developers instigated a number of changes and developments to meet the requirements of the VT leadership. Nevertheless, in spite of the technical development work on the CRM tool, there seems to have been a no feedback from the VT to indicate any matching work or progress for the past three months.

4.2.5.6. VT - ELIXIR

VT Lead: Pavel Fibich – (NGI_CZ)

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

The goal of the VT is to establish a social network of ELIXIR-related people within individual NGIs (ELIXIR liaisons in NGIs). This network can serve as a basis for international collaboration at both technical and organizational levels between ELIXIR and EGI. The VT will collect, analyze and report on the current situation of e-infrastructures (including NGIs) collaboration with the ELIXIR project. This will be subject of a presentation to be delivered at the EGICF 2013.

The project team membership comprises representatives from most of the nations who have an established MoU with the ELIXIR project and the ELIXIR Project Manager. Each member has investigated and reported the status of his/her nation's participation in support to the ELIXIR project

from a perspective of e-infrastructure and NGI interactions/contacts. Presentations have already been delivered by most VT members (i.e. Czech, UK, Finland, Turkey, Spain, Portugal, Netherlands and France). At this stage it is clear that the ELIXIR project is at an embryonic stage in most countries (network of involved organisations is right after establishing phase within the countries). National e-infrastructures (NGI are mostly involved) are collecting information to 'fulfill' the ELIXIR's community needs. There are many common issues emerging from the nature of ELIXIR project (e.g. big amount of user's application and processed data).

The VT plans to finish national presentations in few weeks and analyse the current situation of national collaborations on ELIXIR project.

4.2.5.7. VT – VT – Technology Study for CTA (Cherenkov Telescope Array)

VT Lead: Claudio Vuerli, (NGI_IT)

Period of operation: 7 Jan 2013 – 7 July 2013.

The Cherenkov Telescope Array (CTA) is one of the ESFRI projects in the Astronomy & Astrophysics community. The CTA project is an initiative to build the next generation ground-based very high energy γ-ray instrument. It will serve as an open observatory to a wide astrophysics community and will provide a deep insight into the non-thermal high-energy universe. The CTA will be extremely challenging for what concerns computing and data storage resources; for this reason the use of Distributed Computing Infrastructures (DCIs) is one of the possible options that could be taken into consideration in defining and implementing the computing model of CTA. It is worth noting however that the CTA project has not taken a final decision up to now about which computing model to use. Activities in this area are currently in progress within the preparatory phase of CTA and within its partner DCIs. However, EGI is already exploited by the CTA project for the production and analysis of Monte Carlo simulated data within a dedicated CTA VO. This VO is supported by about 20 computing centres in Europe. The VT aims to explore and investigate potential solutions to the computing and data access issues within the computing models under investigation for the CTA observatory. In particular two technical areas will be investigated: science gateway portals and federated SSO access protocols. It is worth to underline that VT project itself and its outcome will not imply any obligation for the CTA consortium. For sure, CTA remains the key project for high-energy astrophysics in the forthcoming years with a natural aggregation capability for an entire branch of the astrophysical research; the adoption of DCIs to process data acquired through the CTA arrays could therefore be a significant step forward for the wide adoption of DCIs by the entire A&A community.

The Virtual Team has signed up active participation from 7 NGIs with support from another two NGIs as observers. Consultation is expected to take place with many more of the 1000 members in over 27 nations.

4.2.5.8. VT – Towards a Chemistry, Molecular & Materials Science and Technology VRC

VT Lead: Antonio Lagana (NGI_IT)

Period of operation: Mid Feb 2013 to mid-August 2013.

Virtual Research Communities (VRCs) are groups of like-minded individuals organised by discipline or computational model. A VRC can establish a support relationship, formalised through a

Memorandums of Understanding (MoU), with EGI.eu. EGI VRCs typically have an established presence in their field and represent well-defined scientific research communities. Multi-national scientific communities can draw many benefits from having a VRC partnership with EGI. For example, they can benefit from the resources and support that are available within the National Grid Initiatives (the main stakeholders of EGI.eu), they can benefit from the workshops and forums organised by EGI, they can receive support on resolving specific technical issues with EGI services, and they become involved in the user-focussed evolution of EGI's production infrastructure.

The Chemistry, Molecular & Materials Science and Technology (CMMST) community recognises the advantages that membership as a VRC within EGI will bring. The VRC status could help the CMMST community satisfy the requirements of its members concerning the access and use of national computing resources that are federated in EGI. The VT will take the first step towards the setup of a CMMST VRC, by documenting:

- The structure that such a VRC should have to represent the Chemistry, Molecular & Materials Science and Technology community in EGI;
- The technologies, resources and services that already exist within EGI and could be used to satisfy the requirements of the CMMST VRC;
- The technologies that need to be developed or brought into EGI, then integrated with the production infrastructure so the VRC members can efficiently manage and use resources from EGI.

4.2.5.9. VT - Scientific Discipline Classification

Project Lead: Sy Holsinger (EGI.eu)

Period of operation: First call was held 12 Dec 2012 and scheduled to complete 28 February 2013

EGI is a multidisciplinary e-Infrastructure where users belong to a variety of different scientific disciplines. EGI needs to categorise these users by disciplines through a number tools (e.g. AppDB, Operations Portal, Training Marketplace and CRM). A legacy classification was inherited from EGEE, but different tools have adopted different classifications. As EGI now operates within an open ICT ecosystem, it has become essential to agree on a common, coherent classification that is consistent across all tools, while allowing for the smooth inclusion of future user communities. In addition, the established VT is an implementation of a recommendation from the Scientific Publications Repository VT adopted by the Council[92]. The principal activities of the Scientific Discipline Classification VT[93] is to identify all possible uses of disciplines across EGI, define an aggregation of scientific disciplines, and present a proposed list for comments and recommendation by VO Managers, tool operators and NILs. Intended outputs include a new classification of scientific disciplines for EGI that is verified with the VO managers, EGI tools operators and NILs, which is open for the inclusion of new communities in the future. This will integrate the classification scientific disciplines across different

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[92] https://documents.egi.eu/document/1369

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

tools within EGI making it easier to accurately present usage statistics, harmonize communication both internally and externally, and integrate and account for new communities in the future.

