EGI-InSPIRE

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Abstract

This report summarises the activities carried out by task during the 15th Quarter of EGI-InSPIRE dating between November 2013-January 2014 (PMs 43-45). It includes the main achievements, issues and mitigation, plans for the next period and project metrics.



I. COPYRIGHT NOTICE

II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Tiziana Ferrari	EGI.eu/NA1	02 May 2014
Reviewed by	**Moderator:** **Reviewers:**	EGI-InSPIRE AMB	15 May 2014
Approved by	**AMB & PMB**		10 June 2014

III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	14/02/2014	First draft	Sy Holsinger/EGI.eu; et al.
2	04/03/2014	Contributions added, comments for updates	Sy Holsinger/EGI.eu; et al.
3	07/03/2014	Final merge of contributions for content refining	Sy Holsinger/EGI.eu; et al.
4	20/03/2014	Additional contributions from AMB	Sy Holsinger/EGI.eu; et al.
5	27/03/2014	Content refinement; Publications added	Sy Holsinger/EGI.eu; et al.
6	09/04/2014	Metrics updated/added; Content refinement	Sy Holsinger/EGI.eu; et al.
7	29/04/2014	Updated version for internal review	Sy Holsinger/EGI.eu
8	15/05/2014	Revisions from internal review	Sy Holsinger/EGI.eu; et al.

IV. APPLICATION AREA

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

V. DOCUMENT AMENDMENT PROCEDURE

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

VI. TERMINOLOGY

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



VII. PROJECT SUMMARY

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

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

The objectives of the project are:

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

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

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

VIII. EXECUTIVE SUMMARY

Project management activities concentrated on the revision of the PY4 work plan to take corrective actions taking into account PY3 recommendations, and on the definition of the PY5 work plan, the related budget covering an extension of 8 months (until December 2014) and the preparation of the 3rd DoW amendment. The PY4 revision aimed at maintaining the strategic planning activities in PY4 while ensuring not only the continuation but also the strengthening of the critical ones in PY5. Strategy and policy activities carried out at EGI.eu were prioritized. Priority was given to the introduction of a new function on business development activities, by hiring of a business development expert at EGI.eu, who has been responsible from Jan 2014 for developing the EGI service and solutions portfolio development. In addition, in order to strengthen outreach to new user communities and stimulate the gathering of new technological requirements, a EGI Engagement Strategy[1] was defined.

The Community Engagement activity developed a high-level engagement strategy describing the goals and targets and provides information about the human networks and online resources and tools that help to implement the defined actions. The document also identifies short-term targets and metrics to facilitate strategy execution. The goal of this document is to provide coherence with the overall strategy and a more structured and measurable approach in the way EGI reaches and establishes long lasting relationships with new user communities. The activity also further developed the EGI solutions by analysis aspects such as the target customers and their challenges, the details of the solution including how this is built and how this can be accessed, ending with KPIs and success stories.

The Distributed Competence Centre (DCC)[2] was implemented as of January 2013 as technical arm for the implementation of the engagement strategy to user communities. The DCC is not only responsible of engagement and exploration of requirements of new use cases, but also of development, testing and insertion of new technology.

Unspent budget after PY5 was estimated and reclaimed for distribution across a subset of the consortium, allowing the continuation and strengthening of user engagement through the DCC, the continuation of business development and pay per use policy activities, the development of use cases for the EGI Federated Cloud, starting its production phase in May 2014, and the continuation of the development of strategic tools. The selection of the partners who participated with bids to the call for EGI core activities[3] was completed, and the EGI.eu co-funding rate negotiation completed. The running of the EGI core activities will no longer supported by EGI-InSPIRE as of May 2014. The total cost is 1.5 MEuro, and the EGI.eu contribution for 2014 amounts to approximately 620 KEuro. One case of Consortium Agreement breach was managed with reference to the German JRU breaching article 9.2. Sanctions to maintain the JRU in the consortium until the end of the extension were defined by the PMB.

At the end of PQ15 the activity management of NA1 was handed by Catherine Gater to Yannick Legre, who was appointed EGI.eu director as of Feb 01.

In fact, user community support and outreach has been an increasing large focus for EGI. Collaborations between EGI/NGIs and large communities and ESFRI projects have matured comprising ELIXIR with a social network that has been established in and among the NGIs and ELIXIR nodes and an agreement between the EGI and ELIXIR management representatives to strengthen collaborations by intensifying knowledge exchange between the NGIs and the ELIXIR

[1] https://documents.egi.eu/document/2079

[2] https://wiki.egi.eu/wiki/Distributed_Competence_Centre

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

nodes. A face-to-face meeting was held during January at EBI and technical pilots have been scoped. A central Cherenkov Telescope Array gateway has continued to develop through an MoU with SCI-BUS and a draft of the document that provides details on the structure and scope of a VRC that should be setup in Chemistry, Molecular & Materials Science and Technology (CMMST) domain. An ENVRI Study Case with EISCAT_3D for the implementation of a proof of concept system for EISCAT would make a ~2 TB historical data set from the community searchable through metadata and maybe by data patterns. The proof of concept setup will be based on the EGI Federated Cloud (as storage) and the Open Source Geospatial Catalogue. EGI started investigation of EGI monitoring solution implementation by BioVel community. The DRIHM science gateway was upgraded to gUSE 3.6.1 and is now able to submit jobs to EGI resources and finally with developers and providers of the DIRAC 'interware' system use cases are being identified from their communities that could be supported with EGI resources accessed through DIRAC.

As an outcome of collaboration with the emerging agricultural community number of applications were ported to the Grid and registered in the EGI AppDB.

A workshop was organized in December[4] in collaboration with prospective user communities, in which new requirements on data management, data preservation, IaaS cloud services and integrated use of EGI, EUDAT and PRACE services were presented. The preparation of a second thematic workshop[5] on long-term data preservation started. In addition, a webinar[6] on the High Throughput Data Analysis solution was delivered to the RIs of the ENVRI cluster.

A new MoU was signed with the APARSEN project[7] to bring in competences within the EGI community in the area of data curation and preservation. This MoU is strategic to expand the EGI service portfolio in the area of services needed to manage the full life cycle of data in the medium term.

As part of business development activities, a dedicated task force[8] has been set up to provide a focused activity around pay-for-use models in order to develop a work plan to implement potential scenarios that are viable for consuming EGI services by charging users or their employing institutions. Technical, policy and organisational aspects will be investigated and the activity will also speed up during the project extension as a dedicated funded task has been developed. In addition, the preparation to the participation to the Helix Nebula Marketplace, offering a hybrid public-private offering of cloud services started.

In the area of dissemination, the EGI presence was ensured in two key events: ICT2013 and SC'13. The communication team also contributed 14 News Items, 2 Case Studies and one issue of the Inspired newsletter. The preparation of the programme of the EGI Community Forum 2014 continued with the opening of the call for participation (Dec 2013), and the opening of the early bird registration (Jan 2014).

During PQ15 the Africa and Arabia National Grid has started the creation process to open the way to seamless collaboration between research communities in Africa, Arabia and Europe. The African, Arabic and European infrastructure will be part of the same federated infrastructure.

[4] http://go.egi.eu/h2020

[5] https://indico.egi.eu/indico/conferenceDisplay.py?confId=2052

[6] https://wiki.egi.eu/wiki/EGI_Webinar_Programme#Completed_Webinars

[7] https://documents.egi.eu/document/2063

[8] https://wiki.egi.eu/wiki/EGI_Pay-for-Use_PoC:Home

The first call for resources to implement a distributed resource pool with central access was launched in December[9]. The first 6 NGIs/sites offered resources. Resource Allocation operations teams have started receiving requests for resources from user communities and process by matching demand with available resources.

The accounting infrastructure made progress in several areas such as providing instructions on how to enable accounting data publishing for Resource Providers supporting QCG, Globus, ARC, Unicore middlewares with a campaign to support this activity. Significant progress has been made related to combined MPI and non-MPI accounting, Cloud, Storage, and Application accounting. In terms of Pay for Use accounting, a test group of 19 grid sites and 7 cloud sites are now publishing a cost in EUR per HEPSPEC-06 hour.

The infrastructure decommission of SHA-2 has been handled. The deadline for the upgrade to SHA-2 capable software versions of the services was scheduled at the end of November 2013 as well as the infrastructure decommission of UMD 2 has been defined. The deadline for the upgrade to UMD 3 software versions of the services was scheduled at the end of May 2014. Starting from March 2014 probes against UMD 2 software will be added into Operations probes profile and will start raising alarms handled by ROD teams. Resource Centres that do not provide acceptable upgrade plans within and timelines 10 days, or show no progress risk suspension after the decommissioning deadline, end of May 2014.

The decision to increase the Resource Centre minimum availability and reliability threshold that triggers the suspension of a centre in case the threshold is violated, has been taken. Based on the history of Resource Centre availability and reliability metrics since July 2013, the decision was taken to increase thresholds from 70%/75% to 80%/85%. The implementation of the decision was scheduled for PY5.

The plan of the integration of the EGI Cloud Infrastructure with the grid production infrastructure has been prepared and approved by OMB. By the end of February, all cloud providers should be certified and run as production sites.

The EGI software provisioning activities produced to regular updates and one minor update for the UMD major releases, as well as one update release of the Certification Authorities trust anchor distribution used in the EGI federated authentication infrastructure. The quality criteria developed during the last quarter have been implemented in production and demonstrated to be flexible and easily applicable also being used by external teams of verifiers without need for training. The verification test bed and the repository technical infrastructure improved the automation and efficiency reducing the overhead for the operators. A total of 66 products have been verified.

The Federated Clouds task force expanded the number of use cases and the exploration of the technical solutions to be deployed in the cloud infrastructure. During the quarter several resource centres part of the testbed started the certification procedure to become production sites integrated in the EGI infrastructure, three of them have successfully completed the process.

The development of the operational tools has been carried on and new significant features have been achieved. The GOCDB extensibility mechanism is crucial to implement the Pay-for-Use proof of concept and can be exploited to satisfy other user requirements, the refactoring of the Operations Portal is almost completed and the new release will be deployed in pre-production in February, significant progress was made in the support of the migration of SAM central services to consortium CNRS, SRCE and GRNET and the accounting of new resource types has been enriched with new sites sending data to the repository and new views on the portal.

[9] http://www.egi.eu/news-and-media/newsfeed/news_2013_0056.html




e-infrastructure

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1. OPERATIONS

1.1. Summary

During PQ15 **the Africa and Arabia National Grid has started the creation process** to open the way to seamless collaboration between research communities in Africa, Arabia and Europe. The African, Arabic and European infrastructure will be part of the same federated infrastructure.

In order to facilitate access to distributed resources, **a centrally managed compute and storage resource EGI pool has been opened for user communities requests in December**. This resource pool for the first time radically improves the resource allocation process in EGI, by lowering barriers for researchers and streamlining procedures that rely on the role of EGI.eu as resource broker acting on behalf of NGIs and Resource Centres. EGI and six of its partners have created an open pool of computing resources for both new and existing user communities. Now they are inviting researchers to submit requests to make use of the 5,000 job slots and 170 TB of storage that are on offer.

Coordination of Resource Allocation process has been taken over by part of Grid Oversight team from CYFRONET institute in Poland.

The accounting infrastructure made progress in several areas. In PQ15, instructions on how to enable accounting data publishing for Resource Providers supporting QCG, Globus, ARC, Unicore middlewares has been prepared and campaign to support this activity has started. Significant progress has been made related to combined MPI and non-MPI accounting, Cloud, Storage, and Application accounting. In terms of Pay for Use accounting, a test group of 19 grid sites and 7 cloud sites are now publishing a cost in EUR per HEPSPEC6 hour.

The **infrastructure decommission of SHA-2** was been handled during QR15 with the deadline for the upgrade to SHA-2 capable software versions of the services scheduled at the end of November 2013. Starting from December 2013, Certification Authorities are encouraged to release by default SHA-2 signed credentials as opposed to the SHA-1 certificates currently used in production. The impact of this is that users using SHA-2 signed credentials will not be able to access middleware services that do not support SHA-2. The Operations Management Board approved the following calendar for the decommissioning or upgrade of non-SHA-2 enabled services[10]:

- All production services not supporting SHA-2, versions older than the baseline reported[11], must be upgraded or decommissioned by the 1st of December 2013.
- If the production services are not upgraded or decommissioned, site managers - starting from 1st December 2013 - must retire the affected services from the production infrastructure.
- Starting from October 16, non SHA-2 compliant production services started generating alarms on the operations dashboard, in order to easily record incidents for the affected services and track the service upgrade in the EGI helpdesk.

The infrastructure decommission of UMD 2 has been defined with the deadline for the upgrade to UMD 3 software versions of the services scheduled at the end of May 2014. Starting from March 2014, probes against UMD 2 software will be added into Operations probes profile and will start raising alarms handled by ROD teams. Resource Centres that do not provide acceptable upgrade plans within the timeline of 10 days, or show no progress, risk suspension after the decommissioning deadline at end of May 2014.

[10] https://operations-portal.egi.eu/broadcast/archive/id/1028

[11] https://wiki.egi.eu/wiki/SHA-2_support_middleware_baseline

Regarding GLUE2 correctness monitoring, during QR15 it was agreed that starting from beginning of March that all Resource Centres will be monitoring against GLUE2 validation.

The decision to increase Resource Centre availability and reliability minimum threshold for suspension has also been taken. Based on the history of Resource Centre availability and reliability metrics since July 2013, the decision was taken to increase thresholds from 70%/75% to 80%/85%. Implementation of the decision was scheduled for PY5.

Two security incidents were handled during the PQ15. The Incident Response Task Force continued to track new security vulnerabilities in operating systems and other generic software deployed in the infrastructure.

The **plan of the integration of the EGI Cloud Infrastructure** with the grid production infrastructure was prepared and approved by the OMB. By the end of February, all cloud providers should be certified and run as production sites. The integration allows the reuse of all the operations tools already in use for the High Throughput Data Analysis solution based on Grid technology.

EGI started investigation of EGI monitoring solution implementation by BioVeL community.

Documentation activities focused on the review of the Operation Level Agreements[12] framework and related SLAs with help from the FedSM project[13]. Additional documentation has been developed to document the process and related procedures for Resource Allocation through the EGI distributed Resource Pool[14].

1.2. Main achievements

1.2.1. Security

The work of the EGI CSIRT (TSA1.2), as ever, is split into several sub-groups, each of which is reported on here. The whole team continues to meet monthly by videoconference, except that the November and December meetings were combined into one two-day face-to-face meeting at the start of December. This meeting also involved participation by security experts from PRACE and EUDAT, continuing our growing collaboration with these infrastructures.

For the Incident Response Task Force (IRTF), two security incidents were handled during the quarter. EGI-20140113-01 is an open incident involving the unauthorized use of Biomed resources. EGI-20140121-01 involved hosts at a site, which were used for NTP-based dDOS attacks on third parties. These hosts were not compromised; they were just improperly configured and this is not a Grid related incident. A couple of smaller incident reports were received but these were closed early since they were not relevant to EGI operations.

The IRTF continued to track new security vulnerabilities in operating systems and other non-Grid software, and chase sites that were vulnerable to previously announced problems. One site failed to keep to the agreed timelines and was also found to be very non-communicative. This site was suspended at the start of December and had to subsequently be re-certified.

The CSIRT has been an accredited member of the TERENA Trusted Introducer scheme since October 2012. EGI is now carrying out the necessary steps to achieve full certification. An on-site visit happened in January 2014 with a detailed investigation of EGI's policies and procedures and currently awaiting the report from this visit to see what changes are required for full certification.

[12] https://wiki.egi.eu/wiki/Documentation#OLA

[13] www.fedsm.eu

[14] https://wiki.egi.eu/wiki/Resource_Allocation#Resource_allocation_high_level_process and https://documents.egi.eu/document/2030

The Security Drills team was still not able to run the planned NGI Security Service Challenges (SSC) in Germany and Italy. The final technical preparations required should now happen in February allowing the national SSC campaigns to happen soon after. A challenge of the NGI security communication infrastructure has been prepared and will take place during the next quarter.

For the monitoring team, further testing of site-wide monitoring took place at the pilot site (KIT, Germany). Work also continued on improving the combination of data from Pakiti and the Nagios probes to allow better viewing of security issues in a single place. A new security Nagios server was deployed with the latest release of SAM (update 22). New Nagios probes were developed and deployed as required to monitor new critical vulnerabilities from the Software Vulnerability Group (SVG).

The SVG continues to handle reported vulnerabilities. This quarter was somewhat quieter than recent times with 6 new vulnerabilities being addressed, including one high-risk issue. The other five issues were moderate risk or below. An 'SVG fixes' area was provided in the AppDB area of the EGI UMD[15]. A version of Torque, which did not contain any known vulnerabilities, was produced and placed in this SVG fixes area. All outstanding security assessments were completed and it has been decided that the next component to be assessed will be CVMFS (CernVM File System) if volunteer effort becomes available.

Work on the deployment of Emergency Suspension continues. About half of the NGIs have now deployed a national Argus server and testing of this infrastructure continues.

Plans have been made for a number of future training and dissemination events. Plans are well advanced for a one-day training event at the ISGC 2014 event in Taipei in March 2014[16]. A similar event is also proposed for the EGI Community Forum in May (Helsinki)[17].

Two members of the CSIRT attended a workshop of the EGI federated cloud team in Oxford in January[18]. Presentations were given on the importance of operational security and a questionnaire for Cloud providers has been produced. It is clear that considerable work needs to be done on security policies and procedures for the federated cloud service. New procedures for certification of cloud providers are required and needs to develop a new test suite to check basic traceability of actions and developments in security monitoring are likely to be required.

