EGI-InSPIRE

EGI GLOBAL TASK REVIEW

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Abstract

This report provides a comprehensive list of the various services provided through EGI.eu and external technical partners. The services are self-assessed from a managerial perspective with a score ranging from 1 to 5 (with 1 being the lowest and 5 the highest) including a brief analysis of the score and how it could be improved in future years. This report also includes the costs per service as reported by project partners. A detailed technical reporting of the work performed by these services has been contained within the project's quarterly reports.



I. COPYRIGHT NOTICE

II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Steven Newhouse et al.	EGI.eu/NA1	02/04/2012
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III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
ToC	10/01/2012	Table of Contents	Sergio Andreozzi, Sy Holsinger, Steven Newhouse/EGI.eu
1	15/02/2012	First draft from internal and external contributions	Sy Holsinger/EGI.eu, et al.
2	24/02/2012	Second draft for internal review	Sy Holsinger/EGI.eu
3	29/02/2012	Service costs added	Sy Holsinger/EGI.eu
4	05/03/2012	Final contributions added and overall edits for review	Sy Holsinger/EGI.eu
5	15/03/2012	Revisions based on initial feedback	Sy Holsinger, Steven Newhouse/EGI.eu
6	16/03/2012	Refactored and updated costs	Sy Holsinger, Steven Newhouse/EGI.eu
7	19/03/2012	Final edits/revisions for AMB review	Sy Holsinger/EGI.eu
8	30/03/2012	Revised version from AMB comments	Sy Holsinger/EGI.eu
9	02/04/2012	Final version for PMB approval	Sy Holsinger/EGI.eu

IV. APPLICATION AREA

This document is a formal deliverable for the European Commission, applicable to all members of the EGI-InSPIRE project, beneficiaries and JRU 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

This report describes the services being offered throughout the EGI ecosystem and provides a self-assessment of the EGI Global Tasks as they are currently being offered and provides a means for ensuring their continuous improvement.

The services have been self-assessed from a managerial perspective with a score ranging from 1 to 5 including a brief analysis of the score and how it could be maximised. The different scores equal: 1 = An unacceptable level of service was delivered; 2 = A level of service that was below expectations was delivered; 3 = An acceptable service level has been delivered; 4 = A level of service that exceeded expectations was delivered, but there is room for improvement; 5 = An excellent service was delivered and should be considered as best practice.

The majority of the services received an acceptable or exceeded level of expectation score, with only two services receiving a slightly lower score - Technology Roadmapping and Coordination of Operations Interoperability. With many of the objectives throughout year 1 being met or exceeded, it was still important to identify areas of improvement from the coming year as well.

Many of the issues reported last year were around initial problems due to the start of phase of EGI.eu. As many of these problems have slowly been mitigated since the project start, what has arisen to the surface is more around the continued refinement of the activities and processes. A common theme has been around how to continuously improve the communication between EGI.eu and the NGIs, as well as in engaging new communities. Following the year 1 EC review, the refactoring of some of the activities (e.g. splitting of user community support and technical outreach, addition of strategic planning) has been mostly positive and effective, but in some activities such as technical outreach to user communities' the longer-term impact is still be evaluated.

The real costs of the EGI global tasks have also been provided in a first attempt to separate the costs between technical and non-technical services, as well as the individual service operation, maintenance and development costs. This was an important exercise as different business models are being considered for the different service categories based on the main beneficiaries of the different services. Two sets of categories were identified through the cost analysis: 1) NGIs and their resource centres which benefit directly from centralised technical services and support that help coordinate and integrate EGI's technical activities should be the primary contributors to these services and 2) as the establishment and promotion of EGI as a service for the European Research Area will directly benefit the EC and its goals within Europe 2020, the EC should be the primary investor in this activity.

As EGI continues to define and evolve its service portfolio, the presented services will continue to be defined, developed and refined during the course of the EGI-InSPIRE project as requirements, technology and the community align themselves towards EGI's 2020 strategy.

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1 INTRODUCTION

The EGI Global Tasks are the responsibility of the EGI.eu organisation and are undertaken by EGI.eu staff in Amsterdam and by staff based at participants and associated participants' institutions within the EGI Community. These activities are currently funded through EGI.eu, contributions from the hosting institution and the European Commission through the EGI-InSPIRE project for the benefit and use of the whole community.

The managers of each service were requested to provide their overall assessment from a managerial perspective on how each service was progressing and suggestions for the coming year. In each of the overarching areas, assessments were also collated from external members for their feedback as well.

The EGI Global Tasks for the operations function were specifically assessed through a survey distributed to all NGIs, which responses are available at [R33].