The VT has already analysed all uses of scientific disciplines across EGI tools and communication channels as well as 12 different public classifications. The team has agreed on using the Frascati classification[94] as a foundation providing the best scaling level of detail. Three levels of detail are being explored (e.g. field of science, functional field and sub-functional field). Work is continuing to refine the more detailed disciplines across the levels and map current uses to the new classification.

It has already been recognised that there needs to be a balance between an all-encompassing list of disciplines and a list that remains open and flexible. All tools can handle classification changes up to the 2nd level, but the key issue is around an accurate mapping from old to new (especially with the VOs). Users must be able to select multiple disciplines and from any category level. A "write-in" option is also being discussed. Once moving into the implementation phase, changes made must be "silent", having little or no effect on anyone other than the tool operator making the changes. Over the next few weeks, the VT will continue work on draft version to send to NILs and VO managers for comments.

4.3. Issues and mitigation

There are no new issues to report this quarter.

4.4. Plans for the next period

For the marketing and communication team PQ12 will focus on the preparations for the EGICF in Manchester, including the EGI booth, dissemination session, press liaison and outreach for the event. The dissemination team will also create a poster and website for the EGITF in Madrid taking place in September. Materials will be sent to the Cloudscape V event in Brussels in February, the 10th e-Infrastructure Concentration Meeting in Brussels in March, the CRISP 2nd annual event in Villagen, Switzerland and the ISGC'13 event in Taipei. Further case studies will be published on the EGI website, and disseminated through the EGI newsletter, NIL Bulletin, *iSGTW* and *Public Service Review: European Union*, which will include a dedicated 8 page booklet on Horizon2020, produced in collaboration with Public Service Review.

During PQ12, the EGI.eu SPT will launch the EGI Compendium 2012 questionnaire. The Scientific Review Process will also be finalised by developing a final version of the SRC ToR and the related processes in collaboration with the operations team. The SPT plans to finalise and publish the EGI Terms of Use, Privacy Policy and Cookie Policy relating to the website and related products. The mini-project on the Scientific Publications Repository will start and initial results presented at the EGICF. The Pay-for-Use experiment will be executed while the final scientific discipline classification will be published.

STFC will lead to complete a number of policy documents. Planning will be completed for SPG activities during 2013 and the work on this will start. The "Security for Collaborating Infrastructures"

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[94] http://www.oecd.org/science/innovationinsciencetechnologyandindustry/38235147.pdf

version 1 document will be sent to the management of all related infrastructures and will also be presented at the ISGC2013 conference in Taipei. More refined assessments will be made of the extent to which EGI and other infrastructures 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.

FOM will attend the EUGridPMA meeting, the Open Grid Forum meeting, and two IGTF coordination meetings (with the TAGPMA in the Americas and the APGridPMA in the Asia Pacific region) that have been scheduled.

Development in PQ12 for the AppDB team will focus on the support for middleware product teams, who wish to use AppDB to distribute their software with EGI communities after the end of EMI and IGE. As these groups require a place to store and share software, much of the work is focussed in integrating AppDB with a community software repository, thus allowing users to create and manage their own binary repositories though which they will be able to populate multiple releases of their registered software items. The most important functions that will be covered out of this work will include:

- The community repository will contain (sub)repositories of the registered products
- Ability to upload multiple type of binary (rpm & deb) files
- Support for multiple architecture and operating system combinations
- Mechanisms for automatic installation to the target machines (yum/apt)
- Support for candidate repositories prior to public release
- Visitors will be able to download the software from its entry page
- Users will be able to comment on and rate each software item

This work will start in February 2013 and the first version is expected before the EGICF. The AppDB service will be demonstrated to technology providers at this event

The CRM team is already planning and preparing the EGI CRM tutorial that will be delivered during the EGICF. This training is expected to boost the usage of the tool by the NIL community.

Development of the software will continue to increase the reporting and monitoring capabilities of the tool with the introduction of customized and adapted dashboards for the following up of gathered leads.

The TMP will in PQ12 finish the gadget customisations and to prepare for the EGICF.

5. CONSORTIUM MANAGEMENT

5.1. Summary

The project and consortium management continued with two meetings of the project's management board, the reallocation of project effort to accelerate the achievement of EGI's strategic objectives following suggestions from inside the project consortium and submission of an amendment to the grant agreement to record changes undertaken at the start of PY3 following the 2nd EC Review.

5.2. Main Achievements

5.2.1. Project Management

In PQ11 the PMB met twice to discuss:
- The response to the comments made by the project to the reviewer's comments. The date for the 3rd EC review of the project was fixed for 25th and 26th June 2013.
- Role of PMB for rest of the project was discussed.
- Technical discussions relating to the sustainability and flexibility of EGI's monitoring infrastructure were discussed, and the joint workshop held between EGI, PRACE and EUDAT activities.
- Consortium management issues including an update on the project's status
- The agenda and outcomes from the Evolving EGI Workshop
- Review of the consortium's suggestions Proposal Review and Discussion 1h15'

During PQ11 the 2nd EGI-InSPIRE grant amendment was submitted to the European Commission. This brought together a number of technical and administrative changes including:
- TSA1.7 and TSA2.5 were merged into a single middleware and operational tools support task within TSA1.7.
- Creation of a new task, TSA2.6 for integrating institutional private clouds into a federated infrastructure.
- Providing additional efforts to the coordination of staged rollout.
- Moving the coordination of documentation (TSA1.8) and the coordination of integration activities to (TSA1.3) to EGI.eu.
- Movement of work in TSA3.3 from INFN to CERN.
- Replacing beneficiaries NCF with SURF, E-ARENA with JINR and VR-SNIC with SNIC.

Review of the project's expenditure profile at the start of PY3, once all the PY2 costs had been agreed, revealed the opportunity for reallocating effort between partners within the project. The PMB decided to solicit suggestions for work from within the project that would accelerate the achievement of goals identified in the report 'Seeking new horizons: EGI's role in 2020'[95] that was endorsed by the EGI

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[95] http://go.egi.eu/EGI2020

Council in June 2012. The activities would be funded around the objectives identified in the EGI strategy of:

- Undertaking Coordination and Community Building across the EGI Community and its stakeholders.
- Maintaining and expanding the Operational Infrastructure and its management tools to support other Research Infrastructures and Cloud Technologies.
- Enabling the deployment of domain specific and centrally provisioned Virtual Research Environments.