1.2.2. Service Deployment and Integration

During this quarter there were a total of two releases one regarding UMD-3 (3.3.0)[19] and one for UMD-2[20]. In total, 13 products and sub-components were deployed and tested. Even if only one major release was deployed, the number of staged rollout reports was in-line with the post-EMI scenario with a total number of 36 on which 17 different components were tested spread over 16 sites.

Of relevance during this quarter were the issues found during the UMD 3 release process experienced with the latest Globus update (5.2.5), conflicting with the test installation of the products from the Release Candidate (RC). The release has been delayed some weeks in order to find a solution to the problem, which was to test the components individually before the RC in order to find the problematic software packages.

[15] https://appdb.egi.eu/store/software/software.vulnerability.group
[16] http://event.twgrid.org/isgc2014/
[17] cf2014.egi.eu
[18] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1986
[19] http://repository.egi.eu/2013/12/13/release-umd-3-3-0/
[20] http://repository.egi.eu/2013/11/01/release-umd-2-7-2/

Also important to mention is the participation in the Middleware Readiness Working Group[21]. The main goal on participating in this meeting is to keep the dialog open between EGI and WLCG communities, maybe bridging the processes used in the two communities, i.e. by making available the testing versions for sites, which are both WLCG and participate in the EGI Staged Rollout. With experiments' agreement to participate in such tests, help to make the UMD production versions can be made available sooner rather than later. The meeting occurred during December and the main topics discussed were:

- Evaluate successful methods of Middleware Readiness practices by selected middleware products.
- Discuss how to better involve the experiments in this effort.
- Find ways to reward the WLCG sites willing to participate in the testing of new middleware versions.

Integration activities during quarter 15 were focused on planning of EGI Cloud Infrastructure further integration with production Infrastructure. As a result, Cloud sites started the certification procedure.

With EUDAT, a study case within the ENVRI project has progressed and a first proposal of a joint set up for EISCAT 3D was proposed and discussed. Assessment of readiness of accounting and information publishing of ARC, UNICORE, QCG and GLOBUS software was performed and "how-to" documents for NGIs deploying these middlewares was prepared.

1.2.3. Help desk & Support Activities

A new GGUS release was deployed in November 2013 and January 2014. The list of 3rd level middleware support units providing specialized software support was reviewed, quality of provided support was declared by each support unit and inactive support units were decommissioned. A new xGUS instance was set up for the MAPPER project.

1.2.3.1. Grid Oversight

- **Follow-up upgrades of unsupported software** COD is involved in the process of retirement of obsolete middleware like SHA-2 non-compliant middleware. The majority of services were already upgraded.
- **ROD performance index.** Since October 2011, all NGIs above 10 items in the COD dashboard during one month have been asked about the explanation through GGUS, what was the reason of such result and how do they plan to improve the situation. Currently, efforts are continuing to collect and investigate these metrics and also to correlate this with other metrics and see if some conclusions can be drawn from them.
- **Availability follow-up.** COD has issued GGUS tickets to sites that are below 70% availability for more than three consecutive months that are eligible for suspension.
- **Follow-up NGI Core Services availability.** GGUS tickets to NGIs that do not meet the 99% availability requirement have been issued, which started in February 2012. At first, the team has only submitted GGUS tickets to NGIs informing them of their low top-level BDII availability. This activity has been continued in this quarter.
- **"Unknown" follow-up.** Monitoring results produced by the monitoring system of EGI (SAM) run at an NGI level can be reported as unknown in case of problems with the execution of tests or the fetching of the test results. The implementation of a Nagios probe that checks the percentage of UNKNOWN test results and raises an alarm in case this percentage exceeds a given threshold

[21] https://twiki.cern.ch/twiki/bin/view/LCG/MiddlewareReadiness

was discussed. In addition, the COD team has started developing the specifications of a test that will raise alarms on the operations dashboard when the unknown percentage is higher than a certain threshold. This work is in progress.

1.2.3.2. Software Support

The task runs routinely along the established procedures, with ticket triage on input, bi-weekly chat coordination meetings of the team and individual work of the supporters on the assigned tickets.

In total, 122 tickets were received and 29 solved, while the rest were mostly forwarded to appropriate 3rd-level Support Units -- a ratio within the usual range.

1.2.3.3. Documentation

During quarter 15, documentation activities were focused on defining a revised OLA framework and related SLAs with help from the FedSM project. Another activity was the creation of manual how to enable accounting and information system publishing for integrated middlewares.

1.2.3.4. NGI User Support

NGI BG. NGI BG user support activities for new communities during the 15th quarter focused on establishing contact with new research community in area of protein folding and gene regulation (Institute of Molecular Biology from Bulgarian Academy of Sciences). VOMS Registry application was developed and deployed[22]. The application is web-based registry of VOMS certificates. It provides a useful tool for searching from available VO-s and VOMS-es and for downloading VOMS certificates.

NGI HR. The University Computing centre, SRCE, organized and held the event "e-Infrastructure Day 2013"[23], an annual gathering of users, developers and operators of e-Infrastructures, as well as representatives of academic institutions, financiers and business representatives. This year's program was dedicated to the topic "Developing science and research infrastructure". As part of the event, six projects that are on an indicative list of Ministry of science, education and sport (MSES) being prepared for EU structural funds was presented. Presenters and representative of the MSES participated in a roundtable discussion on the topic "Developing research infrastructure through the EU Structural Funds".

NGI CZ. End of 2013, NGI_CZ (CESNET) became an official member of ELIXIR (Czech Republic Node). The Node is a joint project of seven institutions/projects. In November 2013, ELIXIR CZ Consortium agreement was signed by Czech Minister of Education. In November 2013, we also organized an ELIXIR introduction event for the bioinformatics community in the Czech Republic. ELIXIR's director, Niklas Blomberg participated on the event. NGI_CZ employee (Ludek Matyska) has been elected as the vice-chairman of ELIXIR CZ Node and he is responsible for technical e-Infrastructure solutions. NGI_CZ is also an active partner in the cloud initiative coordinated by EGI.

NGI FRANCE. France Grilles organised the SUCCES 2013 days[24] and attended the JRES conference (10-13 December in Montpellier, France)[25]. This event is the main event gathering all IT people

[22] https://portal.grid.uni-sofia.bg:8443/vomscerts/

[23] http://www.cro-ngi.hr/dan/2013/

[24] http://succes2013.sciencesconf.org/

around French academic institutes: more than 1500 attendees, 70 booths, more than 150 sessions. France Grilles had the chance to give its talk[26] presenting operations, services and user communities the first day. This allowed a lot of people to come on the France Grilles booth to ask questions. The VIP and GateLAB talk ("VIP et GateLab: retour d'expérience"[27]) was the occasion to present the work of a French team on the infrastructure and with the help of the services of France Grilles.

NGI GE. NGI GE supported users in solving problems by regular meetings and to clarify and identify issues in the users support and inform them about new procedures. User training materials have been developed and regular update of Georgian Grid Initiative website[28] was performed.

NGI IBERGRID. NGI IBERGRID user support activities for new communities during the 15th quarter focused on:

- Support IBERGRID users to access IBERCLOUD resources.
- Inclusion of new site CLOUD resources in the IBERCLOUD pool (BIFI).
- Working in close collaboration with EGI Champion in Biophysics and Structural Biology.
- Preparation of a tutorial for ITQB (Technology institute for Chemistry and Biology) researchers.
- Porting of a customized version of Gromacs for the tutorial to be executed from the command line.
- Development of the Py4Grid interface to decrease the grid learning curve. The tool has been registered in AppDB[29] and in GITHUB[30].
- Development of a Flyer Available in the main portal of the "Portuguese Centre for Integrated Structural Biology (PCISBIO)"[31].

NGI IT. The NGI_IT user support activity in the last quarter focused on:

- A training workshop[32] addressed to the computational chemistry community was jointly organised by the COMPCHEM VO and the user support team. The workshop was held at the Italian NREN (GARR) in Rome and supported by the National Interuniversity Consortium of Materials Science and Technology that funded the attendance of three participants. The event attracted 22 young researchers coming from 12 different Universities and research institutions including a remote participant from the Spanish National Research Council in Madrid.
- The focus of the workshop was on the porting of specific use cases already known, at least partially, to the participants. The considered use cases were based on three different commonly used computational chemistry applications: VENUS, QUANTUM ESPRESSO and CRYSTAL. The training workshop was highly appreciated by the participants which highly rated it (3.5 points out of 4) in a highly participated (70%) final survey;

[25] https://2013.jres.org
[26] https://conf-ng.jres.org/2013/planning.html#article_66
[27] https://conf-ng.jres.org/2013/planning.html#article_23
[28] http://grid.grena.ge
[29] https://appdb.egi.eu/store/software/py4grid
[30] https://github.com/GoncaloBorges/Py4Grid
[31] http://www2.dq.fct.unl.pt/xtal/PCISBIO/Home.html
http://www2.dq.fct.unl.pt/xtal/PCISBIO/Home_files/EGI_PTNMR_ADuarte_GBorges.pdf
[32] https://agenda.italiangrid.it/conferenceProgram.py?confId=867

- The collaboration with the COMPCHEM VO in creating the CMMST VRC and elaborating the related document.
- The creation of high-level web interfaces for already ported applications in collaboration with the developers of the Italian Grid Portal[33]. Applications addressed during the quarter are: FLUKA (HEP), Quantum Espresso (COMPCHEM), CRYSTAL (COMPCHEM and material science community).
- The support to INFN that, as a result of the ELIXIR-ITA activities, is now, together with CINECA, GARR and CRS4, a technological partner for ELIXIR-ITA. Current activities are mainly centred on organizational issues.
- The interaction with the Biocomputing group of the Bologna University to the end of organizing a new production, similar to the run in the past quarters for a BLAST based application. We shall probably apply to the Resource Allocation Call with this application.
- The collaboration with the Institute for the Biomedical Technologies of the National Research Council (CNR-ITB), Milan Dept., in order to collect three use cases: 1) protein surface simulation 2) parameter sweep application for simulation of biochemical system 3) molecular dynamics. The first two were already run on EGI by the community and we are investigating how their computing model can be improved to obtain greater efficiency using a mixed HTC/Cloud approach.
- An attempt to organise an EGI-EMSO meeting.

NGI_AEGIS. In QR15, successful support to various user communities continued. In addition to day-to-day user support activities, in cooperation with the Grid users coming from Serbian chemistry community MOPAC software package were updated on AEGIS01-IPB-SCL site to its latest version. MOPAC (Molecular Orbital PACkage)[34] is a semiempirical quantum chemistry program based on Dewar and Thiel's NDDO approximation. This package was updated to MOPAC2012 version that enables users to use additional methods (PM7 and PM7-TS) compared to previous MOPAC2009 version.

As an outcome of collaboration with the emerging agricultural community number of applications were ported to the Grid and registered in the EGI AppDB:

- agDataHarvester which performs harvesting of any dataset exposed via an OAI-PMH target (http://appdb.egi.eu/store/software/agdataharvester),
- agDCtoLOM, a tool for transforming metadata into another schema using XSLT files (http://appdb.egi.eu/store/software/agdatatransformation),
- agLOMtoAK which performs conversion of a set of metadata records with XML binding that follow IEEE LOM metadata format into AKIF format (http://appdb.egi.eu/store/software/aglomtoak),
- agLOMtoRDF which performs conversion of a set of metadata records with XML binding that follow IEEE LOM metadata format into RDF/XML binding (http://appdb.egi.eu/store/software/aglomtordf),
- agRecommender which can be used to estimate recommendations using rating data as input (http://appdb.egi.eu/store/software/agrecommender),

[33] http://portal.italiangrid.it
[34] http://openmopac.net/

- agrovocTagger, a tool with the purpose to index documents with the Agrovoc Thesaurus (http://appdb.egi.eu/store/software/agrovoctagger),
- agTextMining that provides text mining services to datasets (http://appdb.egi.eu/store/software/agtextmining),
- agTriplificator that converts a LOM IEEE file into RDF triples and save them to a 4store triplestore (http://appdb.egi.eu/store/software/agtriplificator),
- JSONCLI, a command line utility that pipe in JSON data for pretty-printing, validation, filtering, and modification (http://appdb.egi.eu/store/software/jsoncli).

Regular maintenance of NGI_AEGIS Helpdesk[35] and AEGIS web site[36] was performed in this quarter. New IP address was assigned to NGI_AEGIS Helpdesk due to the migration of servers at Karlsruhe Institute of Technology (KIT) that are hosting this service to the new network and DNS hosted at IPB was updated accordingly. We continued to participate in testing of GGUS and NGI_AEGIS Helpdesk interface (after each new release of GGUS portal) and GGUS team was informed about issues in synchronization between GGUS and NGI-AEGIS Helpdesk xGUS instance.

As an extension of our user support activities NGI_AEGIS joined Distributed Competence Centre[37] with the expertise in compute services, MPI, core services and application porting and testing in the area of physics, chemistry, engineering and materials science.

NGI SK. The NGI SK provided the continued support for current and new users in the process of developing, upgrading and running their applications on the HPC cluster and EGI infrastructure. Particularly, our activities were concentrated on porting and running the newest version (6.0.1) of FDS (Fire Dynamics Simulator) application, where the main focus was imposed on running parallel MPI models. We followed constantly the latest technical developments made in EMI middleware concerning this issue. With the view of comparing the efficiency of the FDS running it was ported also on the supercomputer IBM Power 775.

1.2.4. Infrastructure Services

1.2.4.1. Messaging

There were no ActiveMQ upgrades in this quarter. As part of message brokers migration process new packages for ActiveMQ version 5.8 for RHEL 6 platform were prepared in January. New packages will be used for deployment of new message broker instances.

1.2.4.2. GOCDB

GOCDB version 5.1 was released on November 26th 2013. The major features are: new service endpoints filters, highlighted downtimes, and PI changes.

1.2.4.3. Operations Portal

Operations portal development of the new A/R calculation continued and the focus was shifted to features requested by the new mini-project "A new approach to Computing Availability and Reliability Reports".

[35] https://helpdesk.aegis.rs/
[36] http://www.aegis.rs/
[37] https://wiki.egi.eu/wiki/Distributed_Competence_Centre

1.2.4.4. SAM

Upgrade of SAM NGI instances to the version Update-22 continued. It was agreed at the OMB in December[38] that the final deadline for upgrade of all NGIs is April 1st 2014. As part of the SAM central service migration process test, the SAM GridMon instance was deployed at CNRS at the end of January and a new alias for the central SAM was added: mon.egi.eu.

The bidding process for hosting EGI core activities was finalized and the proposal from GRNET, CNRS and SRCE consortium for running central SAM, Nagios monitoring instances and message broker network was accepted. In order to achieve smooth transition, it was agreed to start the deployment of new services and migration at the beginning of 2014. Several meetings were organized between the SAM team and the consortium. In addition, the consortium organizes regular weekly meetings starting from January 2014.

1.2.4.5. Accounting

For CPU Accounting, a new release of Apel and SSM software with bug fixes was introduced. The team started to work on backend changes to enable combined MPI and non-MPI accounting. The Accounting portal based on static data is working on visualisation. New sites have been added to receive Cloud Accounting data and Storage Accounting data. Application accounting code has been added to repository. It is planned to migrate test services, which use the test message broker network to the production network. In terms of Pay for Use accounting, a test group of sites are now publishing a cost in EUR per HEPSPEC6 hour.

Availability reporting. Within quarter 15, availability reporting was performed as usual on a monthly basis. Publication of results and re-computation requests regarding A/R results were handled by the SLM unit via GGUS.

1.2.4.6. Catch all operations services.

A few bugs regarding the notifications mechanism on EMI-3 VOMS have been identified. The VOMS development team was notified, bugs have been accepted and rollout of bug fixes has been taking place. A replication issue that affected availability of VOMS service was found around mid-December and it has been resolved. The EGI catch-all CA has switched over. A new CA bundle was accepted via the EUGridPMA and included in the 1.55 release. New CA issues SHA-2 end entity certificates and SHA-2 compliant CRLs from January 1st 2014 and henceforth. Old CAs will continue operations (only CRL issuance). New RAs have been established within QR15 (Nigeria and Tanzania). Code base of site-certification.egi.eu has been refactored. Deployment of the new software release on the production service has taken place within QR15. During quarter 15, maintenance operations on the midmon dedicated SAM instance (used for monitoring of running middleware versions on sites) have been applied. Also, several new probes have been added that enable and assist the campaign for unsupported middleware service instances. A new security nagios box based on SAM-Update-22 has also been deployed. All checks and probes from the old instance have been moved to the new one and after testing the consistency of the results the new one has replaced the old one.

[38] https://indico.egi.eu/indico/conferenceDisplay.py?confId=1857

1.2.5. Tool Maintenance and Development

1.2.5.1. GOCDB

In QR15, the GOCDB product team worked to enhance the v5 release. The first set of improvements has already been deployed in production with the v5.1 release. Additional new features will be included in v5.2 that will be deployed in production in February 2014.

Below the list of the main activities completed in QR15:

- GOCDBv5.1 was released on November 26th 2013 including:
  - New Service Endpoint filters (RT4465).
  - Add link to GOCDB roc object in XML results of 'get_roc_contacts' (RT1423).
  - Highlight ongoing downtimes (RT1092) with a new 'Active and Imminent' downtimes view.
  - Output of get_downtime method (RT1017) with newly added 'get_downtime_nested' method.
- The development of GOCDBv5.2 is almost completed. This new release will include:
  - Extensibility mechanism. It was already developed and deployed to the GOCDB test instance[39] for acceptance testing. The Programmatic Interface (PI) support is provided with the new 'extensions' PI parameter. This development caters for the requirement to add charging attributes on GOCDB entities.
  - Email notification for GOCDB role approvals (RT6223).
- Refactoring of the PI logic/abstractions to support different future renderings.
- Prototyping addition of multiple endpoints per service.
- Operational support and bug fixing.
- Assistance was given to EUDAT who are in the process of updating their GOCDB instance to v5.