Under each service, the following format was followed:

- Description: Brief overview of the service.
- Assessment: 1-2 paragraphs focusing on managerial aspects. Technical aspects are covered by the Quarterly Reports [R34; R35; R36].
- Score (1-5): Including an explanation of score and suggestions for improvement.

A summary of the scores can be found in section 7.1 with the costs of the services summarised in Section 7.2.

2 GOVERNANCE AND ADMINISTRATION

2.1 EGI Council

Description: The EGI Council is the senior governance body of the EGI collaboration which is established through the EGI.eu foundation based in Amsterdam. The EGI Council meets regularly through the year and as required by its statutes [R37] and Terms of References [R38] standing orders to govern the strategic development and activity of EGI. It is required to approve the annual accounts and budget for EGI.eu, which includes the fees paid by the participants to cover the running costs of EGI.eu and the EGI Global Tasks delivered within the community.

Assessment: The EGI Council met 3 times during PY2 on 22nd September 2011 in Lyon, on 8th December 2012 in Stockholm and on 29th March 2012 in Munich. In addition an EGI Council workshop was held on the 28th March 2012 in Munich to allow the EGI Council an opportunity to deliberate on EGI's future strategic direction. The agendas for these meetings were prepared by the EGI Council Chair in consultation with the EGI.eu Executive Board. The EGI.eu administrative team provided support in advance and during the meeting by taking minutes and conducting the voting. In addition the EGI.eu administrative team invoices the participants for their annual participation fees and manages the chasing of unpaid invoices. During the year three Council Task Forces were active: the User Task Force met occasionally during the year and has provided a report on the structural changes needed for developing EGI's user community. The ERIC Task Force provided a contact point for coordination of EGI's interest in the European Research Infrastructure Consortium, and the Financial Task Force met in the early part of PY2 to propose options for the fee model for FY2012 and 2013, which were voted on and approved at the subsequent meeting.

Score: 4

Material is prepared in advance of the Council meetings and circulated to the satisfaction of the attendees. The invoicing of fees in FY2011 was the first time that EGI.eu had undertaken the invoicing and a number of important lessons were learned that have been incorporated into the administrative process used for FY2012. Continued improvement in the generation and tracking of these invoices and the administration of the meeting will be implemented as needed.

2.2 EGI.eu Executive Board

Description: The EGI.eu Executive Board is comprised of six elected representatives from the EGI Council and the EGI Council Chair, who also chairs the EGI.eu Executive Board meetings. The EGI.eu Director and Deputy Director are permanent observers. The Board meets every 2 weeks by phone with quarterly F2F meetings to prepare the annual budget, review the annual accounts and to supervise and advise the Director on the day-to-day running of the organisation. Additional F2F meetings are held during the year to discuss the agenda for EGI Council meetings and discuss any other urgent issues.

Assessment: These meetings now have an established format and focus on Governance and Oversight (focusing on the Director's report, financial issues, and any policy or public relations issues), HR Issues, and then any other items of planned business. Minutes are produced which once approved are made available to the EGI Council participants and the EGI-InSPIRE Project Management Board.

Score: 4

The process of running the organisation and its oversight has settled down as the organisation passes its second anniversary. Papers are prepared for discussion, refinement through the Executive Board and then circulated to the EGI Council for further adoption, approval or refinement. Minutes are quickly and accurately produced to conform to the rapid meeting cycle. Further improvements will be made as the organisation's experience with these processes continues.

2.3 Strategic Planning and Policy

Description: Resulting from the first project review, the name of this task was expanded from 'Policy Development' to 'Strategic Planning and Policy Support'. The new task description includes activities at the strategic level that were started during the first year and are now structured to better reflect team activities and support the EGI strategy development.

This activity is led by the EGI.eu Strategy and Policy Team (SPT) and encompasses the development of strategies and policies within and external to EGI.eu relating to governance, standardisation and integration with other infrastructures. The team also develops EGI's strategic response and alignment to EU policy and EC initiatives, such as EU2020, the Digital Agenda and the online ERA, and supports the boards and committees within EGI that draft policies and procedures for evolving the technical infrastructure.

The main objectives are to analyse strategic themes and trends globally and in Europe and produce documents and reports to inform the EGI management bodies and wider community to support the decision-making process; liaise with other projects and organisations, including industry and international policy bodies to establish collaboration agreements and monitor progress; organise meetings and workshops on key themes that are strategic to EGI and attend relevant events and conferences; and support the formulation and development of policies and procedures by the EGI policy groups (e.g. security, technology coordination, operations management).