As a result, over 30 suggestions were received and following an assessment undertaken by the EGI-InSPIRE PMB and the AMB 11 activities were priortised for implementation. These activities are proposed to be introduced into the project as an SA4 work package through a grant ammendment.

5.2.2. Milestones and Deliverables

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*)[96]	Revised delivery date(*)	Status (**)
MS121	WP1	Quarterly Report 10	R	EGI.eu	31	32	PMB approved
D4.7	WP4	Sustainability assessment of operational services	R	EGI.eu	31	33	PMB Approved
D6.8	WP6	Sustainability Plans for the HUC Activities	R	EGI.eu	33	35	PMB Approved

5.2.3. Consumption of Effort

Selected period: PM31 to PM33 (November 2012 to January 2013)
Report extracted on 15 February 2013

Project Quarter 11

Type	Work Package	Worked Hours Funded	Worked PM Funded	Committed PM	Achieved PQ11 PM %	Achieved PQ10 PM %
MGT	WP1	2.668,0	18.5	21,1	88%	93%

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

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

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

COORD	WP2	10.906,7	79,6	112,5	71%	77%
SUPPORT	WP4	43.753,5	321,9	311,1	103%	102%
SUPPORT	WP5	4.290,0	31,8	31,6	101%	85%
SUPPORT	WP6	7.453,4	53,7	62,6	86%	87%
RTD	WP7	2.899,3	21,7	21,5	101%	100%
	Total	71.970,8	527,2	560,4	94%	94%

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:
- 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: PM31 to PM33 (November 2012 to January 2013)
Report extracted on 15 February 2013

Project Quarter 11

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

Partner	Q11		
	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	7,8	9,3	84%
Total:	7,8	9,3	84%

WP1-M - WP1 (NA1) - NA1 Management

Partner	Q11		
	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	10,7	11,2	96%
35-CERN	0	0,5	0%
Total:	10,7	11,7	91%

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

Partner	Q11		
	Worked PM Funded	Committed PM	Achieved PM %
1-EGI.EU	23,7	33,4	71%
12A-CSIC	0	0,6	0%
16A-GRNET	1,2	2,2	52%
16E-IASA	2,3	0,7	352%
26A-FOM	0,1	0,3	18%
29-LIP	1,4	0,8	180%
34A-STFC	1,3	3,1	42%
Total:	29,9	41,1	73%

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

Partner	Q11		
	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	0,4	0,6	67%
7C-SWITCH	0	0,7	0%
8-UCY	0,1	1,0	14%
9-CESNET	2,0	2,4	83%
10B-KIT-G	4,4	4,6	95%
12A-CSIC	7,4	1,4	535%
12D-UPVLC	4,0	2,7	148%
13-CSC	0,8	3,0	27%
14A-CNRS	2,2	2,9	75%
14B-CEA	0,2	1,1	14%
15-GRENA	0,4	0,4	100%
18A-MTA KFKI	0,2	0,5	36%
18B-BME	0,2	0,5	35%
18C-MTA SZTAKI	0,3	0,6	58%
19-TCD	0,3	1,4	21%
20-IUCC	2,1	0,8	275%
21A-INFN	5,9	4,3	137%
22-VU	0,5	2,9	17%
23-RENAM	0,2	0,2	129%
26A-FOM	0,1	0,5	26%
26B-SARA	0,2	0,5	44%
27A-SIGMA	0	1,0	0%
27B-UIO	0	0,7	0%
27C-URA	0	1,5	0%
28A-CYFRONET	0,8	1,4	58%

28B-UWAR	1,4	1,4	101%
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	14%
31B-JSI	0	1,2	0%
32-UI SAV	2,8	3,5	81%
33-TUBITAK ULAKBIM	3,2	3,4	94%
34A-STFC	2,6	3,0	88%
34C-UG	0,4	0,3	135%
34D-IMPERIAL	0	0,4	0%
34E-MANCHESTER	0	0,4	0%
36-UCPH	1,8	3,0	59%
38-VR-SNIC	0	0,2	0%
38A-KTH	1,5	1,4	107%
39-IMCS-UL	0,1	2,1	4%
40A-E-ARENA	1,0	1,3	76%
Total:	49,7	71,5	70%

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

	Q11		
Partner	**Worked PM Funded**	**Committed PM**	**Achieved PM %**
1-EGI.EU	7,9	7,1	112%
9-CESNET	3,5	5,2	67%
10B-KIT-G	3,8	5,1	75%
10D-JUELICH	0,6	0,8	85%
12A-CSIC	4,7	1,1	440%
12B-FCTSG	0,9	0,8	117%
13-CSC	0	0,5	0%
14A-CNRS	0,7	0,8	93%
16A-GRNET	1,7	4,4	39%

17-SRCE	3,7	2,4	153%
21A-INFN	8,0	6,3	125%
21B-GARR	0,0	0,8	3%
26A-FOM	0,5	0,8	70%
26B-SARA	1,2	1,4	81%
28A-CYFRONET	0,8	1,4	54%
29-LIP	1.4	1,8	75%
34A-STFC	5,2	4,9	106%
35-CERN	3,6	3,7	97%
38A-KTH	0	0,7	0%
38B-LIU	0	0,8	0%
Total:	48,2	50,6	95%

WP4-N - WP4 (SA1) - SA1 Operations

Partner	Q11		
	Worked PM Funded	**Committed PM**	**Achieved PM %**
2-UPT	0	2,0	0%
3-IIAP NAS RA	2,2	1,2	185%
5A-IICT-BAS	0,5	5,0	9%
5B-IOCCP-BAS	0,2	0,5	43%
5C-NIGGG-BAS	0,7	1,5	44%
6-UIIP NASB	2,1	1,9	113%
7A-ETH ZURICH	1,2	2,1	55%
7B-UZH	0,3	1,1	30%
7C-SWITCH	1,1	2,1	51%
8-UCY	1,7	3,0	57%
9-CESNET	6,2	7,8	79%
10B-KIT-G	5,4	7,0	78%
10C-DESY	2,7	1,9	139%
10D-JUELICH	1,5	3,0	103%
10E-BADW	1,4	3,0	46%
10G-FRAUNHOFER	1,7	1,9	86%