1.2.5.2. Operations Portal

The Operations Portal team continued to work on the ***refactoring of the portal*** that has been initiated for several months. The aim of this activity is improving the look and feel and the ergonomics of the portal.

The benefits of the refactoring will be:

- New portal look and feel with a homogenization of the display.
- Improvements on efficiency, on reactivity and visibility.
- The replacement of the heterogeneous JavaScript libraries by the use of a standard one: jQuery.
- Readiness for mobile phones and tablets.
- The use of last Web technologies to improve the efficiency and the usability.
- Upgrade of php version.

Different improvements have been added to access more easily to the information:

[39] https://gocdb-test.esc.rl.ac.uk/v5/

- Filters on the long table.
- Possibility to export information (json, csv).
- Auto completion on large list.

During the last quarter the product team has achieved:

- Refactoring of the ROD Dashboard.
- Decommission of CIC_HELPDESK and integration of Operations Portal with standard GGUS Helpdesk.
- Migration to Lavoisier 2.0.

The Operations Portal v3.0 will include the refactoring work. It will be deployed in pre-production in February and in production in March.

Another activity performed in QR15 is the creation of a new page summarizing the list of VO security contacts and the possibility to export it. Moreover, a new branch has been added into the broadcast to contact these different contacts in one click. These new features have been developed to satisfy two requirements of the EGI CSIRT: RT6107 and RT6108.

1.2.5.3. Service Availability Monitor (SAM)

The development of SAM focused on the maintenance and bug fixing of the existing components. Work started on SAM v.22.1 with the primary aim of fixing various issues identified during the deployment of SAM v.22 and during the extended validation phase.

Significant progress was made in the support of the migration of SAM central services to consortium CNRS, SRCE and GRNET. This involved developing a detailed time plan that was agreed between members of the consortium and presented at EGI OMB and WLCG operations meeting[40]. The technical documentation necessary for the migration of SAM central services has been finalized and technical support in specific technical tasks necessary to setup the SAM testing instance at IN2P3[41] provided. Bi-weekly SAM migration meetings were held to follow up on the transition process and make sure it is implemented in time and within its scope.

An essential part of the migration was decommissioning of the services and we have finalized this for the SAM nightly validation framework as well as for OSG ITB validation service. This has been important step in order to free EGI validation broker that will be decommissioned next.

We have also investigated and identified what needs to be done in order to develop a failsafe feature on the msg-to-handler component that will allow the probe to switch to using another broker instance in case the first attempted delivery has failed.

1.2.5.4. EGI Helpdesk (GGUS)

During PQ15, two major releases have been delivered and the release notes are available at https://ggus.eu/pages/owl.php.

Below is the description of the main activities performed:

- GGUS structure: Decommissioned support units: EMI, added new support units: EDUPERT
- GGUS web portal: new "Did you knows?" about the following topics: "Support unit history" and “EDUPERT”, fixed bug on calendar week calculation in ReportGenerator, allow selecting ticket category on submit form.

[40] https://tomtools.cern.ch/confluence/download/attachments/33718376/SAMmigrationtimeplan.pdf

[41] https://tomtools.cern.ch/confluence/display/SAMDOC/SAM-Gridmon+Administrator+Guide

- GGUS system: renew host certificate of NGI_IT ticketing system, renew host certificate of NGI_IBERGRID ticketing system, completed fail safe architecture.
- Interfaces with other ticketing systems: add interface GGUS-CERN for SU "Grid Monitoring", minor changes on GGUS-CERN interface concerning SU "ROC_CERN", set up an xGUS instance for the MAPPER project.

1.2.5.5. Accounting Repository

CPU Accounting: new release of Apel and SSM software with bug fixes

MPI Accounting:

- Began planning for backend changes to enable combined MPI and non-MPI accounting.
- Portal has static data, working on visualisation. A sample is available.

Cloud Accounting:

- New sites added.
- Schema conformance assessment proceeding.

Storage Accounting:

- New sites added.

Application Accounting:

- Application Accounting Code in repository.

Test Message Brokers:

- Planning has begun to migrate test services that use the test message broker network to the production network.

Pay for Use Accounting:

- A group of 19 grid sites and 7 cloud sites are now publishing pricing information in Euro per HEPSPEC06 hour exploiting the new GOCDB extensibility mechanism.
- The portal has created a view of this data.

1.2.5.6. Accounting Portal

Below the list of the main activities performed:

- Security work.
- Regionalization on testing in NGI_GR.
- Monetary cost computation for all views, backend implementation.
- Further Core refactoring.
- OOP migration.
- MPI Storage and backend implementation finalized.
- Storage accounting first implementation.
- Country and NGI support for storage accounting.
- Revised codebase for new accounting.
- Work on summary view.

1.3. Issues and Mitigation

1.3.1. ActiveMQ broker and SAM migration to new partners

The bidding process for hosting EGI core activities after the end of EGI InSPIRE has started[42]. As a result of not participating in biding by CERN, services hosted at CERN (ActiveMQ broker and SAM) will require migration to new partners.

Mitigation: In order to achieve smooth transition, new instances have to be production ready before May 2014. Several meetings were held between new partners and CERN team.

1.4. Plans for the next period

1.4.1. Operations

1.4.1.1. Security

During the next quarter (Q16), the EGI CSIRT team will continue to work on all of its current activities in the same sub-groups. A face-to-face meeting of the whole team may be held in April if we can find a suitable date and location, if not, it will have to happen after the end of EGI-InSPIRE. This meeting will review all plans for security after EGI-InSPIRE, including the changes needed to cope with security in the EGI federated cloud service.

Apart from the usual ongoing regular operational duties, the following items are mentioned:

- For IRTF, planning will continue for incident handling beyond the end of EGI-InSPIRE. Joint discussions on this topic with PRACE and EUDAT will continue. The full certification of the CSIRT in TERENA Trusted Introducer will continue once the report of the site visit is available.
- For the Security Drills team, the German and Italian NGI SSC will be performed. Plans will be made for the next set of NGI SSC's. The challenge of the NGI security communication infrastructure will take place.
- A full-blown proposal for the deployment of the site-wide monitoring system in EGI will be provided. Monitoring and probes will be developed as required by security incident and vulnerability handling.
- SVG will prepare a report on the vulnerability assessments that have happened recently. If volunteer effort is available a security assessment of the CVMFS component will take place. More engagement with the EGI Federated cloud team is required, including participation in the RAT.
- Work will continue on the deployment and testing of the Emergency Suspension mechanisms, using the deployed NGI Argus instances.
- Various security training courses will be given. These will include ISGC 2014 in Taipei (March 2014) and the EGI Community Forum in May.
- Work will continue on the changes required for security policy and procedures in federated clouds, if effort and funding for this activity can be found. A security threat risk assessment for federated clouds will happen as part of the general review of the EGI security risk assessment.

1.4.1.2. Service Deployment and Integration

So far, UMD processes resolved the dependencies in the EMI, IGE or QCG yum repositories to create the most complete product entries for the UMD framework. Even if some product teams moved

[42] https://wiki.egi.eu/wiki/Core_EGI_Activities

permanently to EPEL, other product teams are still releasing to EMI, but not as a main repository. In many cases for UMD, it is impossible to resolve the dependencies getting a reasonable set of libraries (e.g. without downloading the EPEL dependencies not under the PT responsibility).

So the UMD team has started at the end of last year to list directly the list of relevant RPMs that compose a product entry in the UMD release process. The rpm files are then downloaded with a direct wget into the UMD repositories. Even if the result looks good, there is still need to check the integrity of the dependencies in UMD until the products are tested for installation, as it is important that product teams provide correct list of rpms once they want to submit their products to UMD. Even if following the process, it is still not automatic, which leads to a high time consumption to create the release xml file. Therefore, during this quarter we proposed to improve the workflow in order to improve the process.

Along this quarter, we participated in the decommission campaign for UMD-2 services. All UMD-2 components must be decommissioned or upgraded by the end of May 2014.

During next quarter, integration activities will be focused on ongoing EGI Cloud, XSEDE and EUDAT integration. It is also planned to integrate Desktop Grid resources as infrastructure represented as a separate Operation Centre and investigate possible integration between Helix Nebula and EGI.

1.4.1.3. Operational tools

Deployment of the Operations Portal version 3.0 with the new A/R calculations is scheduled for March 2014.

1.4.1.4. Accounting

For quarter 16, it is planned to release improvements to the SLURM parser and work with the portal team to send regular updates of MPI accounting data. In terms of Cloud Accounting, it is panned to work with developers to complete work to comply with cloud accounting schema and with sites to upgrade their software and configuration to conform to the cloud accounting schema, install and configure the necessary software and services to enable sites to publish production accounting records. Storage Accounting will require work on confirmation to the storage accounting schema and sending storage accounting summaries to the portal. For the application accounting team, they will create a working prototype from the test code to show to potential collaborators. Moreover, assistance to sites moving from the test message broker network, which ends in April 2014, will be given. EMI2 to EMI3 migration will require planning of extensive work to re-route the data flow of the existing repository backend. This will enable the sending of combined MPI and non-MPI accounting data to the portal. Further work will be to set up database replication to improve the reliability and availability of the service.

1.4.1.5. SAM

Deployment of the production central SAM at CNRS will be performed at the beginning of February. This milestone is important in order to provide a history of results for at least 3 months once the existing instance is switched off. A new ops-monitor instance will be deployed at SRCE by the end of March 2014. At the beginning of May 2014, SAM GridMon and ops-monitor at CERN will be decommissioned. All NGI SAM instances need to upgrade to SAM Update-22 by the April 1st 2014. Monitoring instance midmon will be extended in February with the new set of tests monitoring for tracking UMD-2 service endpoints.

1.4.1.6. GOCDB

GOCDB version 5.2 with the extensibility mechanism and email notifications for GOCDB role approvals will be deployed in February 2014.

1.4.1.7. Messaging

Deployment of two new message brokers and expansion of the broker network will be done in February 2014. The old four brokers and the test broker network will be decommissioned by the end of April 2014.

1.4.1.8. Helpdesk

- Integration of Operations Portal in GGUS. This action is postponed as requested by Operations Portal admins.
- Fully integrate the CMS VO in GGUS and retire the interface to Savannah.
- Migrate GGUS shopping list from Savannah to JIRA.
- Implement alarm process through GGUS in case of failures of operational tools.
- Migrate GGUS to the xGUS framework.
- Shibboleth authentication.
- Implement a bulk submit feature.
- Implement interface to XSEDE RT system
- Implement interface to PRACE RT system.

1.4.1.9. Grid Oversight

Grid Oversight task will continue the activities that already performed. The evolution of the technical activities conducted by the Grid Oversight team was already discussed and proposed in PY3[43]. Some changes were implemented in this quarter, including the stop of the monthly follow up of NGIs failing minimum availability thresholds. This activity will continue but focusing more on NGIs with repeated performance problems with the objective of providing technical support to these NGIs.

1.4.2. Tool Maintenance and Development

1.4.2.1. GOCDB

- Release GOCDBv5.2: to include the extensibility mechanism and e-mail notification for GOCDB role approvals (~start/mid February).
- Continue to develop the multiple endpoints per service. Release GOCDBv5.3 onto gocdb-test instance for acceptance testing.
- Operational support and bug fixing.

1.4.2.2. Operations Portal

Release 3.0:

As described previously, the product team has focused its developments on the refactoring of the application and the web service. All these improvements will be delivered with the release 3.0 that will be deployed into two phases:

[43] https://documents.egi.eu/public/ShowDocument?docid=1529

- Pre-production deployment in February: check with the different users that everything is working well.
- Production in March: fix the critical bugs for the production phase and then go into production.

Then, the team will collect feedback from people from March to May and will implement some improvements and bug fixes according to this feedback.

New classification of the VO disciplines: a new classification of the VO disciplines has been recommended by the VT Scientific Discipline Classification[44]. Basically, the new classification will comply to best practices in scientific discipline classification, and will include a two-level hierarchy of disciplines and the VO will be able to be present in multiple disciplines. The inclusion of this new classification on the Operational Portal will be completed by April/May 2014.

1.4.2.3. Service Availability Monitor (SAM)

The main objective for the next quarter is to finalize SAM migration by performing all the necessary technical steps as specified in the time plan. This involves support for establishing and operating SAM central instance at IN2P3, support for changes in the production messaging environment, decommissioning of the services at CERN as well as other operational tasks as described in the time plan. Finally, we plan to finalize the work on the remaining requirements in the SAM roadmap including RT2791: support for monitoring of the local services and implementation of the SAM probes failover capabilities.

1.4.2.4. EGI Helpdesk (GGUS)

- Integration of the Operations Portal in GGUS.
- Fully integrate the CMS VO in GGUS and retire the interface to Savannah.
- Migration of GGUS shopping list from Savannah to JIRA.
- Implement alarm process through GGUS in case of failures of operational tools.
- Implement a bulk submit feature.
- Migrate GGUS to the xGUS framework.
- Shibboleth authentication.
- Implement interface to XSEDE RT system.
- Implement interface to PRACE RT system.

1.4.2.5. Accounting repository (APEL)

CPU Accounting:

- Release more improvements to the SLURM parser.

MPI Accounting:

- Work with portal team to send regular updates of MPI accounting data.

Cloud Accounting:

[44] https://wiki.egi.eu/wiki/VT_Scientific_Discipline_Classification_Classification

- Work with developers to complete work to comply with cloud accounting schema.
- Work with sites to upgrade their software and configuration to conform to the cloud accounting schema.
- Install and configure the necessary software and services to enable sites to publish production accounting records.

Storage Accounting:

- Confirm the storage accounting schema.
- Send storage accounting summaries to the portal.

Application Accounting:

- Create a working prototype from the test code to show to potential collaborators.

Test Message Brokers:

- Assist sites moving from the test message broker network, which ends in April. This affects:
  - CPU Accounting in test.
  - Cloud Accounting in test.
  - Storage Accounting.

EMI2 to EMI3 migration:

Begin planning of extensive work to re-route the data flow of the existing repository backend. This will enable the sending of combined MPI and non-MPI accounting data to the portal. Further work will be to set up database replication to improve the reliability and availability of the service.

1.4.2.6. Accounting portal

- MPI accounting view - first revision.
- Storage accounting view – improvements.
- New XML endpoint format.
- Talks with NGI_ZA to gauge interest in regionalization.

1.4.2.7. Metrics portal

- Authentication improvements.
- Cross-browser integration.
- New metrics implementation.
- Promote better infosys publication.

1.5. NGI Reports

NGI PQ15 operations reports are available from https://documents.egi.eu/document/2112

2. SOFTWARE PROVISIONING

2.1. Summary

During PQ15, SA2 continued to support the Unified Middleware Distribution (UMD) major releases with regular updates, to release bug fixes and new features provided by the Product Teams for the products deployed in the EGI infrastructure.

The release procedures of the product teams in the EGI technology ecosystem are very diverse, including target repositories such as the EMI ones, the operating system community ones and the product teams own repositories. UMD framework was adapted to be as flexible as possible, including the case when a product update is spread across different repositories.

During the quarter, SA2 collaborated with the security vulnerability group (SA1.2) to provide a repository to release security patches for the Torque batch system, not released in the Fedora community repository EPEL.

The new simplified quality criteria (QCv6) have been successfully implemented in production used by the SA2 verifiers. For the first time, the verification process has been integrated in the release procedure of the ARC product team, delegating the verification activity to the product team, who provided positive feedback about the new UMD quality criteria.

The automation of management of the virtual machines in the testbed has been further improved implementing a more efficient contextualisation mechanism. The templates for the configuration of many of the most important middleware components are now available in an open repository, to be used by the verifiers.

During the quarter, a total of 66 products have been verified, without rejections.

Two minor updates for the UMD-3 major release and one revision update for UMD-2 have been released during PQ15. The size of the minor updates has increased, reducing the number of releases.

The UMD Release Team meetings continued regularly, twice per month, with participation of representatives covering most of the UMD products.

2.2. Main Achievements

2.2.1. Quality Criteria

During the last quarter, the main activity of the SA2.2 team has guided SA2.3 for using the QCv6 and has provided support for the external verification of ARC. SA2.2 has also started the production of the Quality Criteria document version 7. This version will not include new criteria, instead it will focus in the automation of the verification process as much as possible by creating virtual machines on the verification testbed and contextualizing them to install and configure the software to be verified. Some of the tests included in the criteria are also being developed using Behaviour-Driven development (BDD) tools.

2.2.2. Criteria Verification

In the last quarter, SA2.3 has included the new QCv6 released by SA2.2 into verification process. The new products are now tested following the new Quality Criteria to simplify the verification process. It also included a new set of configuration files for the most widely deployed Technology Provider products (e.g. CREAM, DPM and WMS). These configuration templates are now available from

github[45] and can be used by SA2 verifiers to configure TP products in an automated way. These templates are also available from the VM instantiated within the SA2 testbed. The Release Candidate tester[46] was also updated to check the new QCG products (included now into UMD).

During the last quarter, a total of 66 products were verified (without any product rejection).

2.2.3. Support Infrastructure

During QR15, SA2.4 continued to support SA2 software provisioning activities as usual, releasing one update for UMD-2 and two updates for UMD-3. The released updates are detailed in Table 1.

Release	Date	Type	Content
UMD 2.7.2	02 November 2013	Revision update	This update contains an update for BDII-Site adding a missing package.
UMD 3.3.0	12 December 2013	Minor update	This release provides updates for the following packages: • Arc-ce • Blah • Bdii-core • Bdii-top • CanL • cream-torque • Cream-CE • ProxyRenewal • Dpm • Gridway • unicore-hila • unicore-uvos
UMD 3.4.0	29 January 2014	Minor update	This releases includes updates for the following products: • Arc-CE • BDII-Top • Cream-Slurm • Cream-Torque • GridSite • QCG-computing • QCG-notification • WMS

Table 1: UMD updated during PQ15

[45] https://github.com/egi-qc/configuration-templates

[46] https://github.com/alvarosimon/RC_tester

In addition to UMD updates, SA2 processed also one release of the EGI Core Trust Anchor Distribution to support the X.509 authentication infrastructure used in EGI.eu.

During PQ15, SA2.4 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 SA2.3 in a pilot service that will offer virtual machines with preinstalled middleware services. Finally, a repository was provided so that the Software Vulnerability Group is able to release security fixes rapidly.

2.2.3.1. 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.

2.2.3.2. Repository Backend Activities:

- Regular maintenance and operation.

2.2.3.3. Repository Statistics

- Regular maintenance and operation.

2.2.3.4. IT support and RT Activities

- Maintenance of the EGI web site.
- Monthly updates of inspire-members list from PPT.
- Ongoing backoffice administration, maintenance and user support.

2.2.4. Federated cloud

During PQ15, the EGI Federated Cloud activity has pushed further towards offering Cloud resources in production in 2014. In fact, the release for production use has been determined for May 2014 with an announcement during a keynote speech at the EGI Community Forum 2014 in Helsinki. This included continuous integration and improvement of the services with the EGI Core Infrastructure Platform. However, an increased focus was put on planning and coordinating the transitioning of the EGI Federated Cloud Platform from the test versions to using the production deployments of the Core Infrastructure Platform.

A further focus of the work was put on integration into production infrastructure service management, i.e. reviewing and updating already approved operational processes and procedures, such as formal certification of sites for production infrastructure integration.

The group has continued meeting on a regular weekly basis via the EGI phone conference facilities, and continuously working on integrating new suppliers into the infrastructure. The integration activity is monitored in the group wiki pages[47], which are used also as a communication channel to disseminate the progresses of the task force. This has included a push to get all current resource providers officially certified, an effort from which we have 3 certified sites, two in progress and three scheduled (depending on service upgrades etc.). New connections and collaborations are developed to further complement the EGI Federated Clouds portfolio. These developments are ongoing, but first contact has been made with CompatibleOne, OpenNaaS and the VAPOR mini project to evaluate the inclusion of their products into the EGI Cloud Infrastructure Platform in the future.

[47] https://wiki.egi.eu/wiki/Fedcloud-tf:ResourceProviders

2.3. Issues and Mitigation

No issues reported by the SA2 Activity Manager.

2.4. Plans for the next period

In the coming months, the SA2 team will circulate a customer satisfaction survey among the resource centres part of the EGI federation, to assess the penetration of UMD usage among resource centres and to get feedback to improve the service provided.

The communication with the developers in the URT meeting will continue in the current form, which has proven to be lightweight but effective.

During the next project quarter, the UMD-2 major release will end the support cycle, leaving only one UMD series (UMD-3) in production. This will allow SA2 to focus only on one major release, reducing the number of releases, and therefore reducing the overhead required to update two major releases.

SA2.2 will finish Quality Criteria version 7 with mostly automatic verification of products to reduce the load of the SA2.3 and external verification teams. Documentation on the criteria and the different repositories with tests will be updated to reflect these changes. No changes in the templates are foreseen so transition should be smooth for verifiers.

SA2.3 will implement the new Quality Criteria version 7 in the next months to automate the verification process and to reduce the verification time as much as possible. The SA2.3 team will include more configuration templates for the new Technology Provider products to be used by the verifiers in the next quarter.

Regarding the support infrastructure, no major changes are expected. The current architecture is generic and capable to import packages from multiple sources. SA2.4 will focus on further improving the framework, optimizing the automation. Currently, the packages are not signed by UMD; therefore, site managers rely on the signatures of EPEL or EMI repositories. This feature will be implemented during the next quarter to brand even stronger the UMD releases and simplify the sites' operations.

The Federated Cloud task force will continue to support the evolution of the Cloud technologies in EGI, and the implementation of new communities use cases as in the past quarters. The main milestone for the coming three months is to roll into production the federated clouds to provide cloud services to the EGI users, integrated with the other services provided by the EGI infrastructure.



3. COMMUNITY ENGAGEMENT

3.1. Summary

The community engagement work package is structured according to three main pillars: strategy and policy, technical outreach to new communities and communications & marketing.

The first pillar, strategy and policy, addressed some of the key recommendations from the EGI-InSPIRE third year review by hiring a business development expert, by consolidating the structure and documenting the EGI solutions and by developing a work plan for the project extension to address the evaluation of business models for providing EGI services following a pay-for-use revenue mechanism. The activity also further developed the EGI solutions by analysing aspects such as the target customers and their challenges, the details of the solution including how this is built and how this can be accessed, ending with KPIs and success stories. A new MoU was signed with the APARSEN project to bring in competences within the EGI community in the area of data curation and preservation. This MoU is strategic to expand the EGI service portfolio in the area of services needed to manage the full life cycle of data in the medium term.

The second pillar, technical outreach to new communities, worked on documenting and refining the EGI Engagement strategy. This helps EGI reach scientific communities and support them in tackling scientific challenges using the reliable and innovative ICT services that are federated into EGI. Successful engagement results in long-term partnership between scientific communities and the National Grid Infrastructures (NGIs), ultimately helping them and EGI become sustainable. The first draft of a new document, titled EGI Engagement Strategy[48], has been prepared and published during QR15 by NA2. The Engagement Strategy describes the goals and targets of EGI engagement activities, details the various tasks that Engagement covers and provides information about the human networks and online resources and tools that help implement engagement activities. Short-term targets and metrics that facilitate strategy execution are also covered in this document. The Engagement Strategy facilitates the integration of the NA2 tasks and the human network activities conducted by the NILs, Champions, UCB, DCC and council members. The first edition of the EGI Engagement Strategy will be available in February 2014. A new edition will be published every three months following the guidance of a new 'EGI Engagement Advisory Board'. The board includes representatives of the existing and prospective EGI user communities and user-facing activities, and will be formally established in February 2014. The Technical Outreach to New Communities activity had good progress with the active Virtual Team projects, and with scoping new projects that can start in PQ16. The Virtual Teams that run in collaboration with the ELIXIR and CTA Research Infrastructures have been formally closed. Both VTs have follow-up technical integration activities.

The third pillar, marketing & communication, supported the outreach to e-Science related contexts by ensuring an EGI presence at two large events: ICT2013[49] and SC'13[50]. The communication team also contributed by to hiring two new members with skills in the area of graphics design and communications. The team published 14 News Items, 2 Case Studies and one issue of the *Inspired* newsletter.

[48] http://go.egi.eu/engagementstrategy
[49] ec.europa.eu/digital-agenda/en/ict-2013-conference
[50] sc13.supercomputing.org/

3.2. Main Achievements

3.2.1. Marketing & Communication

For the Communications Team, QR15 focussed on two major events (ICT2013 and SC'13) and planning for 2014, with regards the end of PY4 and the extension into PY5. ICT2013 was a large European Commission meeting attended by almost 5,000 people from across Europe and further afield. EGI had a visible presence through attendees, a booth and networking sessions. The EGI booth was held jointly with the pro-iBiosphere, CHAIN-REDS and ei4Africa projects. The booth was busy throughout the week an included visits from Kosta Glinos and Anni Hellman from the EC's e-Infrastructure unit. EGI was directly involved and referenced in many of the event's networking sessions including ones on big data and cloud computing. SC'13 was part of the Supercomputing series of meetings with over 10,000 attendees over 3 days of the exhibition. The EGI booth was well attended and staffed by the Communications Team and a representative from the Federated Cloud task force.

During this quarter, the responsibility for the NILs was passed to the User Community Support Team with the Communications Team retaining responsibility for the Research Champions. The team took the opportunity of the Horizon 2020 workshop hosted by EGI.eu to have discussion with the Research Champions about their activities during 2014.

The Communications Team met the "Een van de Jongens" team[51] (film production company that produced "Stories from the Grid") and discussed the next steps for the next EGI video.

Following the job interviews held in QR14, the Communications Team hired an Outreach Officer and Graphic designer. They have integrated well and are performing various tasks across the Communication Team's activities.

The Communications Team published 14 News Items, 2 Case Studies and one issue of the *Inspired* newsletter in QR15. Through various partnerships and activities, EGI had 6 media mentions in various outlets including and editorial in Pan European networks' Science and Technology magazine. During QR15, the Communications Team was not responsible for any deliverables. However, they did contribute to the proposed PY5 DoW and the EGI Engagement Strategy[52].

3.2.2. Strategic Planning & Policy Support

Over the last quarter, the EGI.eu Strategy and Policy Team (SPT) contributed to a number of key areas related with the EGI strategic goals. In the area of partnerships, the SPT supported the development of an MoU with APARSEN to bring in competences within the EGI community in the area of data curation and preservation. This MoU is strategic to expand the EGI service portfolio in the area of services needed to manage the full life cycle of data in the medium term. EGI.eu also signed an MoU to be part of the Helix Nebula Marketplace (HNX)[53]. Through this MoU, EGI resource providers for cloud services will have the opportunity to join this marketplace to enable a hybrid cloud model where user communities can integrate resources from commercial providers and publicly-funded infrastructures.

The SPT supported the revision of the DoW concerning the EGI-InSPIRE project looking forward to the extension by providing the definition of a new Work Package that focuses on strengthening the business development around the EGI solutions and the proof of concept for the pay-for-use of EGI

[51] https://eenvandejongens.nl/

[52] http://documents.egi.eu/document/2079

[53] http://hnx.helix-nebula.eu/

services. In order to maximise the outcome and impact of this activity, the SPT created a task force[54] that started already working on the topic. A member of the SPT is chairing the group with another two actively participating. Objectives, milestones, timelines, a draft workplan and topic responsibilities have been agreed with a number of actions already underway including developments within the GOCDB and Accounting Portal for hosting pricing information, Resource Providers providing information, creation of 'User Stories' for identifying business cases and defining service management requirements.

The Strategy and Policy Manager contributed to hiring a "Business Development Expert" by preparing the job description, reviewing and short-listing the received applications, attending the panel interview and provide recommendation for appointing the new SPT member. This action was implemented to meet a recommendation from a reviewer.

In the area of EGI solutions, the SPT defined a structure for a white paper to describing each individual solution. The white paper is aimed at collecting a clear description of each solution into a coherent document, covering aspects such as the target customers and their challenges, the details of the solution including how this is built and how this can be accessed, ending with KPIs and success stories.

In the area of events, SPT contributed to the organisation of the "EGI towards H2020" workshop by supporting the development of the agenda, chairing the session on "Business Models and Clouds", delivering a presentation and also by supporting the note taking. The SPT manager also attended ICT2014, coordinated the networking session "Digital Research Infrastructure – Integrating e-Infrastructures to meet the needs of the ERA" and provided a presentation in another networking session related to OpenAIRE to report on the collaboration with EGI.

In preparation for the EGI Community Forum 2014, the SPT manager joined the program committee and contributed to the development of the track "open innovation, policies and business models". The SPT also drafted and submitted the following workshops: "Helix-Nebula workshop", "Open access to EGI outputs" and "Business development and pay per use". The SPT also reviewed the change management procedure for the scientific discipline classification[55].

Concerning the communication part, SPT published a blog post "How are you managing your services?"[56] and the article for the Inspired newsletter "What to expect from Horizon 2020 ICT work programmes?".

Regarding policy development, FOM have carried on activities through the EUGridPMA and IGTF in preparing for authentication and authorization (AA) coherency and wider reach of the AA infrastructure, a set of policies related to differentiated identity assurance levels, trusted credential stores, and scalable management of user credential data is being developed. In this quarter, the Identifier-Only Trust Assurance (IOTA) profile policy went through a global consultation round involving more deeply the peer infrastructures in the Americas. This has resulted in a near-final version of the IOTA policy profile. It is expected that, following endorsement by authorities in the Asia Pacific region, this can be adopted globally. It lays the policy groundwork for future AAI development in Europe and closer collaboration with a wider range of existing and emerging AAI federations in Europe. This is linked with the developing strategy for the IGTF in providing trust bridge guidelines that include authorization and credential management. This quarter also saw the completion of the policy campaign towards modern cryptographic techniques (SHA-2) that were deployed following the EGI deployment time line.

[54] https://wiki.egi.eu/wiki/EGI_Pay-for-Use_PoC_Workplan

[55] https://wiki.egi.eu/wiki/VT_Scientific_Discipline_Classification_Change_Management

[56] http://www.egi.eu/blog/2013/12/16/how_are_you_managing_your_services.html

STFC has continued to chair and lead the Security Policy Group (SPG). Work has started on another revision to the EGI Acceptable Use Policy to make it applicable to the use of EGI federated cloud services and this will hopefully be completed and approved during PQ16. Engagement with the EGI Federated Clouds activity has now started with two members of the EGI security team attending a meeting of the working group in Oxford UK (January 2014). Presentations were given on the importance of operational security and a draft security questionnaire for Cloud providers has been produced.

It is clear that considerable work still needs to be done on security policies and procedures for the federated cloud service. New procedures for certification of cloud providers are required and we need to develop a new security test suite to check basic traceability of actions and further developments in security monitoring are likely to be required.

The SPG Chair continued to lead and members of SPG participated in the "Security for Collaborating Infrastructures" (SCI) activity building a standard trust framework for security policy between EGI, EUDAT, PRACE, XSEDE and others. A meeting of the SCI group was hosted by the SPG chair in January 2014 in Abingdon, UK. Version 1 of the SCI document has now been published in the ISGC2013 conference proceedings. The SCI group is close to producing version 2 of their document. It has been agreed that we will investigate publishing this in OGF as an informational document.

Policy activities related to federated Identity Management were also prevalent during PQ15. This work included attendance at the IGTF All Hands meeting in La Plata, Argentina (November 2013) and hosting the EUGridPMA meeting in Abingdon, UK (January 2014). At both of these meetings we made good progress on the new Identifier Only Trust Assurance (IOTA) profile and the related issues of levels of assurance and the definition of best practice for the operation of Attribute Authorities, noting that the aggregation of attributes from multiple sources of authority will become ever more important as we move towards single-sign on for researchers. The SPG chair was also involved in EGI.eu planning for the collaboration with TERENA/GEANT and others on topics related to AAI and federated Identity Management for the coming years. All of this work is aimed at linking together the AAI required by EGI and distributed computing for Research in general with the existing national education federations and eduGAIN. The policy issues are often much more complex than the technical ones.

3.2.3. Technical Outreach to New Communities

Activities and achievements were performed and achieved by the TONC group of the EGI.eu User Community Support Team in PQ15 through progress with existing and new Engagement projects[57].

3.2.3.1. Virtual Team – Collaboration between EGI/NGIs and large ESFRI project ELIXIR

The Virtual Team project was closed with two outputs: 1.) A social network that has been established in and among the NGIs and ELIXIR nodes. 2.) An agreement between the EGI and ELIXIR management representatives to strengthen collaborations by intensifying knowledge exchange between the NGIs and the ELIXIR nodes. A face-to-face meeting was held during January at EBI and technical pilots have been scoped. These will be formalised and started during PQ16.

3.2.3.2. Virtual Team – Technology study for the Cherenkov Telescope Array ESFRI

The Virtual Team project was closed during PQ15. The output was a technical recommendation for CTA about the integration of the WS-PGRADE and InSilicoLab technologies, and doing this by

[57] See up to date information about these projects at https://wiki.egi.eu → Projects

signing an MoU with the SCI-BUS project that can allocate funding for CTA as an external user community. The technological integration would require about 2PM effort and then the members would setup a central CTA gateway based on the integrated package. Once setup, the central CTA gateway would be promoted for the CTA community to gather applications and scientific workflows that can serve the broader community, as well as additional, more refined requirements for the 'CTA Very High Energy gamma-ray Science Gateway'. The preparation, and signing of the MoU between CTA and SCI-BUS will be performed outside of the VT project.

3.2.3.3. Virtual Team – Towards a Chemistry, Molecular & Material Science and Technology (CMMST) Virtual Research Community

During the reporting period, the project refined the draft of the document that provides details on the structure and scope of the VRC that should be setup in CMMST domain. The recently joined groups (MosGrid, ScalaLife, SCI-BUS) provided input into the report. The report is expected to be finalised and released publicly during PQ16. Technical collaboration about the setup of a VRC portal has begun with the SCI-BUS project and is expected to be formalised in an MoU during PQ16.

3.2.3.4. ENVRI Study Case with EISCAT_3D

During the reporting period, the project progressed with the implementation of a proof of concept system for EISCAT, that would make a ~2TB historical data set from the community searchable through metadata and maybe by data patterns. The proof of concept setup will be based on the EGI Federated Cloud (as storage) and the Open Source Geospatial Catalogue.

3.2.3.5. EGI-DRIHM collaboration

The goal of the collaboration is to setup a web based science gateway for the hydrometeorology community to enable them to run pre-defined simulation workflows using resources from the European Grid Infrastructure and PRACE. During the reporting period, the DRIHM science gateway was upgraded to gUSE 3.6.1 and is now able to submit jobs to EGI resources. In the next period, the new features of this gUSE version will be explored and used to integrate the hydrometeorology codes into workflows.