10H-LUH	2,1	1,4	155%
11-UNI BL	3,4	4,7	72%
12A-CSIC	6,6	2,8	239%
12B-FCTSG	9,7	4,2	234%
12C-CIEMAT	2,9	2,4	120%
12D-UPVLC	2,3	1,8	134%
12E-IFAE	3,3	2,9	116%
12F-RED.ES	5,8	3,3	178%
12G-UNIZAR-I3A	3,2	3,3	97%
12H-UAB	2,6	2,5	105%
13-CSC	3,8	4,2	90%
14A-CNRS	11,1	15,2	74%
14B-CEA	9,6	4,0	239%
15-GRENA	1,1	1,2	92%
16A-GRNET	10,0	7,7	130%
16B-AUTH	0	0,8	0%
16C-CTI	0,1	0,8	14%
16D-FORTH	1,3	0,8	158%
16G-UI	0,3	0,5	60%
16H-UP	0,8	0,6	122%
17-SRCE	4,9	4,5	109%
18A-MTA KFKI	4,6	4,1	113%
18B-BME	4,1	1,8	223%
18C-MTA SZTAKI	1,2	1,5	78%
19-TCD	1,7	5,9	29%
20-IUCC	2,4	1,6	155%
21A-INFN	26,8	22,3	120%
21B-GARR	0	0,8	0%
22-VU	3,7	1,4	272%
23-RENAM	1,5	1,3	120%
24-UOM	3,5	4,4	78%
25-UKIM	5,4	4,4	122%
26A-FOM	2,9	2,0	144%
26B-SARA	5,4	7,6	71%

27A-SIGMA	0	2,5	0%
27B-UIO	3,0	1,8	171%
27C-URA	1,9	0,9	215%
28A-CYFRONET	9,4	7,2	130%
28B-UWAR	1,7	0,4	407%
28C-ICBP	2,2	1,1	198%
28D-POLITECHNIKA WROCLAWSKA	2,5	1,0	249%
29-LIP	5,9	6,7	87%
30-IPB	7,3	7,4	99%
31-ARNES	4,6	2,7	171%
31B-JSI	4,6	3,2	144%
32-UI SAV	5,4	6,0	90%
33-TUBITAK ULAKBIM	7,1	8,2	87%
34A-STFC	8,1	6,5	126%
34C-UG	3,8	3,6	104%
34D-IMPERIAL	5,3	3,6	145%
34E-MANCHESTER	4,5	3,6	123%
35-CERN	0,6	0,3	206%
36-UCPH	1,8	5,1	36%
38A-KTH	0,3	0,4	79%
38B-LIU	1,4	1,9	72%
38C-UMEA	2,7	3,0	90%
39-IMCS-UL	1,7	3,3	53%
40A-E-ARENA	0,3	0	#DIV/0
40B-SINP MSU	2,3	1,3	185%
40C-JINR	0.9	0,8	112%
40D-RRCKI	0,9	0,8	112%
40F-ITEP	08	0,8	112%
40G-PNPI	0	0,8	0%
51A-ICI	1,6	1,4	113%
51C-UPB	0	0,8	0%
51D-UVDT	1.4	0,6	243%
51E-UTC	0	0,6	0%
51H-INCAS	0	0,2	0%

	0,1	0,1	53%
51J-UB			
Total:	273,7	260,5	105%

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

Partner	Q11		
	Worked PM Funded	**Committed PM**	**Achieved PM %**
1-EGI.EU	2,2	2,3	99%
9-CESNET	3,1	3,8	82%
12A-CSIC	2,2	3,3	68%
12B-FCTSG	1,4	1,1	135%
16A-GRNET	1,9	3,5	55%
16B-AUTH	0	0,8	0%
16E-IASA	2,3	0,8	282%
16F-ICCS	1,4	0,8	169%
29-LIP	5,9	4,4	134%
Total:	20,4	20,7	98%

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

Partner	Q11		
	Worked PM Funded	**Committed PM**	**Achieved PM %**
9-CESNET	0,8	0,4	206%
10B-KIT-G	1,7	1,5	116%
10D-JUELICH	0,7	0,8	100%
10H-LUH	0,1	0,5	23%
12B-FCTSG	0,8	0,8	109%
14A-CNRS	1,2	1,3	99%
21A-INFN	2,8	2,8	102%
26B-SARA	0,1	0,8	9%
32-UI SAV	1,8	1,5	118%

34F-OXFORD	1,4	0,8	184%
Total:	11,4	10,9	105%

WP6-G - WP6 (SA3) - SA3 Services for Heavy User Communities

Partner	Q11		
	Worked PM Funded	**Committed PM**	**Achieved PM %**
10G-FRAUNHOFER	2,9	2,3	130%
12A-CSIC	1,5	2,3	68%
12C-CIEMAT	1,8	1,5	120%
13-CSC	0	1,5	0%
14A-CNRS	1,8	5,8	31%
14B-CEA	0	0,7	0%
14C-HealthGrid	0	0,5	0%
19-TCD	0	1,8	0%
21A-INFN	2,2	2,0	108%
21C-INAF	2,5	2,5	101%
21D-UNIPG	0	0,8	0%
21E-SPACI	1,9	2,3	85%
28C-ICBP	0,4	0,5	78%
31B-JSI	2,3	0,3	928%
32-UI SAV	0	0,7	0%
35-CERN	36,4	34,4	106%
37-EMBL	0	3,1	0%
Total:	53,7	62,6	86%

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

Partner	Q11		
	Worked PM Funded	Committed PM	Achieved PM %
10B-KIT-G	3,4	2,9	117%
12B-FCTSG	0,5	0,8	72%
14A-CNRS	0,6	0,8	79%
16A-GRNET	0,4	0,8	51%
17-SRCE	0,9	0,8	120%
21A-INFN	1,8	1,5	119%
34A-STFC	1,5	1,5	102%
35-CERN	1,1	0,8	150%
Total:	10,3	9,7	106%