3.2.3.6. EGI Federated Cloud

Support for the existing and for new use cases of the EGI Federated Cloud continued. The EGI Federated Cloud is engaged with nine use cases[58].

3.2.3.7. New Engagement Projects

The scoping of new engagement projects also progressed with the ELIXIR Research Infrastructure that was officially launched in December 2013. A face-to-face meeting was held during January 2014 at EBI between EGI and ELIXIR representatives. During the meeting, two technical pilots were scoped using technologies from the EGI Federated Cloud. The pilots will be formalised and started during February 2014 (PQ16).

The user support team at EGI.eu assessed the status of engagement activities in the NGIs, using data collected from the NILs, council members and the UCB. Two tables[59] have been prepared to provide information on active links between the NGIs and ESFRI research infrastructures (table 1), and between the NGIs and other (i.e. non-ESFRI) scientific groups/collaborations. The tables will be used

[58] ENVRI, ESA, Catania Science Gateway, BioVeL, Dirac, CLARIN, WS-Pgrade, Peachnote and WeNMR

[59] NGI-ESFRI collaborations table: https://documents.egi.eu/document/2073; NGI-community collaborations table: https://documents.egi.eu/document/2074 Both are visible to the NILs, Council members, UCB members and EGI.eu staff.

in PQ16 to understand whether and what type of Virtual Team projects could be setup to support some of the ESFRI RIs, or the scientific groups present in the tables. This activity – in the form of a series of teleconferences – has already started for 'Genome Sequencing and Protein Folding' domains. The two tables will be updated on a regular basis as part of the Engagement Strategy.

A series of meetings have been held during the reporting period between the developers and providers of the DIRAC 'interware' system and various scientific communities. These meetings aimed at identifying use cases from these communities that could be supported with EGI resources accessed through DIRAC. The work continues in PQ16 with the setup of an EGI DIRAC installation, and one/more focused Virtual Team projects to implement specific use cases with it.

3.2.3.8. Applications Database (AppDB)

During the reporting quarter, the AppDB team has invested significant effort into the development of the Virtual Appliances Marketplace. In this context, various modules, such as authorization, authentication, VO support, and Service-to-Service (S2S) support had to undergo changes and improvements. In its current state, after the latest developments and extensive internal tests, the Virtual Appliances Marketplace is now in the process of being tested in a test deployment by volunteer user communities, before it goes live in the public service. Most importantly, image lists for each Virtual Appliance (VA) are provided for VA providers to use in conjunction with vmcaster/vmcatcher[60].

In order to better integrate with vmcaster, AppDB's authentication and authorization modules have been reworked to support SAML, a widely adopted open standard, as a backend to the existing EGI SSO and the newly added x509 certificate authentication methods. These improvements were made public with v4.6.0, while experimental support for identification via social sites such as Facebook and Twitter are being worked on in the development instance[61] of AppDB. Moreover, the vmcaster dashboard portal has been modified and the vmcaster command line tool has been patched in order to support x509 certificates as well. This will allow users to submit and retrieve VA image lists to and from the AppDB in a uniformly secure manner. Finally, though expanding the integration with the EGI Operations Portal, the authorization module has been extended with information relating to users' VO memberships and roles for one, and through integrating with GOCDB, it has also been extended with information relating to VA Resource Providers.

Another new feature, introduced with v4.6.4, which relates to S2S support as well, is the EGI Scientific Discipline API[62]. This API will serve to disseminate discipline-base classification of software and other entities within the DCI across such services as the EGI Operations Portal and Accounting, besides the AppDB itself. Nonetheless, there are other projects, such as XSEDE, which have expressed interest in using it as well. The API's technical specification[63] and further details[64] pertaining to its usage can be found online.

Last but not least, the v4.4.x–v4.6.x series of AppDB, released within Q15, have also introduced various improvements to the portal itself. Maintenance releases aside, v4.4.8 added support for out-dated s/w items management; a monthly email is sent to s/w entry owners after 3 years of inactivity, and a "freshness" option has been added to the faceted search mechanism, in order to help improve

[60] https://github.com/hepix-virtualisation/vmcaster; https://github.com/hepix-virtualisation/vmcatcher

[61] https://vmcaster.appdb-dev.marie.hellasgrid.gr/ (Development instance)

[62] https://rt.egi.eu/rt/Ticket/Display.html?id=6245

[63] https://wiki.egi.eu/wiki/VT_Scientific_Discipline_Classification_Query

[64] https://wiki.egi.eu/wiki/VT_Scientific_Discipline_Classification_Change_Management

and upkeep QoI. With v4.5.0, the personalized homepage for logged-in users got revamped, and support for licensing information was added to s/w items. Finally, v4.6.6, the latest release of Q15, brought about performance improvements to enhance the portal's user experience.

Finally, the AppDB development team, in cooperation with the vmcaster/vmcatcher main developer, has prepared and submitted an abstract for the upcoming EGI Community Forum 2014 about Federated Cloud image lifecycle management. A training session will be run where users and resource providers will be able to learn and practice on VM image management.

3.2.3.9. Client Relationship Management System (CRM)

The work performed during PQ15 focused on the operation and maintenance of the EGI Client Relationship Management system (CRM). The majority of the effort was already spent on development and customization over the past quarters. Nevertheless, and following previous requirements, we enhanced the CRM usability by introducing a new functionality: the capability to redirect users to the relevant collection of CRM records by clicking on Home Page plots. This newly introduced functionality automatizes the multi-step / old fashion search for some pre-configured search views. It was implemented in the Home Page module and was created according to EGI requirements. From a technical point of view, some dedicated functions were implemented to interoperate with CRM pre-build AJAX procedures and CRM forms.

In the meantime, there is the possibility to use CRM to track the work performed by EGI champions. The team is expecting the issuance of new requirements from the EGI.eu Champions management team. The future plan is to adapt, whenever possible, the tool to these new work contexts.

3.2.3.10. Training Marketplace (TMP)

Early in Q15, most of the work has been around preparing for and upgrading the Drupal Framework, upon which the Training Marketplace is built, version 7. This was required because support for Drupal v6 was due to cease. Whilst the main system upgrade was straightforward, many of the modules that provided the full functionality of the Training Marketplace did not have versions compatible with Drupal 7, which led to further work sourcing alternatives, testing and integrating them into the TMP. This took much longer than anticipated, but was completed successfully before Drupal 6 support ceased, and the switchover was completely transparent to users with no loss of availability or functionality.

During Q15, we have also been hardening the testing and development systems for the TMP, provisioning new virtual machines for staging and development. There have been a number of system updates including security updates applied to the live site.

On top of the development work, the UK is still strongly involved in campaigning for national funding to build a sustainable Training Marketplace for the future, and has been gathering user feedback and requirements for such a system. A test system has been developed that could be deployed independently in future (should national funding permit) and which would allow EGI to be a customer and have a marketplace solution for its projects. The developments are about to be released to key customers for testing. One item that has been enabled is a tag cloud, displaying frequently used words in the TMP database, which are clickable in a “browse” fashion. For example, a large “Data” would indicate that data is a frequently occurring item in the database entries and clicking on it would display all relevant items.

3.3. Issues and mitigation

No issues have been identified by the various Activity Managers.

3.4. Plans for the next period

3.4.1.1. Marketing and Communications

In QR16, the Communications Team will be actively involved in preparations for the EGI Community Forum in Helsinki. This will be alongside working with the Research Champions on EGI's presence at four discipline-specific events with booths and relevant material.

The four events are:

- European Geological Union General Assembly in Vienna, Austria
- 18th European Bioenergetics Conference in Lisbon, Portugal
- European Conference on Computational Biology in Strasbourg, France
- Federation of European Biochemical Societies (FEBS), EMBO - Excellence in life sciences in Paris, France

Responsibility for the webinar series is now with the Communications Team and during QR16 will be putting together a programme for 2014, aiming for one webinar a month.

Further case studies and news items will be published on the EGI website, and disseminated through the all of EGI's channels and partners. The team will also create a portfolio of materials based upon the EGI Solutions. These will be used to increase awareness of the solutions within the EGI community and at external events.

3.4.1.2. Strategic Planning & Policy Support

During the next quarter, the SPT will complete the solutions white paper and make sure these will be published and disseminated through the communication team. The work on the pay-for-use will continue looking forward to providing an outcome to present to the EGI-InSPIRE review and in preparation for the start of the funded task in PY5 (NA5.2). The SPT will also focus on the development of the final iteration of the sustainability plan that will include aspects of a business plan. A revision of the strategic metrics will be also provided.

The next period will be used to disseminate knowledge regarding the new identifier-only profile towards resource centres, relying parties and user communities. It will be of critical importance to them to understand both the possibilities and limitations of a trust scheme with differentiated assurance levels. Also, a targeted effort to align with partner AA infrastructures in Europe is foreseen for the coming quarter(s). Work will continue on the SCI activity working towards V2 of the document and also on new or updated security policies required to support the operation of federated Clouds in EGI. The revised Grid Acceptable Use Policy will be finalised and submitted for approval. The topics of trust and levels of assurance related to different methods of identity vetting and federated identity management will be taken forward. Planning will continue for the security team and activities that will continue after the end of EGI-InSPIRE.

3.4.1.3. Technical Outreach to New Communities

By the end of February, will kick-off of the project scoping activity for the ESFRI Research Infrastructures (RIs) and the scientific communities that have the highest, and second highest number

of active collaborations with EGI[65]: CLARIN, EMSO, EPOS, EuroBioImaging, IAGOS, Instruct, ICOS, LifeWatch, SKA, Astro*, Sequencing and protein folding, Environmental sciences, Agriculture, Manufacturing/Engineering. This will be implemented in the form of a series of teleconference calls, initiated by EGI.eu and carried out with the involvement of the representatives of all those EGI members that have active collaborations with these RIs and communities. At least 5 new Virtual Team projects will be defined as a result of the above-mentioned scoping activity, as well as the follow up of the DIRAC meetings that have been conducted during December 2013 and January 2014. The 'Towards a Chemistry, Molecular & Material Science and Technology (CMMST) Virtual Research Community' Virtual Team project will be formally closed, with a VRC setup plan. The 'Promoting Desktop Grids' Virtual Team project will be formally closed. The 'ENVRI study case with EISCAT-3D', the 'EGI-DRIHM collaboration' projects will continue according to their work plans. EGI-XSEDE activities will be re-energised through the setup of a demonstrator portal by SCI-BUS for CMMST and DRIHM.

[65] Data from NGI-ESFRI collaborations table: https://documents.egi.eu/document/2073; NGI-community collaborations table: https://documents.egi.eu/document/2074 (Visible to NILs, council members and EGI.eu staff)

4. ACCELERATING EGI'S H2020 GOALS ("MINI PROJECTS")

4.1. Summary

Despite the end-of-year holiday period, this project quarter was one of the most successful quarters of all mini projects. All mini projects are preparing production infrastructure releases of their software-related outputs, or have already done so:

- The MOOC was held during the last quarter.
- The rOCCI solution was partially released for production (and remaining components will follow this quarter).
- A production release of Stoxy implementing the CDMI interface is expected for the final mini-project quarter.
- The OCCI connector for Slipstream v2 will be available in production in PQ16.
- A cloud-init based VM contextualisation solution including Web UI will be available in PQ16.
- A set of Cloud best practices has been published, and will be complemented with an extended set of design patterns.
- The VO administration portal is now deployed in production for the biomed VO, and others (e.g. Shiwa portal VO) are already queuing up for service.
- The alternative A/R computing service will be deployed to production at the end of the mini-project.
- The first version of EGI's e-GRANT[66] tool is in production and was already used to collect applications for the first round of centrally available EGI resources.

Plenty of evidence demonstrates the good collaboration between small focus teams, their liaison to the target area within the EGI operative infrastructure, and larger project management. Most teams are entering, or are about to enter the home stretch, pushing to complete the final activities towards their final goals.

4.2. Main Achievements

4.2.1. Work package Management

The past project quarter included the end-of-year holiday period, which is usually relatively quiet; so was this. On top of that, the clear structure and distribution of responsibilities pay off more and more in that communication happens where it needs to happen, i.e. in the respective target domain of the mini project.

Therefore, management of the work package was kept at a minimum, which usually was barely more than regular collection of the weekly reports and condensed reporting to the Activity Management Board in its weekly calls.

4.2.2. Massive Open Online Course (MOOC) Development

The past project quarter was dominated with three major milestones.

Before the online course went live, some bugs and problems had to be addressed. For example, parametric jobs were difficult to get running, some portal software had to be shipped in two VM images rather than one, etc. The final lectures, introduction and other video material were recorded

[66] http://e-grant.egi.eu

either in SURFsara's Collaboratorium facility[67] or as screen casts, and Grid certificates for the students were prepared and linked to the appropriate Virtual Organisation where required.

The MOOC itself went live at the end of November 2013, with some 300 students taking the course. During the live course activity, some further issues were solved with lectures that were due later in the course, and some changes in recording and quizzes for week 4 of the course were integrated. Towards the end, the final videos were recorded and put online[68], together with the last student assignments.

After the formal end of the MOOC, the student answers for the assignments are starting to return. So far, about 10% of the assignments have returned, which is the expected amount for a MOOC. Currently, the final assignment is being graded, after which, students with an average score of 60% or more (assignment is a prerequisite) will receive a certificate of achievement.

4.2.3. Evaluation of Liferay Modules

At the beginning of the past project quarter, the mini-project members reviewed the status of work and partners. Both SZTAKI and INFN completed their work in the foreseen time and allocated effort. The outcome of their work will be part of the final mini-project outputs. CESNET, however, still had a sufficient amount of effort available even though all of the planned goals were achieved. Thus, the goals and future work described in the last quarterly report apply only to the CESNET partner in this mini-project.

The main focus, according to the plan was the evaluation of Liferay 6.2 together with new versions of the modules tested in this project (in particular Social Office, and Sync), and a deeper analysis of the structured content feature in Liferay, which allows implementation capabilities such as non-public document repositories and wikis. Both have the potential to replace current EGI back-office services such as DocDB (document store) and MediaWiki (EGI-wide wiki) with its private namespaces.

However, updates of Social Office and Sync that would provide compatibility with Liferay 6.2 were postponed several times by the Liferay developers, very close to the end of the mini project.

The work on both features is underway, but not yet completed and will stretch into the following project quarter.

4.2.4. Providing OCCI support for arbitrary Cloud Management Frameworks

The rOCCI solution comprises of four components: rOCCI-core, rOCCI-api, rOCCI-cli and rOCCI-server. rOCCI-core and rOCCI-api are part of the rOCCI framework, which addresses developers of custom OCCI solutions and integrations. rOCCI-client and rOCCI-server are concrete reference realisations of the framework.

In the past project quarter the following was achieved, grouped by module:

Core: A batch of bugs had to be fixed that affected the functionality and stability of rOCCI-server and the rendering into various message formats has been updated to support action instances as defined in the OCCI standard. The QA tests of the framework have been completely rewritten, and have reached nearly 100% coverage. Through this activity, a number of bugs have been fixed, and error reporting and exception handling have dramatically improved.

API: The exposed interfaces have been updated to accommodate new features and error handling in the Core component.

[67] https://www.surfsara.nl/project/collaboratorium-visualization-and-presentation-facility

[68] http://mooc.uva.nl/portal/tool/!gateway-110/registerviewwebcourse.spring?id=4

CLI: The client component is somewhat lagging behind; however, it now natively implements OCCI links and actions. A full version will be published together with all other components in version 4.2 of rOCCI.

Server: A reference backend has been implemented. It will serve as a blueprint for future backend implementations for Cloud Management Frameworks that are currently not deployed in the Federated Cloud infrastructure. The StratusLab CMF, for example, will use this reference backend to implement the integration with support of the rOCCI team. The OpenNebula backend has also been ported to the new implementation of rOCCI-server, replacing the legacy version in production in the near future. The current version is feature-complete compared to the legacy version and the feature set of the OCCI specification, and is currently in a local beta phase within CESNET. In parallel, installation and configuration manuals are developed.

4.2.5. CDMI Support in Cloud Management Frameworks

In the past quarter, a command line interface including usage and deployment examples was finished. Some longer debugging and improvements around object removal took more time than expected, but has been accomplished.

In parallel, the EUDAT project is discussing their Cloud data interface, and CDMI is a candidate in the EUDAT Technical Forum. With this, the technical architecture of Stoxy is very similar to rOCCI in that a number of storage backends will be supported: EUDAT data services, OpenStack, and perhaps dCache (discussions are on-going with the DESY).

An initial instance of Stoxy is deployed at JUELICH for early beta testing against an OpenStack backend. No conceptual errors were found; only some extra care must be taken with respect to several Keystone instances (Keystone is OpenStack's AuthN/AuthZ subsystem).

Also, fine-grained meta-data retrieval over HTTP is now supported.

Together with JUELICH and TSA4.8, the Peachnote use case is investigating to utilise CDMI based Cloud storage, while a first release with a working OpenStack backend is under preparation.

4.2.6. Dynamic Deployments for OCCI Compliant Clouds

What was demonstrated, as a preliminary connector version with the Proof of Concept deployment of the ESA use case stemming from the HelixNebula project, has become a stable and fully integrated OCCI connector as part of the SlipStream v2 release. This required the integration of the Ruby runtime into Slipstream since the new connector now makes use of the rOCCI client implementation supported through TSA4.4.