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

Partner	Q11		
	Worked PM Funded	Committed PM	Achieved PM %
10H-LUH	1,1	1,5	76%
12B-FCTSG	2,1	1,5	139%
14A-CNRS	4,7	4,4	106%
21A-INFN	1,4	2,2	66%
34A-STFC	2,0	2,3	91%
Total:	11,4	11,8	96%

5.2.4. Overall Financial Status

Partner	Q11				
	Worked PM Funded	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
1-EGI.EU	52,3	63,3	83%	464.473	279.843
2-UPT	0	4,5	0%	0	0
3-IIAP NAS RA	2,2	1,8	123%	6.561	2.165
5A-IICT-BAS	0,5	6,4	7%	2.878	950
5B-IOCCP-BAS	0,2	0,5	43%	1.308	432
5C-NIGGG-BAS	0,7	1,5	44%	4.040	1.333
6-UIIP NASB	2,1	1,9	113%	8.229	2.715
7A-ETH ZURICH	1,2	2,5	46%	9.939	3.280
7B-UZH	0,7	1,7	43%	5.135	1.695
7C-SWITCH	1,1	2,8	39%	15.290	5.046
8-UCY	1,9	4,0	46%	16.058	5.299
9-CESNET	15,5	19,6	79%	101.902	40.943
10B-KIT-G	18,8	21,2	89%	167.411	66.223
10C-DESY	2,7	1,9	139%	23.900	7.887
10D-JUELICH	2,9	2,9	97%	25.454	9.362
10E-BADW	1,4	3,0	46%	12.340	4.072
10G-FRAUNHOFER	4,6	4,2	110%	40.682	15.241
10H-LUH	3,4	3,4	100%	30.053	10.625
11-UNI BL	3,4	4,7	72%	13.864	4.575
12A-CSIC	22,5	11,4	197%	176.084	68.138
12B-FCTSG	15,5	9,0	173%	121.037	44.867
12C-CIEMAT	4,7	3,9	120%	36.405	12.999
12D-UPVLC	6,4	4,5	143%	49.698	16.400
12E-IFAE	3,3	2,9	116%	26.147	8.628
12F-RED.ES	5,8	3,3	178%	45.203	14.917
12G-UNIZAR-I3A	3,2	3,3	97%	24.771	8.174
12H-UAB	2,6	2,5	105%	20.596	6.797
13-CSC	7,0	9,2	76%	71.830	23.704

14A-CNRS	22,3	31,0	72%	193.097	69.530
14B-CEA	9,7	5,8	169%	84.093	27.751
14C-HealthGrid	0	0,5	0%	0	0
15-GRENA	1,5	1,6	94%	3.690	1.218
16A-GRNET	15,2	18,6	82%	117.921	45.754
16B-AUTH	0	1,6	0%	0	0
16C-CTI	0,1	0,8	14%	885	292
16D-FORTH	1,3	0,8	158%	9.966	3.289
16E-IASA	4,6	1,5	313%	35.448	17.724
16F-ICCS	1,4	0,8	169%	10.615	5.307
16G-UI	0,3	0,5	60%	2.329	769
16H-UP	0,8	0,6	122%	5.897	1.946
17-SRCE	9,5	7,7	124%	47.314	19.525
18A-MTA KFKI	4,8	4,6	103%	18.835	6.216
18B-BME	4,3	2,3	184%	23.657	7.807
18C-MTA SZTAKI	1,5	2,1	73%	9.281	3.063
19-TCD	2,0	9,0	22%	19.424	6.410
20-IUCC	4,5	2,3	195%	58.340	19.252
21A-INFN	48,8	41,3	118%	319.074	117.749
21B-GARR	0,0	1,5	2%	176	88
21C-INAF	2,5	2,5	101%	18.603	7.441
21D-UNIPG	0	0,8	0%	0	0
21E-SPACI	1,9	2,3	85%	14.040	5.616
22-VU	4,2	4,2	100%	35.006	11.552
23-RENAM	1,7	1,4	120%	5.164	1.704
24-UOM	3,5	4,4	78%	8.337	2.751
25-UKIM	5,4	4,4	122%	21.686	7.156
26A-FOM	3,6	3,6	101%	36.787	13.145
26B-SARA	6,8	10,3	66%	70.109	25.170
27A-SIGMA	0	3,5	0%	0	0
27B-UIO	3,0	2,5	122%	29.641	9.782
27C-URA	1,9	2,4	78%	18.619	6.144
28A-CYFRONET	11,0	10,1	109%	93.975	32.150
28B-UWAR	3,1	1,8	172%	26.532	8.756

28C-ICBP	2,6	2,6	101%	22.455	7.644
28D-POLITECHNIKA WROCLAWSKA	2,5	1,0	249%	21.177	6.988
29-LIP	14,5	16,3	89%	79.376	34.228
30-IPB	9,1	9,2	99%	49.900	16.467
31-ARNES	4,9	5,0	99%	29.456	9.721
31B-JSI	6,9	4,6	151%	41.393	14.633
32-UI SAV	10,0	11,7	86%	80.375	26.524
33-TUBITAK ULAKBIM	10,3	11,5	89%	72.160	23.813
34A-STFC	20,9	21,2	98%	214.206	86.253
34C-UG	4,2	4,0	106%	43.214	14.261
34D-IMPERIAL	5,3	4,0	130%	53.918	17.793
34E-MANCHESTER	4,5	4,0	111%	45.748	15.097
34F-OXFORD	1,4	0,8	184%	14.154	4.671
35-CERN	41,7	39,7	105%	600.561	274.540
36-UCPH	3,6	8,1	45%	39.828	13.143
37-EMBL	0	3,1	0%	0	0
38-VR-SNIC	0	0,2	0%	0	0
38A-KTH	1,8	2,5	72%	20.338	6.711
38B-LIU	1,4	2,6	52%	15.508	5.117
38C-UMEA	2,7	3,0	90%	31.269	10.319
39-IMCS-UL	1,8	5,3	34%	14.336	4.731
40A-E-ARENA	1,5	1,3	114%	5.830	1.924
40B-SINP MSU	2,3	1,3	185%	9.145	3.018
40C-JINR	0,9	0,8	112%	3.610	1.191
40D-RRCKI	0,9	0,8	112%	3.608	1.191
40F-ITEP	0,8	0,8	112%	3.331	1.099
40G-PNPI	0	0,8	0%	0	0
51A-ICI	1,6	1,4	113%	9.661	3.188
51C-UPB	0	0,8	0%	0	0
51D-UVDT	1,4	0,6	243%	8.298	2.738
51E-UTC	0	0,6	0%	0	0
51H-INCAS	0	0,2	0%	0	0
51J-UB	0,1	0,1	53%	401	132
Total:	527,2	560,4	94%	4.393.084	1.758.503

5.3. Issues and mitigation

5.3.1. Issue: Partners Deviating from the linear plan

The following partners are deviating from the linear plan committed to the project. The deviations will be assessed again in PQ12. As it is not possible to adjust the duration of a task in the project reporting tool to the start date of a partner or a member who is reporting within this task some deviations cannot be corrected but need to just be noted.