Based on this progress, SlipStream will now be deployed as part of the EGI Federated Cloud as a brokering solution that individual federation members may offer to their customers. Further, the SlipStream auto-scale feature is progressing well, also in collaboration with the CELAR project[69], which should deliver basic auto-scale functionality by the summer 2014.

4.2.7. Automatic Deployments and Execution of Applications using Cloud Services

This mini project is using cloud-init and a set of OCCI contextualisation extensions proposed by the Federated Cloud initiative as the technology to implement the planned capabilities. The availability of clout-init was limited, so this mini project has built cloud-init packages for distributions based on Debian and RHEL6. The team has tested these packages and the OCCI contextualisation support in the EGI Federated Cloud testbed with good results for most resource providers.

[69] http://www.celarcloud.eu/

The mini project is now working with three communities that are interested in using this capability. With supporting VM image generation and contextualisation for the local computational chemistry community, the local astrophysicists community, and the EGI Software Provisioning activity (currently organised in the EGI-InSPIRE WP5-SA2 activity), the user community support was greatly extended, followed by an increase of contextualisation support and testing activities.

In parallel, a web front-end to the service is being continuously improved and extended to support the launching of virtualised servers based on read-only golden images of well-known Linux distributions contextualised for the supported scientific community.

4.2.8. Transforming Scientific Research Platforms to Exploit Cloud Capacity

Over the past three months, this mini project worked with six projects (i.e. Peachnote, BNCweb, BioVeL, Catania Science Gateway Framework, WeNMR, and DCH-RP) to analyse their e-Infrastructure needs and capabilities.

From this work, a number of best practices and architectural design patterns for Cloud applications have emerged. A blog post[70] describes how to shrink an existing VM image to a size that current CMF can absorb well and instantiate in a very short time. A second blog post[71] about good practices on keeping a VM image small from within a virtual server instantiated from it is in preparation.

Distributed Cloud based storage patterns were the focus of this past project quarter, and a number of achievements are the result of this: The Peachnote project now uses Cloud object storage (though using the native OpenStack interface) provided by JUELICH in their regular VM images. Also, a design pattern and reference implementation for providing and managing a generic MySQL VM image that is capable of serving databases stored in mounted block storage is now available. The BNCweb project is using this pattern, which could easily lead to a DBaaS provided by EGI in the future. Some issues were discovered and diligently followed up, however, one issue remains unsolved and will probably be beyond the scope of this mini project other than simply recommending using Open Source or license-free software:

It seems problematic, or at least challenging, to properly integrate software with commercial licenses into public or hybrid Cloud infrastructures. Currently, this issue affects two projects; Peachnote uses Windows within the VM, as well as a commercial product to analyse music scores. The underlying commonality here is that Cloud computing is challenging the traditional software licensing models with its changes in architectural and business paradigms.

4.2.9. VO Administration and operations PORtal (VAPOR)

During the past project quarter, the VAPOR team worked in parallel on preparing VAPOR for production release, deploying a first production release, and on implementing new features as follows.

As a general feature implementation process, the team prepares a feature according to needs discussed with partners in the features specification[72], implements it and releases a version for testing with the biomed VO. Once accepted, the feature is then generalised and integrated as a supported feature for other VOs. Through this approach, two new Data Management features were implemented in this quarter. Now, Storage Elements filling up are periodically scanned based on information collected from connected file catalogue services, while respecting the status of suspended/expired users in the system. Also, it is now possible to determine the ratio of running vs. submitted/failed jobs per VO, which allows a VO to determine the current performance of its contracted distributed services. Those

[70] http://www.egi.eu/blog/2013/11/14/shrinking_vm_images.html

[71] http://www.egi.eu/blog/2014/02/10/how_to_keep_your_vm_images_small.html

[72] https://wiki.egi.eu/wiki/VT_VAPOR:VAPOR_features_description

tasks were realised along with the integration of new versions of the Lavoisier data integration service, JSAGA, and JobMonitor. The development of a new feature dedicated to the cleaning up of old data is ongoing.

On the architectural level, VAPOR's data collecting services were deployed in a Cloud environment while the web application was integrated with the EGI Operations Portal. This went along with significant improvements of the Deployment and Configuration documentation, code refactoring. So far, VAPOR supports the biomed VO, and the biomed support team now uses it on a daily basis.

4.2.10. A new approach to Computing Availability and Reliability Reports

During the past quarter, the team had a F2F meeting in Thessaloniki, and conducted the 4th and 5th meeting of the Requirements Task Force on A/R computation. Also, the WebUI was presented to the OMB.

As the software service is progressing towards completion, the license and copyright statements are gradually added to the artefacts to guard the IPR of the creators, as well as initial steps towards packaging and deployment automation (using GRNET's ~okeanos Cloud service as the IaaS backend). Installation guides for the necessary subsystems such as Lavoisier and Hadoop are written and integrated into the general installation and configuration guides. A/R computations are further validated against production results for September, October and November 2013; with increased confidence and assurance in the service's accuracy, the automation of A/R calculation has started in this quarter.

Furthermore, the various subsystems now support retrieving VO topologies and reflecting these in the A/R calculations, as well as a reference implementation of HEPSPEC-related components.

The WebAPI is, in parallel, extended for the growing number of supported features. For example, it now supports external configuration files, requesting monthly reports for specific profiles, historic months, as well as the management of A/R profiles via the WebAPI. To save bandwidth, the WebAPI now also supports stream compression via zip/gzip algorithms (as standardised in HTTP/1.1).

Last, but not least, the Web frontend now includes a comparison feature that allows comparing results from this project and the official CERN availability data side-by-side for easier validation.

4.2.11. GOCDB Scoping Extensions and Management Interface

This mini project ended in August 2013.

4.2.12. Tools for automating applying for and allocating federated resources

During the last project quarter, the team finished the first version, as was initially planned. This included integrating Authentication and Authorisation with the current EGI system (in particular the EGI SSO service), a module responsible for submitting and collecting user requests for resources. Feedback from the Resource Allocation Task Force (RATF) was implemented before final publication of the tool. Also, the resource pools were aligned with changes in the foreseen SLA structure.

This tool is now available for submission of new request related to resources, and is named "e-GRANT" (http://e-grant.egi.eu/). The tool was used in the first round of EGI request collection.

Parallel to the last activities around e-GRANT v1, the functionality of e-GRANT v2 was agreed in collaboration with the RATF, and the technical design is completed. At the end of January, functionality of managing 'pools' (pools are declarations for resource that can be brokered by EGI) was released and deploy into production platform. Access to this functionality in the specific scope is granted based on X.509 certificates registered in GOCDB, both roles at site level and NGI level are recognized.

4.3. Issues and mitigation

Any issues that were described in earlier quarterly reports were either already mitigated, or plans agreed to mitigate in the future, i.e. in the coming quarter.

4.4. Plans for the next period

4.4.1. Work package management

All mini projects are scheduled to finish at the end of PQ16. For all mini-projects, the outcomes will be sustained in one form or another in close collaboration with the respective shepherd. Formally, all mini projects will follow suit of SA4.11 (GOCDB scoping extensions) and provide a concluding report. Also, all mini projects are embedded in activities in the upcoming EGI Community Forum, either through workshops, trainings or other activities. Next to this, the remaining technical activities are as follows.

4.4.2. Massive Open Online Course (MOOC) Development

The MOOC project is almost finished; any remaining assignment grading will be completed in this quarter. The mini project will conclude with an evaluation and conclusive report.

4.4.3. Evaluation of Liferay Modules

Due to the delay of the Social Office and Sync modules publication to be compatible with Liferay 6.2, this activity had to be postponed to the last remaining project quarter. As soon as these modules will be available, this work will resume, with a risk of being pushed out of the mini project lifetime.

In the meantime, the mini project is supporting the Czech Republic node of the ELIXIR project with a test deployment of Liferay as a target user community, and the findings of this will be included in the final evaluation.

4.4.4. Providing OCCI support for arbitrary Cloud Management Frameworks

A number of rOCCI components are already available in the public version 4.2 of rOCCI. The next months will see the release of rOCCI-api and rOCCI-cli in version 4.2. rOCCI-server will move to public beta and eventually to a public version 4.2 including support for at least one additional backend integration. At this point, i.e. with the public release of rOCCI-server 4.2, the mini project will support Resource Providers within the EGI Federated Cloud task force with its deployment. A workshop at the EGI CF14 in Helsinki will introduce interested user communities to a standards-based federated Cloud infrastructure as a service provided by EGI.

4.4.5. CDMI Support in Cloud Management Frameworks

During the next 2 months, the development effort for the CDMI backends will be increased to cater for the delays in functionality deliverance due to effort restructuring. The finalisation of the OpenStack backend support and extension of CLI capabilities is in progress. Additional deployments are planned within the EGI FedCloud task force resource providers. In addition, a rollout of a web Swagger-based client is planned. A tutorial for CDMI/Stoxy usage is planned at EGI CF14 in Helsinki. Collaboration with EUDAT on the joint development/interoperability effort of the CDMI SDK and/or Stoxy will continue. Additional validation and sustainability effort will be coming from the FP7 STRATEGIC project, which will use Stoxy as an OpenData-exposure module in its public sector targeted solution.



4.4.6. Dynamic Deployments for OCCI Compliant Clouds

During the final project quarter, the team will finish up the integration of the OCCI connector with the Slipstream v2 product, and publish the results and code in an open source code repository. The collaboration with the CELAR project will continue to further develop the auto-scale/elasticity feature of SlipStream.

4.4.7. Automatic Deployments and Execution of Applications using Cloud Services

The mini-project team will focus on providing a final stable version of the tools being developed. The web front-end to the service will be opened for new communities within EGI once the local user communities have tested it thoroughly. A demo and presentation will be prepared for the upcoming EGI Community Forum in Helsinki.

4.4.8. Transforming Scientific Research Platforms to Exploit Cloud Capacity

The Community Forum in Helsinki will feature a 90-minute workshop for user communities to learn about the best practices and design patterns coming from the Cloud Capabilities mini project. Furthermore, the mini project will take its findings on generic DB images and expand its applicability to other use cases towards generic platform images in a Cloud infrastructure. Finally, a series of blog posts will highlight more specific findings to a wider community.

4.4.9. VO Administration and operations PORtal (VAPOR)

In the coming period, the intention is threefold:

(i) Open VAPOR to other VOs

Several VOs are awaiting their support within VAPOR: shiwa-workflow.eu, CompChem, WeNMR, VLEMED, Auger, France-GrilleVO. It is planned to progressively open the support of VAPOR to those communities within the coming weeks and months.

(ii) Complete ongoing developments

The major feature under development addresses the problem of cleaning up old data left behind by former users. The development is ongoing with the help of the lcg-utils team at CERN.

(iii) Exploiting the results

Initial results for the biomed VO show a high rate of failed monitoring jobs (>20%). This needs further investigation to understand if the problem comes from the infrastructure or from VAPOR itself. It is also being considered to ask for resource allocation in order to assess the affect of such an allocation on the effectiveness of computing resources for the VO.

4.4.10. A new approach to Computing Availability and Reliability Reports

During the final quarter of the project, the development team will complete the functionality for the support and management of the “Availability Profiles” and the usage of factors in the calculations. The major new component that will be introduced in the final quarter is the mechanism to request and schedule recalculations. By the end of the mini project, we will be able to use the new engine to calculate Availability and Reliability for NGIs, VOs and Sites.

4.4.11. Tools for automating applying for and allocating federated resources

The main functionality remaining for implementation and deployment is broker functionality enabling full cycle of SLA negotiation. Based on preparatory work done earlier, semi-automatic allocation of resources will be fully deployed. e-GRANT supports flexible allocation, negotiation and closing of SLAs related to federated resources, as planned in RATF. Also, in collaboration with the EGI.eu Communications Team, e-GRANT will be promoted for wider usage. All changes listed above, together with bug fixes and improvements reported in first round of usage, will form e-GRANT v2, which will be deployed to production infrastructure at the end next quarter.

5. CONSORTIUM MANAGEMENT

5.1. Summary

Project management activities concentrated on the revision of the PY4 work plan to take corrective actions taking into account PY3 recommendations, and on the definition of the PY5 work plan, the related budget covering an extension of 8 months (until December 2014) and the preparation of the 3rd DoW amendment. The PY4 revision aimed at maintaining the strategic planning activities in PY4 while ensuring not only the continuation but also the strengthening of the critical ones in PY5. Strategy and policy activities carried out at EGI.eu were prioritized. Priority was given to the introduction of a new function on business development activities, by hiring of a business development expert at EGI.eu, who has been responsible from Jan 2014 for developing the EGI service and solutions portfolio development. In addition, in order to strengthen outreach to new user communities and stimulate the gathering of new technological requirements, a EGI Engagement Strategy[73] was defined. The Distributed Competence Centre (DCC)[74] was implemented as of January 2013 as technical arm for the implementation of the engagement strategy to user communities. The DCC is not only responsible of engagement and exploration of requirements of new use cases, but also of development, testing and insertion of new technology.

Unspent budget after PY5 was estimated and reclaimed for distribution across a subset of the consortium, allowing the continuation and strengthening of user engagement through the DCC, the continuation of business development and pay per use policy activities, the development of use cases for the EGI Federated Cloud, starting its production phase in May 2014, and the continuation of the development of strategic tools. The selection of the partners who participated with bids to the call for EGI core activities[75] was completed, and the EGI.eu co-funding rate negotiation completed. The running of the EGI core activities will no longer supported by EGI-InSPIRE as of May 2014. The total cost is 1.5 MEuro, and the EGI.eu contribution for 2014 amounts to approximately 620 KEuro. One case of Consortium Agreement breach was managed with reference to the German JRU breaching article 9.2. Sanctions to maintain the JRU in the consortium until the end of the extension were defined by the PMB.

At the end of PQ15 the activity management of NA1 was handed by Catherine Gater to Yannick Legre, who was appointed EGI.eu director as of Feb 01.

5.2. Main Achievements

Project management activities concentrated on the revision of the PY4 work plan to take corrective actions taking into account PY3 recommendations, and on the definition of the PY5 work plan, the related budget covering an extension of 8 months (until December 2014) and the preparation of the 3rd DoW amendment.

Recommendation 1 and 5. Maintenance of strategic planning activities and introduction of business development. Firstly, the PY4 revision aimed at maintaining the strategic planning activities in PY4 while ensuring not only the continuation but also the strengthening of the critical ones in PY5. Strategy and policy activities carried out at EGI.eu were prioritized accordingly in order to cope for a yearly reduction of human effort of -1.5 FTE. As of Jan 2014 various activities were put on hold including: secretarial support to EGI boards, and other support activities to NA1 like the editing of the

[73] https://documents.egi.eu/document/2079

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

[75] https://wiki.egi.eu/wiki/Core_EGI_Activities

EGI Compendium, proactive monitoring of MoUs actions and editing of NGI international task and global task milestones (PM46), and the implementation of scientific review board for central access to distributed resources. In order to cope with the manpower reduction part of the tasks were redistributed among the activity managers where possible.

Priority was given to the introduction of a new function on business development activities, by hiring of a business development expert at EGI.eu, who has been responsible from Jan 2014 for developing the EGI service and solutions portfolio development, coordinating with the communication team for promotion of the EGI solutions, investigating new business opportunities on public procurement of innovation, and pre-commercial procurement in H2020. In addition activities on pay per use continued, and participating NGIs will get funding during PY5.

Recommendation 6. Maintenance and extension of the targeted outreach, new technological requirements. In order to strengthen outreach to new user communities and stimulate the gathering of new technological requirements, a EGI Engagement Strategy[76] was defined. The strategy is a collaborative document that receives input from:

- the strategy and policy team, the user community support team and the communication team of EGI.eu,
- the NGI international liaisons, which bring the input of the National Grid Intiatives and the engagement priorities at a national level,
- the User Community Board and the EGI champions to reflect engagement opportunities that are pursued directly by the existing user communities of EGI within their research domain.

The document is periodically updated and reviewed in collaboration with the Executive Board of EGI.eu.

The Distributed Competence Centre (DCC)[77] was implemented as of January 2013 as technical arm for the implementation of the engagement strategy to user communities. The DCC is not only responsible of engagement and exploration of requirements of new use cases, but also of development, testing and insertion of new technology. In the past years of the project user engagement was mainly delivered by NGI user support teams; as of January 2014, the DCC is also participated by external experts from research communities and technology providers, who are supported with human effort and/or travel budget centrally distributed by EGI.eu according to the support and training needs. During PY5 user engagement activities in the DCC will receive larger budget. In addition, as of Jan 2014 NGI user support teams will bee allowed to book additional effort from task SA1.7 Support.

Project extension PY5. Unspent budget after PY5 was estimated and reclaimed for distribution across a subset of the consortium, allowing the continuation and strengthening of user engagement through the DCC, the continuation of business development and pay per use policy activities, the development of use cases for the EGI Federated Cloud, starting its production phase in May 2014, and the continuation of the development of strategic tools. Part of the reclaimed budget will be managed centrally by EGI.eu to support the travel of partners to attend user-orientated events. The reclaimed budget will be totally redistributed across NGIs. EGI.eu activities during PY5 will be completely supported by EGI.eu unspent budget for the project period PY1-PY4.

EGI Core Activities. The selection of the partners who participated with bids to the call for EGI core activities[78] was completed, and the EGI.eu co-funding rate negotiation completed. The core activities

[76] https://documents.egi.eu/document/2079

[77] https://wiki.egi.eu/wiki/Distributed_Competence_Centre

[78] https://wiki.egi.eu/wiki/Core_EGI_Activities

only include a subset of the global tasks supported by EGI-InSPIRE (the remaining ones will be funed in PY5).