Partners that are overspending are:

- WP2-E: IASA, LIP
- WP4-E: CESNET, KIT-G, CSIC, SRCE, INFN, STFC
- WP5-E: LIP, FCTSG, IASA, ICCS
- WP5-N: CESNET
- WP6-G: JSI; FhG; CERN
- WP7-E: CERN
- WP7-E: FCTSG

Partners that are under spending are:

WP2-E: STFC, FOM

WP5-E: GRNET

WP5-N: LUH, SARA

WP6-G: CSIC; CNRS; CERN

WP7-E: GRNET

WP7-E: INFN

5.4. Plans for the next period

PQ12 marks the end of PY3 and the end of year reporting. A 3rd grant amendment will be prepared for submission to the European Commission relating to activities being undertaken within the project to accelerate the achievement of EGI's strategic goals.

6. PROJECT METRICS

6.1. Overall metrics

The Project Metrics are available from the EGI Metrics Portal – http://metrics.egi.eu

No	Objective Summary	Metrics	Value Q11	Target PY3
PO1	Expansion of a nationally based production infrastructure	Number of resource centres in EGI-InSPIRE and integrated partners (M.SA1.Size.1)	315 (plus 30 suspended sites)	350 (355) (355)
		Number of job slots available in EGI-InSPIRE and integrated partners (M.SA1.Size.2a)	372,584	300,000 (325,000) (333,000)
		Reliability of resource centre functional services (M.SA1.Operation.5)	94.80%	95% (96%) (97%)
		Reliability of NGI functional services (MSA1.Operations.4)	99.00%	97% (98.5%) (99%)
		Reliability of critical operations tools (MSA1.Operations.6a)	98.60%	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)	1.65 M (grid) 2.25 M (grid and local)	1.2M (1.4M) (1.5M)
PO3	Sustainable support for Heavy User Communities	Number of sites with MPI (M.SA1.Integration.2)	80	120 (130) (140)
		Number of users from HUC VOs (M.SA1.VO.6)	11,431	12,000 (15,000)

No	Objective Summary	Metrics	Value Q11	Target PY3
				(17,000)
PO4	Addition of new User Communities	Peak number of cores from desktop grids (M.SA1.Integration.3)	5,220	1,000 (5,000) (7,500)
		Number of users from non-HUC VOs (M.SA1.vo.5)	10,654	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)	2	4 (5) (5)
PO6	Integration of new technologies and resources	Number of HPC resources (M.SA1.Integration.1)	80	50 (50) (50)
		Number of resource centres part of the EGI Federated Cloud (M.SA2.16)	14	10 (15) (20)

6.2. Activity metrics

These are available from the EGI Metrics Portal – http://metrics.egi.eu/quarterly_report/QR11/

7. ANNEX A1: DISSEMINATION AND USE

7.1. Main Project and Activity Meetings

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
29 Nov 2012	EVO	GGUS Advisory board meeting	Representative from user communities, NGIs, EGI, technology providers	Further development of GGUS system. https://indico.egi.eu/indico/conferenceDisplay.py?confId=1259
29-30 Jan 2013	Amsterdam, Netherlands	Evolving EGI Workshop	78	This workshop offered an opportunity for key members across the EGI community, both technical and management, to come together and discuss specific topics and new directions on how EGI is evolving in the short- to medium-term. Topics addressed were: EGI pay-for-use, federated resource allocation, scientific publications repository, EGI.eu service portfolio, cost and priorities.http://go.egi.eu/evolving-egi-ws-2013

7.2. Conferences/Workshops Organised

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
07/Nov 2012	Chisinau, Moldova, State University	Problems of high-performance computing and modern ICT technologies	Representatives from research institutions of the Academy of Sciences, universities of Moldova, students	Two presentations dedicated to the National e-Infrastructure developments. "National, regional and European Grid infrastructures; participation of Moldova in EGI-Inspire project" Nicolai Iliuha, RENAM. "Using parallel cluster at Faculty of Mathematics and Computer Science, MSU, in the process of training and research: achievements and perspectives", Boris Hancu, MSU

7-9 Nov 2012	Lisbon, Portugal	IBERGRID 2012, 6th Iberian Grid Infrastructure Conference	50	The 2012 IBERGRID conference was organized by LIP in Lisbon, Portugal. The main topics of IBERGRID 2012 Conference were: Infrastructures, Services and Operations, Innovation in the provision of IT services: virtualization and cloud computing, Data Management and Storage Systems, IT Management and Green Computing, EGI and WLCG Grid Computing Activities, Digital Repositories and Preservation,Community Oriented Services, User and Applications, Technology Transfer to Society. This is the annual meeting gathering IBERGRID operators and user communities to reassess the past activities, debate problems and define joint strategies. Conference URL: http://www.ibergrid.eu/2012
19 Nov 2012	Bern	SDCD 2012: Supporting Science with Cloud Computing	90	http://www.swing-grid.ch/event/1057179-sdcd-2012-supporting-science-with-cloud
23Nov 2012	School of Electrical Engineering, University of Belgrade	EGI Hands-On Training for AEGIS Site Administrators	8	Scientific Computing Laboratory of the Institute of Physics Belgrade organized training event for AEGIS Grid site administrators that was held More information are available at: http://www.scl.rs/news/833 on 23 November 2012 as a part of NA3 activity of EGI-InSPIRE project. Training was held at the School of Electrical Engineering of the University of Belgrade. The goal of this training was to introduce administrators of AEGIS sites with installation of services based on the latest versions of Grid middleware as well as with the EGI-InSPIRE monitoring and operations procedures. More information are available at: http://www.scl.rs/news/833
29-30 Nov 2012	Rome (Italy)	WORKSHOP GARR - CALCOLO E STORAGE DISTRIBUITO	8	National workshop about Grid and Cloud. Agenda (in Italian): http://www.garr.it/a/workshop-garr-calcolo-e-storage-distribuito/programma

29-30 Nov 2012	Bordeaux	FG Operations workshop and FG Cloud workshop	50	https://indico.in2p3.fr/conferenceTimeTable.py?confId=6900#20121129 https://indico.in2p3.fr/conferenceTimeTable.py?confId=6900#20121130
11-12 Dec 2012	Chisinau Moldova, Academy of Sciences	(Workshop aimed at improving e-Infrastructures in Eastern Partnership countries	Participants from 16 countries: Policy makers, ministries representatives, head of Academies of Sciences. Prominent scientists. Coordinators and members of European Infrastructures development projects. NRENs managers and networking	The stated aims of this important event were: to improve awareness of the importance of computer networks and their impact on a country's development; possible greater integration of Eastern partnership countries with the pan-European GÉANT network; a sustainable future for research and education networks. The event was organised by the GÉANT Development Support Activity and the Academy of Sciences of Moldova under the auspices of the European Union's Eastern Partnership Platform 4. This aims to improve e-Infrastructures in the partner countries of Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine by providing an opportunity for stakeholders to meet with policy makers in order to raise awareness of the importance of computer networks and services. http://www.renam.md/index.php?option=com_content&task=view&id=158&Itemid=1
Dec 2012/ Jan 2013	Faculty of Electrical Engineering Banja Luka	Introduction to grid computing and parallel programming	35	The lectures were given for 35 students of 3rd year of CS/CE course of ETFBL

28Dec 2012	Chisinau, Moldova, Information Society Development Institute	Workshop from cycle of seminars/trainings devoted to the problems of high-performance computing and modern ICT technologies	Representatives from research institutions of the Academy of Sciences, universities of Moldova, participants of eGoverment Program.	Discussions on the implementation of centralized identity management system showed interest not only for members of the academic community, but also representative of the Centre for Electronic Governance, who shared the experience of his team on the implementation of the authentication system. Presentations: - Premise pentru implementarea sistemului centralizat de management al identităţii în cadrul RŞEN Raportor: Valentin Pocotilenco (RENAM) - Starea actuală privind implementarea şi utilizarea serviciilor în comunitatea ştiinţifico-educativă Rapoarte: RENAM, IDSI http://idsi.md/node/1040, http://idsi.md/node/1041, http://idsi.md/node/1042
17 Dec 2012	Tallink Hotel, Riga	Security and Transparency	Edgars Znots	Presentation on use of open-source software in HPC and grid infrastructures. Conference programme: http://lata.org.lv/?page_id=865 Slides: http://lata.org.lv/wp-content/conf/Drosiba/LATA_APP_Skaitlosana_EdgarsZnots.pdf

7.3. Other Conferences/Workshops Attended

Date	Location	Title	Participants	Outcome (Short report & Document Server URL to presentations made)
15-18 Jan 2013	Frascati, Rome, Italy	Helix Nebula Workshop	120	This event is organised by the Helix Nebula project with the General Assembly of the consortium and an open day; EGI.eu supported the discussion about interoperability of e-infrastructures with commecial cloud providers http://indico.cern.ch/conferenceDisplay.py?confId=216509
3-4 Dec 2012	Amsterdam, The Netherlands	e-IRG workshop	108	EGI.eu members attended to track the evolution of the discussion at strategic policy level among the e-Infrastructures. http://www.e-irg.eu/e-irg-events/events-archive/2012/workshop-3-4-december.html

21-22 Nov 2012	Göttingen, Germany	OpenAIRE Conference	100	S. Andreozzi from EGI.eu presented the collaboration among EGI and OpenAIRE http://www.openaire.eu/en/programme
23 Nov 2012	Brussels, Belgium	SciTech Europe: Broadening Horizons – Creating a Single Market for Knowledge, Research and Innovation	200	Attended the event for networking and updates on high-level policies. EGI hosted a booth in the exhibition, distributed materials, took part in the networking sessions and the Director delivered a master class as well as participating in a discussion panel. http://www.publicserviceevents.co.uk/227/scitech-europe-2012
14-16 Jan 2013	Rome, Italy	EUGridPMA		http://www.eugridpma.org/meetings/2013-01/ Attended this IGTF meeting to represent interests of EGI and WLCG as a Relying Party
16-17 Jan 2013	Rome, Italy	SCI meeting		http://indico.cern.ch/conferenceDisplay.py?confId=227273 I organised and chaired the meeting. Produced the final version 1 of the document describing the requirements and best practices and considered 3 self assessments against these criteris
17-18 Dec 2012	FNAL, Chicago, USA	WLCG Security Coordination Meeting		https://indico.cern.ch/conferenceDisplay.py?confId=221987 D. Kelsey organised and chaired this meeting which discussed all operational and policy issues for security and the coordination between EGI, OSG and NDGF

Date	Location	Title	Participants	Outcome (Short report & Document Server URL to presentations made)
7-9 Nov 2012	Lisbon, Portugal	IBERGRID 2012, 6th Iberian Grid Infrastructure Conference	50	Conference Programe URL: http://www.ibergrid.eu/2012/index.php?option=2
16 Nov 2012	Madrid (Spain)	BigData Spain 2012		IFISC-GRID: Programme available at http://www.bigdataspain.org/en/

16 Nov 2012	Salt Lake City **(USA)**	Supercomputing 2012	**3**	This event attracted 9000 delegates, EGI hosted a booth in the exhibition hall, participated in the press tour, distributed materials and demonstrated the Real Time Monitor. Movie/dissemination on the DashboardDB application and DashboardDB Desktop (carried out in the IGI Booth) http://sc12.supercomputing.org/

28-29 Nov 2012	Bilbao (Spain)	RedIris Network	**20**	Annual workshop organised by NREN. Followup of technical issues related to network, programme available at http://www.rediris.es/jt/jt2012/
				    IFAE: Presentation from PIC on the plans from LHC to exploit the new high performance network infrastructure Rediris-Nova through LHCONE
				    IFIC
				    RedIRIS
				    USC