The running of the EGI core activities will no longer supported by EGI-InSPIRE as of May 2014. The total cost is 1.5 MEuro, and the EGI.eu contribution for 2014 amounts to approximately 620 KEuro. The final EGI.eu co-funding rate for the coming two years starting in May 2014 is 40% and relies on the availability of EGI participants' fees. The remaining 60% will e contributed in-kind by the responsible partners. The planning of the technical transition to a new consortium of partners – where applicable – started already in PQ14.

Breach of obligations under Consortium Agreement. One case of Consortium Agreement breach was managed with reference to Germany JRU breaching article 9.2 "The EGI Global Tasks are co-funded by the EC and the NGIs /EIRO's (as part of Annex 1 of this Agreement) and EGI.eu. Failure to pay any charge levied by the EGI Council for the use of the services provided through the EGI Global Tasks from EGI.eu will be considered a breach of this Agreement and dealt with under article 14". A proposal was defined by the PMB and discussed with Germany to keep the JRU in the project requiring sanctions to be applied. In the December PMB meeting the following was approved:

- Germany participates until the end of PY4 without getting the 25% of the Global tasks funding from EGI.eu, as well as the 25% funding from the EC. Germany will provide as unfunded in-kind contribution the full set of global tasks for 2014 in full, amounting to 174,750 €.
- Germany participates to the PY5 extension as unfunded partner.

Consultation with be extended to the CB in PQ16.

5.2.1. Milestones and Deliverables

Provided by the PO relating to the deliverables and milestones from the reporting period.

Id	Activity No	Deliverable / Milestone title	Nature (***)	Lead partner	Original Delivery date(*)[79]	Revised delivery date(*)	Status (**)
MS128	NA1	Quarterly Report 14 (this document)	R	EGI.eu	43	49	Approved

5.2.2. Consumption of Effort

Selected period: PM43 to PM45 (November 2013 to January 2014)

Report extracted on 06 March 2014

Type	Work Package	Hours Declared	PM Declared	Committed PM	Achieved %
MGT	WP1-E	416,0	2,9	9,3	31,0%

[79] *(*) 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*

MGT	WP1-M	1.588,0	11,0	11,2	98,6%
COORD	WP2-E	2.918,5	20,6	41,1	50,0%
COORD	WP2-N	5.309,5	38,9	63,6	61,3%
SUPPORT	WP4-E	6.953,1	51,1	50,6	101,0%
SUPPORT	WP4-N	31.907,9	229,3	249,0	92,1%
SUPPORT	WP5-E	2.712,0	19,8	20,7	95,8%
SUPPORT	WP5-N	1.823,1	13,5	13,0	103,7%
RTD	WP7-E	1.588,6	11,8	9,7	121,4%
RTD	WP7-G	1.016,0	7,6	7,4	103,1%
SUPPORT	WP8-S	4.104,2	30,7	24,9	122,9%
	Total:	**60336,9**	**437,2**	**500,6**	**87,30%**

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.

5.2.2.1. EGI-InSPIRE Effort report Per Work Package and Partner

Selected period: PM43 to PM45 (November 2013 to January 2014)
Report extracted on 06 March 2014

WP1-E - NA1 Management (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
1-EGI.EU	416	2,9	9,3	31,0%
Total:	**416**	**2,9**	**9,3**	**31%**

WP1-M - NA1 Management (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
1-EGI.EU	1588	11,0	11,2	98,6%
Total:	**1588**	**11,0**	**11,2**	**98.6%**

WP2-E - NA2 Community Engagement (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
1-EGI.EU	2278	15,7	33,4	47,1%
12A-CSIC			0,6	
16A-GRNET	0	0,0	2,2	0,0%
16E-IASA	0	0,0	0,7	0,0%
26A-FOM	0	0,0	0,3	0,0%
29-LIP	146	1,1	0,8	136,3%
34A-STFC	494,5	3,7	3,1	120,7%
Total:	**2918,5**	**20,6**	**41,1**	**50%**

WP2-N - NA2 Community Engagement (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
2-UPT			1,2	
3-IIAP NAS RA	250	1,7	0,6	284,1%
5A-IICT-BAS	72	0,5	1,4	36,2%
7A-ETH ZURICH	0	0,0	0,4	0,0%
7B-UZH	105	0,6	0,6	110,7%
7C-SWITCH	0	0,0	0,7	0,0%
8-UCY			1,0	
9-CESNET	346	2,3	2,4	96,1%
10B-KIT-G	400	2,9	4,6	63,1%
10E-BADW	0	0,0		
12A-CSIC	380	3,0	1,4	218,7%
12D-UPVLC	353	2,8	2,7	104,2%
13-CSC			3,0	
14A-CNRS	284,5	2,2	2,9	74,1%
14B-CEA	0	0,0	1,1	0,0%
14C-HealthGrid			0,0	
15-GRENA	70	0,4	0,4	101,6%
18A-MTA KFKI	0	0,0	0,6	0,0%
18B-BME	10	0,1	0,5	14,6%
18C-MTA SZTAKI	94	0,7	0,6	117,8%

19-TCD			0,3	
20-IUCC	200	1,3	0,8	175,4%
21A-INFN	683	5,4	4,3	126,1%
22-VU	60	0,4	0,6	59,3%
23-RENAM	22	0,2	0,2	104,8%
26A-FOM	0	0,0	0,5	0,0%
26B-SARA	19	0,2	0,5	29,7%
27A-SIGMA			0,9	
27B-UIO			0,6	
27C-URA			1,1	
28A-CYFRONET	116	0,8	1,4	59,3%
28B-UWAR	70	0,5	1,4	36,1%
28C-ICBP			1,0	
29-LIP	128	0,9	2,6	35,6%
30-IPB	282	1,8	1,8	100,0%
31-ARNES	52	0,4	2,3	16,3%
31B-JSI	0	0,0	1,2	0,0%
32-UI SAV	480	3,7	3,5	106,1%
33-TUBITAK ULAKBIM	441	3,2	3,4	94,0%
34A-STFC	259	2,0	3,0	65,6%
34C-UG	68	0,5	0,3	160,6%
34D-IMPERIAL	0	0,0	0,4	0,0%
34E-MANCHESTER	0	0,0	0,4	0,0%
36-UCPH	53	0,4	1,6	25,2%
38-VR-SNIC	0	0,0	0,2	0,0%
38A-KTH	0	0,0	0,2	0,0%
39-IMCS-UL	12	0,1	2,1	4,1%
40A-E-ARENA			1,3	
Total:	**5309,5**	**38,9**	**63,6**	**61,3%**

WP4-E - SA1 Operations (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM

1-EGI.EU	516	3,6	7,1	50,7%
9-CESNET	562	3,7	5,2	72,2%
10B-KIT-G	733	5,3	5,1	104,0%
10D-JUELICH	157,2	1,1	0,8	153,0%
12A-CSIC	195	1,6	1,1	146,8%
12B-FCTSG	219,5	1,6	0,8	210,8%
13-CSC			0,5	
14A-CNRS	98	0,7	0,8	99,4%
16A-GRNET	941	7,2	4,4	163,9%
17-SRCE	536	3,7	2,4	152,0%
21A-INFN	902	7,2	6,3	112,8%
21B-GARR			0,8	
26A-FOM	0	0,0	0,8	0,0%
26B-SARA	210	1,7	1,4	120,9%
28A-CYFRONET	206	1,5	1,4	101,9%
29-LIP	451	3,2	1,8	177,9%
34A-STFC	615,4	4,6	4,9	94,0%
35-CERN	502	3,5	3,7	95,4%
38A-KTH	0	0,0	0,7	0,0%
38B-LIU	109	0,8	0,8	107,7%
Total:	**6953,1**	**51,1**	**50,6**	**101%**

WP4-N - SA1 Operations (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
2-UPT	0	0,0	1,2	0,0%
3-IIAP NAS RA	585	4,0	1,2	335,9%
5A-IICT-BAS	398	2,8	1,6	174,9%
5B-IOCCP-BAS	0	0,0	0,5	0,0%
5C-NIGGG-BAS	0	0,0	1,5	0,0%
6-UIIP NASB			1,9	
7A-ETH ZURICH	176	1,2	2,1	55,4%
7B-UZH	15	0,1	1,1	8,2%

7C-SWITCH	153	1,0	2,1	46,1%
8-UCY			3,0	
9-CESNET	834	5,6	7,8	70,9%
10B-KIT-G	684	5,0	7,0	71,3%
10C-DESY	138	1,0	1,9	51,9%
10D-JUELICH	239,8	1,8	1,4	121,8%
10E-BADW	586,7	4,3	3,0	142,4%
10G-FRAUNHOFER	158,5	1,2	1,9	60,1%
10H-LUH	184	1,3	1,4	97,4%
11-UNI BL	420	3,2	4,7	67,8%
12A-CSIC	785	6,3	2,8	226,0%
12B-FCTSG	1363,5	9,8	4,2	236,4%
12C-CIEMAT	341	2,7	2,4	114,9%
12D-UPVLC	273,5	2,2	1,8	125,0%
12E-IFAE	408	3,3	2,9	113,5%
12F-RED.ES	668	5,0	3,3	155,1%
12G-UNIZAR-I3A	368	2,9	3,3	90,6%
12H-UAB	1349	7,1	2,5	285,1%
13-CSC			4,2	
14A-CNRS	1774,6	13,5	15,2	89,1%
14B-CEA	860	6,7	4,0	168,2%
15-GRENA	188	1,1	1,2	94,2%
16A-GRNET	307	2,3	7,7	30,3%
16B-AUTH			0,8	
16C-CTI	0	0,0	0,8	0,0%
16D-FORTH	30	0,2	0,8	28,1%
16F-ICCS	0	0,0		
16G-UI			0,5	
16H-UP	145	1,1	0,6	176,8%
17-SRCE	709	4,9	4,5	108,9%
18A-MTA KFKI	512	3,3	4,1	81,6%
18B-BME	60	0,4	1,8	23,3%

18C-MTA SZTAKI	100	0,7	1,5	46,7%
19-TCD			3,4	
20-IUCC	930	6,2	1,6	396,8%
21A-INFN	1074	8,5	22,3	38,3%
21B-GARR			0,8	
22-VU	240	1,4	0,5	284,4%
23-RENAM	219	1,6	1,3	122,3%
24-UOM	624	4,1	3,6	112,3%
25-UKIM	728	5,2	4,4	117,2%
26A-FOM	270	2,0	2,0	101,3%
26B-SARA	483,5	4,0	7,6	52,7%
27A-SIGMA			2,2	
27B-UIO	138,5	1,1	1,4	80,6%
27C-URA	0	0,0	0,7	0,0%
28A-CYFRONET	1191	8,5	7,2	116,8%
28B-UWAR	234	1,7	0,4	397,3%
28C-ICBP	185	1,3	1,1	116,9%
28D-POLITECHNIKA WROCLAWSKA	234	1,7	1,0	167,4%
29-LIP	1553	11,2	6,7	166,6%
30-IPB	1128	7,3	7,4	98,8%
31-ARNES	618,2	4,4	2,7	164,3%
31B-JSI	711,2	5,1	3,2	159,4%
32-UI SAV	695,5	5,4	6,0	88,7%
33-TUBITAK ULAKBIM	1071	7,7	8,2	93,8%
34A-STFC	1051,9	7,9	6,5	122,7%
34C-UG	596,5	4,6	3,6	128,2%
34D-IMPERIAL	539	4,0	3,6	111,5%
34E-MANCHESTER	417,5	3,0	3,6	83,8%
35-CERN	69	0,3	0,3	110,5%
36-UCPH	287	2,2	2,9	74,4%

38A-KTH	0	0,0	0,4	0,0%
38B-LIU	247	1,8	1,9	97,6%
38C-UMEA	334	2,5	3,0	81,7%
39-IMCS-UL	245	1,8	3,3	53,4%
40A-E-ARENA	14	0,1		
40B-SINP MSU	230,4	1,6	1,3	131,7%
40C-JINR	90,7	0,6	0,8	79,7%
40D-RRCKI	90,7	0,6	0,8	79,7%
40F-ITEP	83,7	0,6	0,8	79,7%
40G-PNPI			0,8	
51A-ICI	272	1,8	1,4	127,7%
51C-UPB			0,8	
51D-UVDT	57	0,4	0,6	66,8%
51E-UTC	0	0,0	0,6	0,0%
51H-INCAS			0,2	
51J-UB	141	0,9	0,1	743,7%
Total:	**31907,9**	**229,3**	**249,0**	**92,1%**

WP5-E - SA2 Provisioning Software Infrastructure (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
1-EGI.EU	204	1,4	2,3	63,0%
9-CESNET	438	2,9	3,8	77,9%
10D-JUELICH			0,0	
12A-CSIC	420	3,4	3,3	101,4%
12B-FCTSG	276	2,0	1,1	187,1%
16A-GRNET	566	4,3	3,5	123,2%
16B-AUTH			0,8	
16E-IASA	0	0,0	0,8	0,0%
16F-ICCS	100	0,8	0,8	93,8%
21A-INFN			0,0	
29-LIP	708	5,1	4,4	115,5%
38B-LIU			0,0	

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
Total:	**2712**	**19,8**	**20,7**	**95,8%**

WP5-N - SA2 Provisioning Software Infrastructure (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
1-EGI.EU	132	0,9	0,6	146,7%
9-CESNET	118	0,8	0,4	209,8%
10B-KIT-G	228	1,7	1,5	110,7%
10D-JUELICH	163,1	1,2	0,8	158,7%
10H-LUH	83	0,6	0,5	120,9%
12B-FCTSG	109	0,8	0,8	104,7%
14A-CNRS	119	0,9	1,3	72,4%
21A-INFN	359	2,8	2,8	103,6%
26B-SARA	0	0,0	0,8	0,0%
32-UI SAV	157	1,2	1,5	80,5%
34F-OXFORD	123	0,9	0,8	119,3%
38A-KTH	232	1,7	1,5	111,8%
Total:	**1823,1**	**13,5**	**13,0**	**103,7%**

WP7-E - JRA1 Operational Tools (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
10B-KIT-G	497	3,6	2,9	123,2%
12B-FCTSG	19,5	0,1	0,8	18,7%
14A-CNRS	98	0,7	0,8	99,4%
16A-GRNET	99,5	0,8	0,8	101,1%
17-SRCE	132	0,9	0,8	121,7%
21A-INFN	195	1,5	1,5	103,2%
34A-STFC	367,6	2,8	1,5	184,8%
35-CERN	180	1,3	0,8	168,2%
Total:	**1588,6**	**11,8**	**9,7**	**121,4%**

WP7-G - JRA1 Operational Tools (EGI)

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
10H-LUH	124	0,9	1,5	60,2%
12B-FCTSG	172	1,2	1,5	82,6%
14A-CNRS			0,0	
17-SRCE			0,0	
21A-INFN	188	1,5	2,2	68,9%
34A-STFC	532	4,0	2,3	178,3%
35-CERN			0,0	
Total:	**1016**	**7,6**	**7,4**	**103,1%**

WP8-S - SA4 Advancing EGI's Strategic Goals

Partner	Hours Declared	Pm Declared	Committed PM	Achieved PM
1-EGI.EU	0	0,0	0,1	0,0%
9-CESNET	656	4,4	3,7	118,3%
10D-JUELICH	203,9	1,5	0,9	173,6%
12A-CSIC	340	2,7	1,9	141,0%
12B-FCTSG	363	2,6	1,9	135,6%
14A-CNRS	759,3	5,8	5,9	97,1%
16A-GRNET	110	0,8	1,5	55,9%
17-SRCE	192	1,3	1,1	123,9%
18C-MTA SZTAKI			0,6	
21A-INFN	0	0,0	0,5	0,0%
26B-SARA	753	6,2	3,0	207,7%
28A-CYFRONET	341	2,4	2,5	97,0%
34A-STFC			0,0	
38A-KTH	386	2,9	1,3	222,4%
Total:	**4104,2**	**30,7**	**24,9**	**122,9%**

5.2.3. Overall Financial Status

Selected period: PM43 to PM45 (November 2013 to January 2014)
Report extracted on 06 March 2014



Partner	Pm Declared	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
1-EGI.EU	35,6	64,0	55,6%	315.938,1	205.54
2-UPT	0,0	2,4	0,0%	0,0	
3-IIAP NAS RA	5,7	1,8	318,5%	16.960,0	5.59
5A-IICT-BAS	3,4	3,0	110,3%	20.495,4	6.76
5B-IOCCP-BAS	0,0	0,5	0,0%	0,0	
5C-NIGGG-BAS	0,0	1,5	0,0%	0,0	
6-UIIP NASB		1,9			
7A-ETH ZURICH	1,2	2,5	47,2%	10.088,0	3.32
7B-UZH	0,7	1,7	43,0%	5.135,4	1.69
7C-SWITCH	1,0	2,8	35,1%	13.761,1	4.54
8-UCY		4,0			
9-CESNET	19,7	23,3	84,7%	129.582,1	62.30
10B-KIT-G	18,5	21,2	87,4%	164.643,9	67.87
10C-DESY	1,0	1,9	51,9%	8.938,2	2.94
10D-JUELICH	5,6	3,8	147,0%	49.604,2	23.66
10E-BADW	4,3	3,0	142,4%	38.000,2	12.54
10G-FRAUNHOFER	1,2	1,9	60,1%	10.266,0	3.38
10H-LUH	2,8	3,4	84,4%	25.324,8	8.91
11-UNI BL	3,2	4,7	67,8%	13.056,0	4.30
12A-CSIC	17,0	11,1	152,9%	132.610,2	59.23
12B-FCTSG	18,2	10,9	166,8%	142.065,5	61.07
12C-CIEMAT	2,7	2,4	114,9%	21.330,2	7.03
12D-UPVLC	5,0	4,5	112,4%	39.188,8	12.93
12E-IFAE	3,3	2,9	113,5%	25.521,2	8.42
12F-RED.ES	5,0	3,3	155,1%	39.419,6	13.00
12G-UNIZAR-I3A	2,9	3,3	90,6%	23.019,1	7.59
12H-UAB	7,1	2,5	285,1%	55.724,7	18.38
13-CSC		7,7			
14A-CNRS	23,8	26,8	89,0%	205.886,8	91.08
14B-CEA	6,7	5,1	131,9%	58.125,7	19.18