3-4 Dec 2012	LAL, Orsay, France	2nd DPM Community Workshop	Aleš Křenek, Pavel Fibich	Involvement in DPM community, clarifications of DPM -- Globus Online integration
06 Dec 2012	Hannover, Germany	DGI-2 Project finalization meeting	NGI-DE Grid sites (LRZ etc.)	Summary of the work in 2012
11-12 Dec 2012	Chisinau, Moldova	European Commission Eastern Partnership Event	approx. 70 person	The main objectives of this event were:to raise awareness of the importance of e-Infrastructures amongst politicians, civil servants and funding agencies in the Eastern Partnership countries and to make the case for the development of research and education networks in the countries concerned and to encourage further integration of those networks with GÉANT. R. Kvatadze made short presentation. http://www.terena.org/activities/development-support/epe2012/index.php

21- 22 Nov 2012	Amsterdam	EGI EU Council Meeting	1	
13-14 Dec 2012	CERN	LHCONE Point-to-Point Service Workshop	1	IFAE: Network workshop focused on the technical details of the deployment of a dedicated high performance network infrastructure to connect Tier2s and Tier1s, https://indico.cern.ch/conferenceDisplay.py?confId=215393
14-16 Jan 2013	Rome	EuGridPMA Meeting	KIT staff	Security discussions
17 Jan/ 2013	Tallink Hotel, Riga	Security and Transparency	Edgars Znots	Presentation on use of open-source software in HPC and grid infrastructures. Conference programme: http://lata.org.lv/?page_id=865 Slides: http://lata.org.lv/wp-content/conf/Drosiba/LATA_APP_Skaitlosana_EdgarsZnots.pdf
17-19 Jan 2013	Romania, Sinaia	„RoEduNet 11th International Conference: Networking in Education and Research"	Over 120 attendees from 12 countries including USA, Canada, Bulgaria, Poland, Romania, Moldova,...	http://conference.roedu.net/index.php/roedunet2012/roedunet11
28-30. Jan .2013	Amsterdam	EGI.EU Council Meeting	30	
28-31. Jan 2013	Lisbona	FIRST/TF-CSIRT Technical Colloquium	1	http://www.terena.org/activities/tf-csirt/meeting38/

28 Jan 2013	Amsterdam	e-Fiscal Workshop	78	EGI.eu contributed to the the workshop as local organiser; furthermore S. Andreozzi presented about business and pricing models, while S. Newhouse reported on the evaluation of results from the EGI viewpoint http://www.efiscal.eu/final-workshop

7.4. Publications

Publication title	Journal / Proceedings title	DOI code	Journal references *Volume number* *Issue* *Pages from - to*	Authors *Initials*	Authors *Surname*
KGRAM Versatile Inference and Query Engin for the Web of Linked Data.	IEEE/WIC/ACM International Conference on Web intelligence (WI'12)		Macao, China, December 2010	O. A. C. J.	Corby Gaignard Faron-Zucker Montagnat
VisIVO: a web-based, workflow enabled Gateway for Astrophysical Visualization	ADASS XXII conference		University of Illinois, November 2012	A.	Costa
The Ophidia project: towards big data analytics in eScience	International Conference on Computational Science ICCS 2013		Submitted	S. G.	Fiore Aloisio
Application of remote debugging techniques in user-centric job monitoring		368 012012	368 012012	T	Dos Santos et al

Superconducting Vortex lattice Configurations on Periodic Potentials: Simulation and Experiment	J. Superconducting Novell Magnetism	DOI: 10.1007/s10948-012-1636-8		M. A. R. D. E.M A.J. J.L. .	Rodriguez-Pascual Gomez Mayo-Garcia Perez de Lara Gonzalez Rubio-Montero Vincent
Dimensioning Storage and computing clusters for efficient high throughput computing	Journal of Physics: conference Series/ Internetional Conference on Computing in high Energy and Nuclear Physica 2012 (CHEP2012)		2012 J. Phys: Conf. Ser 396042040	E. A. G. M. X. G. F. F. E.	Accion Bria Bernabeu Caubet Delfina Espinal Merina Lopez Martinez Planas
Momitoring techniques and alarm procedures for CMS Services and WLCG	Journal of Physics: conference Series/ Internetional Conference on Computing in high Energy and Nuclear Physica 2012 (CHEP2012)		2012 J. Phys: Conf. Ser 396042041	J. D. O. A. J. P. E. T. M. D. R. R. N. I. W.	Molina-Perez Bonacorsi Gutsche Sciaba Flix Kreuzer Fajardo Boccali Klute Gomes Kaselis Du Magini Butenas Wang

CMs Data Transfer Operations after The First Year of LHC Collisions	Journal of Physics: conference Series/ Internetional Conference on Computing in high Energy and Nuclear Physica 2012 (CHEP2012)		2012 J. Phys: Conf. Ser 396042041	R. S. N. J. O. P. M. S. N. A. D. J.	Karelis Piperov Magini Flix Gutsche Kreuzer Yang Liu Ratnikova Sarirana Bonacorsi Letts
D-wave Superconductivity on the Honeycomb Bilayer	Phys. Rev. B	DOI: 10.1103/PhysRevB.86.214505		J. M. M.V	Vucicevic Goerbig Milovanovic
Providing Global WLCG Transfer Monitoring	Journal of Physics: conference Series/ Internetional Conference on Computing in high Energy and Nuclear Physica 2012 (CHEP2012)		2012 J. Phys: Conf. Ser 396042041	J. D. S. J. O. N. Z. D. A. G. P. M. D. A. T.	Andreeva Diegues Arias Campana Flix Keeble Magini Molnar Oleynik Petrosyan Ro Saiz Salichos Tuckett Uzhinsky Wildish

Service Monitoring in the LHC Experiments	Journal of Physics: conference Series/ Internetional Conference on Computing in high Energy and Nuclear Physica 2012 (CHEP2012		2012 J. Phys: Conf. Ser 396042041	F. V. D. A. J. P. S.	Barreiro Megino Berardoff Da Silva Gomes O di Girolamo Flix Kreuzer Roiser