Partner	Pm Declared	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
14C-HealthGrid		0,0			
15-GRENA	1,5	1,6	96,1%	3.777,9	1.24
16A-GRNET	15,4	20,1	76,8%	119.328,7	58.20
16B-AUTH		1,6			
16C-CTI	0,0	0,8	0,0%	0,0	
16D-FORTH	0,2	0,8	28,1%	1.769,1	58
16E-IASA	0,0	1,5	0,0%	0,0	
16F-ICCS	0,8	0,8	93,8%	5.897,1	2.94
16G-UI		0,5			
16H-UP	1,1	0,6	176,8%	8.550,9	2.82
17-SRCE	10,8	8,8	123,8%	53.794,3	24.41
18A-MTA KFKI	3,3	4,6	71,9%	13.102,7	4.32
18B-BME	0,5	2,3	21,4%	2.760,0	91
18C-MTA SZTAKI	1,4	2,7	50,5%	8.414,1	2.77
19-TCD		3,7			
20-IUCC	7,5	2,3	324,4%	97.232,7	32.08
21A-INFN	27,0	39,8	67,8%	176.393,1	68.56
21B-GARR		1,5			
22-VU	1,8	1,1	161,6%	14.791,1	4.88
23-RENAM	1,7	1,4	120,5%	5.164,3	1.70
24-UOM	4,1	3,6	112,3%	9.742,5	3.21
25-UKIM	5,2	4,4	117,2%	20.800,0	6.86
26A-FOM	2,0	3,6	56,7%	20.736,0	6.84
26B-SARA	12,1	13,3	91,1%	124.193,5	70.81
27A-SIGMA		3,1			
27B-UIO	1,1	2,0	56,1%	10.991,4	3.62
27C-URA	0,0	1,8	0,0%	0,0	
28A-CYFRONET	13,2	12,6	104,8%	112.821,6	48.07
28B-UWAR	2,2	1,8	120,1%	18.499,3	6.10
28C-ICBP	1,3	2,1	62,5%	11.257,8	3.71



Partner	Pm Declared	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
28D-POLITECHNIKA WROCLAWSKA	1,7	1,0	167,4%	14.239,6	4.69
29-LIP	21,5	16,3	131,9%	117.629,2	47.53
30-IPB	9,1	9,2	99,0%	49.900,3	16.46
31-ARNES	4,8	5,0	96,4%	28.694,1	9.46
31B-JSI	5,1	4,3	117,1%	30.449,5	10.04
32-UI SAV	10,3	11,0	93,1%	82.000,0	27.06
33-TUBITAK ULAKBIM	10,8	11,5	93,9%	76.032,0	25.09
34A-STFC	25,0	21,2	118,0%	257.200,6	107.21
34C-UG	5,2	4,0	130,9%	53.177,3	17.54
34D-IMPERIAL	4,0	4,0	100,4%	41.516,5	13.70
34E-MANCHESTER	3,0	4,0	75,4%	31.183,5	10.29
34F-OXFORD	0,9	0,8	119,3%	9.187,0	3.03
35-CERN	5,1	4,7	107,9%	73.278,5	35.88
36-UCPH	2,6	4,5	57,1%	28.598,9	9.43
38-VR-SNIC	0,0	0,2	0,0%	0,0	
38A-KTH	4,6	4,0	113,2%	52.369,8	31.02
38B-LIU	2,6	2,6	100,5%	30.167,7	11.52
38C-UMEA	2,5	3,0	81,7%	28.303,4	9.34
39-IMCS-UL	1,8	5,3	34,3%	14.392,0	4.74
40A-E-ARENA	0,1	1,3	7,8%	396,0	13
40B-SINP MSU	1,6	1,3	131,7%	6.517,0	2.15
40C-JINR	0,6	0,8	79,7%	2.565,5	84
40D-RRCKI	0,6	0,8	79,7%	2.565,5	84
40F-ITEP	0,6	0,8	79,7%	2.367,5	78
40G-PNPI		0,8			
51A-ICI	1,8	1,4	127,7%	10.903,9	3.59
51C-UPB		0,8			
51D-UVDT	0,4	0,6	66,8%	2.285,0	75
51E-UTC	0,0	0,6	0,0%	0,0	

Partner	Pm Declared	Committed PM	Achieved PM	Eligible Cost Estimate	Estimated Funding
51H-INCAS		0,2			
51J-UB	0,9	0,1	743,7%	5.652,4	1.8(
Total:	**437,25**	**500,61**	**114,49%**	**3.456.276,31**	**1.471.20(**

5.3. Issues and mitigation

5.3.1. Deviations for linear plan

Some partners are deviating from the linear plan committed to the project and significantly over reported in this quarter:

- WP2-E: LIP
- WP4-E: CESNET, JUELICH, FCTSG, GRNET, SRCE, INFN, LIP
- WP5-E: FCTSG
- WP7-E: KIT-G, STFC, CERN
- WP7-G: STFC
- WP8-S: CESNET, JUELICH, CSIC, FCTSG, SARA, KTH

Within Work package 2E the partners over reporting are on the contrary significantly under reporting in Work package 2N.

Within the N-work packages the deviations are not monitored as 67% of the effort are funded by the members; more effort reported within their limited budget are of benefit to the project.

5.4. Plans for the next period

On 28 January 2014, the Project Officer accepted the proposed DoW amendment, which includes the extension of the project by 8 months until December 2014.

It was formally submitted into the EC Portal on Feb 14, 2014. The supporting documentation of the amendment is saved in the PAC wiki: https://wiki.egi.eu/wiki/Contractual_documents

6. PROJECT METRICS

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

No	Objective Summary	Metrics	Achieved			Target
			PQ13	PQ14	PQ15	PY4
PO1	Expansion of a nationally based production infrastructure	Total number of production resource centres that are part of EGI (EGI-InSPIRE and integrated partners) (M.SA1.Size.1)	337 (only certified sites)	341 (only certified sites)	**335 (only certified sites)**	345 (350) (355)
		Total number of job slots available in EGI-InSPIRE and integrated resource providers (M.SA1.Size.2a)	433,878	436,922	**404,105**	400,000 (425,000) (450,000)
		EGI monthly availability and reliability of Resource Centre (M.SA1.Operation.5)	95.41%/ 95.91%	97.24%/ 97.96%	**96.60%/ 97.04%**	97.0/97.5% (97.5/98.0%) (98.0/98.5%)
		Average monthly availability and reliability of NGI core middleware services (MSA1.Operation.4)	98.33%/ 98.53%	99.29%/ 99.75%	**98.57%/ 99.65%**	99.60/99.80 % (99.65/99.85 %) (99.67/99.87 %)
		EGI monthly availability and reliability of critical central operations tools	99.71%/ 99.91%	97.39%/ 97.42%	**99.62%/ 99.63%**	99.60/99.80 % (99.65/99.85 %) (99.67/99.87

No	Objective Summary	Metrics	Achieved			Target
		(MSA1.Operation.6a)				%)
		EGI monthly averaged VO availability and reliability (M.SA1.Operation.7)	97.27%/ 98.34%	98.13% 99.04%	**98.18%/ 98.61%**	98%/99% (98.5/99.0%) (98.7/99.2%)
PO2	Support of European researchers and international collaborators through VRCs	Number of papers from EGI Users (M.NA2.5)	9	36	10	70 (80) (90)
		Number of jobs done a day (M.SA1.Usage.1)	1.19 M (grid) 1.45 M (grid and local)	1.35 M (grid) 1.61 M (grid and cloud)	**1.40 M (grid) 1.61 M (grid and local)**	1.6 M (1.8 M) (2.0 M)
PO3	Sustainable support for Heavy User Communities	Number of production sites supporting MPI (M.SA1.Integration.2)	80	89	**69**	90 (100) (120)
		Number of users from HUC VOs (M.SA1.VO.7)	11,656	11,569	**12,085**	12,500 (13,000 (14,000)
		Total number of High Activity VOs (M.SA1.VO.5)	53	45	**41**	55 (60) (65)
PO4	Addition of new User Communities	Number of users from non-HUC VOs (M.SA1.VO.6)	10,368 (*)	7,532(*)	**8,389**	11,000 (11,500) (12,000)
		Public events organised (attendee days) (M.NA2.6)	210	2137	**530**	15,000 (17,000) (19,000)
PO5	Transparent integration of other	Number of on-going Research Infrastructures/n	5 (**)	9 (***)	**10 (***)**	5 (7)

No	Objective Summary	Metrics				Target
	infrastructures	ew communities being integrated (M.SA1.Integration.4)				(9)
		MoUs with resource providers (M.NA2.10)	3	4	**5**	4 (5) (5)
PO6	Integration of new technologies and resources	Number of resource centres offering federated cloud services accessible to authorised users (M.SA2.16)	14	19	**14**	15 (20) (25)

(*) The value decreased in PQ13, PQ14 and PQ15 due an on-going campaign aiming at decommissioning inactive VOs.
(**) DRIHM, EISCAT 3D, MAPPER, VERCE, VPH
(****) EISCAT, CTA, DRIHM, VPH, Mapper, LifeWatch, GAIA, ENVRI, DCHRP, ELIXIR

6.1. Activity metrics

These are available from the EGI Metrics Portal - *http://metrics.egi.eu/quarterly_report/QR15/*
see also: http://metrics.egi.eu/

6.2. Metrics – Detailed Summary

6.2.1. VO Jobs Review

During PQ15, all but three of the VO groups ran more jobs on the infrastructure than during PQ14. In all but four of the VO groups, the jobs required more computing capacity from the resource sites. The growth in job size often compensated for the decrease in job numbers, resulting in an overall increase in CPU usage across most scientific disciplines. Specifically:

- Astronomy, Astrophysics and Astro-Particle Physics: 4,6% more jobs, but smaller jobs, so CPU usage dropped 31%
- Computational Chemistry: 83% more jobs, with 18,7% increase in CPU usage
- Computer Science and Mathematics: 57% less jobs, resulting in a 47% decrease in CPU usage
- Earth Sciences: 54% less jobs, resulting a 66% decrease in CPU usage
- Fusion: 307% more jobs, resulting a 200% increase in CPU usage
- High-Energy Physics: 3,5% more jobs, resulting a 3,2% increase in CPU usage
- Infrastructure: 4,8% more jobs, and also larger jobs resulting a 66% increase in CPU usage



- Life Sciences: 35% less jobs, but larger jobs than before, resulting a 12,3% increase in CPU usage
- Multidisciplinary VOs: 57% more jobs, but much smaller jobs than before, resulting a 58% decrease in CPU usage
- Others: 856% more jobs, with CPU increase 12,4%
- Unknown: 90% more jobs, with CPU usage up to 23%

6.2.2. New VOs Review

Two new VOs have been established during PQ15:

- eiscat.se an earth science, global VO. The VO is used to identify existing services and solutions from EGI that could address the data pre-processing, post-processing, publishing needs of EISCAT project
- km3net.org: An astronomy, astrophysics and astro-particle physics VO with global scope. The goal of the VO is to enable the usage of Grid resources for KM3NeT collaboration members, mainly for simulation and reconstruction of signal and background events.

6.2.3. New Users Review

The number of users within most of the VO groups increased during PQ15. The most significant change was in the HEP VO groups; in these, the number of users increased 4.5% (from 8494 to 8891). The user statistics are still missing the number of users who access EGI with robot certificates. The JA1 team has been requested to implement an improved accounting method that can capture the active robot users (e.g. by tracking their jobs using unique VOMS extensions).

Currently, in EGI, 114 robot certificates are used serving 40 VOs, which allows users to access EGI resources without personal certificates. These users are not necessarily registered in VOMS services and thus are not accountable in statistics. In many cases, robot certificate owners are not able to assess the number of individual users and declare that only potential estimation is possible, in many cases the number is equal to the number of all members of given community.

7. ANNEX A1: DISSEMINATION AND USE

7.1. Main Project and Activity Meetings

Provided by each partner in each Activity and assembled by the AM. Regular internal management meetings within the activity do not need to be reported. Training events will be recorded in the training event registry and need not be mentioned here.

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
4-6 Dec 2013	Amsterdam, NL	EGI towards Horizon 2020 workshop	135	https://indico.egi.eu/indico/conferenceDisplay.py?confId=1893

7.2. Conferences/Workshops Organised

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

Date	Location	Title	Participants	Outcome (Short report & Indico URL)
15-16 Jan 2014	Abingdon, UK	SCI meeting	25	Hosted and chaired this meeting of the Security for Collaborating Infrastructures activity. Produced a new version of the document and planned future activities: http://agenda.nikhef.nl/conferenceDisplay.py?confId=2586
13-15 Jan 2014	Abingdon, UK	EUGridPMA Plenary Meeting	25	https://www.eugridpma.org/meetings/2014-01/ https://www.eugridpma.org/meetings/2014-01/summary-eugridpma-2014-01-abingdon.txt

7.3. Other Conferences/Workshops Attended

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

Date	Location	Title	Participants	Outcome (Short report & Document Server URL to presentations made)
6-8 Nov 2013	La Plata, Argentina	TAGPMA and IGTF All Hands meeting		Attended this IGTF meeting representing WLCG and EGI and gave several presentations: http://indico.rnp.br/conferenceDisplay.py?confId=173

6 - 8 Nov 2013	Vilnius, Lithuania	ICT2013	5,000	EGI booth with partners in the ICT village http://ec.europa.eu/digital-agenda/events/cf/ict2013/item-display.cfm?id=11225
18 - 12 Nov 2013	Denver, Colorado, USA	SuperComputing'13	10,000	EGI booth with partners in the exhibition hall http://iebms.heiexpo.com/iebms/oep/oep_p2_details.aspx?sessionid=fa1fa4fhkfaoei5fg1fe4&OrderNbr=6395
10 Dec 2013	Geneva, CH	Identity Mgmt in WLCG Workshop		Attended to help lead directions to be consistent with IdM activities in EGI: http://indico.cern.ch/conferenceDisplay.py?confId=272770
16-17 Jan 2014	Oxford, UK	OGF40		Attended and contributed to working groups in the Security Area: http://www.ogf.org/dokuwiki/doku.php/events/ogf-40
22 Jan 2014	Hamburg, Germany	LSDA AAI Workshop		Gave presentations on AAI/IdM in EGI and related legal aspects: https://indico.desy.de/conferenceDisplay.py?confId=909

7.4. Publications

Publication title	**Journal / Proceedings title**	**DOI code**	**Journal references** *Volume number Issue Pages from - to*	**Authors** *Initials*	**Authors** *Surname*
Atomic and Electronic Structure of Grain Boundaries in Crystalline Organic Semiconductors		10.1088/0031-8949/2013/T157/014061	Phys. Scr. T 157 (2013) 014061	M N I	Mladenovic Vukmirovic Stankovic

Phonon and Magnetic Dimer Excitations in Fe-based S=2 Spin-ladder Compound BaFe2Se2O		10.1103/PhysRevB.89.014301	Phys. Rev. B 89 (2014) 014301	Z M N	Popovic Scepanovic Lazarevic
Self-assembly of Magnetic Balls: From Chains to Tubes		10.1103/PhysRevE.89.011202	Phys. Rev. E 89 (2014) 011202(R)	R L I	Messina Abou Khalil Stankovic
The molecular properties of nitrobenzanthrone isomers and their mutagenic activities	Chemosphere	10.1016/j.chemosphere.2013.11.057		B B D	Ostojić Stanković Đorđević
Monte-Carlo Simulation on Heterogeneous Distributed Systems: a Computing Framework with Parallel Merging and Checkpointing Strategies	Future Generation Computer Systems		Future Generation Computer Systems 29, 3 (2013) 728--738	S T R P D H	Camarasu-Pop Glatard Ferreira Da Silva Gueth Sarrut Benoit-Cattin
Simulating Application Workflows and Services Deployed on the European Grid Infrastructure	13th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing	13th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing, Pays-Bas (2013)		S T H	Camarasu-Pop Glatard Benoit-Cattin

Enabling 3D-Liver Perfusion Mapping from MR-DCE Imaging Using Distributed Computing	Journal of Medical Engineering (2013) 471682			B S E F O	Leporq Camarasu-Pop E. Davila-Serrano Pilleul Beuf
Distributions of secondary particles in proton and carbon-ion therapy: a comparison between GATE/Geant4 and FLUKA Monte Carlo codes	Physics in Medicine and Biology	Physics in Medicine and Biology 58 (2013) 2879 58 (2013) 2879		C G I P L G Y D E	Robert Dedes Buvat Gueth Lestand Montarou Prezado Sarrut Testa
Validation of Grid Middleware for the European Grid Infrastructure	Journal of Grid Computing			M G J J I E I C E A K M T P	David Borges Gomes Pina Campos Fernandez-del-Castillo Diaz Fernandez Freire Simon Koumantaros Drescher Ferrari Solagna
A Multy-Domain Operational Chemical Weather Forecast System		LSSC 2013, LNCS 8353, Springer		D M I K K	Syrakov, Prodanova Etropolska Slavov Ganev