Assessment: The activities carried out over the last year have proved to be fundamental in supporting decision making processes and forward planning. The team has worked on identifying and collating all the data required to make decisions and articulating it as meaningful information. Furthermore, the team performed several analyses with regards to the EGI ecosystem (e.g. value creation, SWOT, relationship interactions, potential business models). The engagement with EU strategic policies has been strengthened and several contributions have been provided to influence EU policy decisions, but also to support their actions. This activity is of utmost importance for EGI to anticipate future developments and remain at the forefront of e-Infrastructures.

Score: 4

As assessed, the newly structured activity has allowed for targeted activities in strategic areas directly impacting the decision making process, which has been demonstrated through key reports such as several position papers, impact assessment survey completions, the EGI strategy plan and the work around business models for the EGI ecosystem. Several policy articles have been published in the EGI-Inspired newsletter, blog, iSGTW and in policy publications such the e-IRG newsletter. A few areas of improvement are how information resulting from EGI management discussions regarding the developments and evolution of EGI can be better communicated to the NGIs and wider EGI community and how to measure the understanding and impact of these communications. There should also be a more targeted effort in better connecting with the NGI policy activities. The first step has been through the preparation of the EGI compendium where follow up discussions will take place on whether or not a Virtual Team project is a supported mechanism by the community as a way to improve more specific policy related interactions. Another action being considered is the secondment of a senior NGI policy analyst to work for a short term with the EGI Strategy and Policy Team in order to perform a focused work on policy integration between EGI and NGIs.

2.4 Finance and Secretariat

Description: An organisation needs a secretariat to support its governance functions, but also to support the community and the staff it employs. Within EGI.eu, support is provided during Council and Executive Boards meetings, community support is provided through a range of IT services to local staff and to the collaboration (e.g. website, wiki, meeting planner, mailing lists, document server, timesheet tool). In addition, the community organises two large meetings a year (the User/Community and Technical Forums) to continue the building collaborations within EGI and a number of additional workshops as required to support the community's activities.

Assessment: During the second year, the EGI.eu secretariat has continued to provide effective support to the organisational governance functions. The secretariat has provided a reliable level of support to all Council and Executive Board meetings providing minutes, organising and administrating the meetings, including providing materials for decision and curating formal votes.

IT support services were provided in collaboration with CESNET and the Communications and Marketing team, effectively maintaining the organisational website [R1], a project wiki site [R2], an intranet site [R3], Indico meeting planner [R4], extensive mailing lists [R5], DocDB document server [R6], EasyTS (organisational planning tool) and PPT [R7] (project planning tool) in collaboration with CERN. The usage of these tools has continued to grow as the organisation has expanded, and these are essential services for the organisation and the project. In addition, the secretariat has provided support in booking project-related travel for EGI.eu staff, for EAC members and for speakers and guests at EGI events. Members of the secretariat are involved in quality assurance for the project, driving the deliverables and milestones review process, maintaining the quality assurance wiki pages, and the gender action plan pages on the website. All financial and procedural administration for the

project has been conducted within the secretariat, including liaison with project partners and timesheet management. At the end of PY11 in particular, the finance team worked closely with all partners, through the Project Administrative Committee and directly, to complete the Form C's and finalise the financial reporting for the organisational and project audits, as well as the first year review.

The secretariat has also worked closely with the Communications and User Community Support teams to deliver the two annual events that EGI.eu organises on behalf of the community: the Technical Forum and the User Forum. The EGI Technical Forum 2011 took place on 19-23 September 2011 in Lyon [R8] and was attended by over 655 delegates, the community's largest event to date. The secretariat was responsible for liaising with the local organisers, CNRS and CC-IN2P3 and also delivered services usually provided by a PCO at short notice, such as badges, onsite registration, processing onsite payments and providing invoices. As a result, the event was a success and plans are underway for the first EGI Community Forum 2012, which will be held in Munich, 26-30 March. The secretariat leads the LOC, which collaborates with the PC on leading all logistical matters.

Score: 4.5

The secretariat now smoothly delivers support for all tools and services required by the project, including the Customer Relationship Management (CRM), the EasyTS timesheet and PPT mentioned above. Processes and procedures for administrating the project are now well established, and are mostly being followed accurately by members of the organisation. Understanding of new procedures is now enhanced through the regular monthly Staff Forums and the staff intranet site has been developed as the main source of information for aspects such as travel, purchasing and document submission. Now that the team is at full strength, and restructured around the key functions of project admin and project finance, the time taken to respond to administrative requests has been reduced and the team functions more efficiently, with better defined roles. Retrospective reviews of the procedures for all administrative and financial processes since the close of year one have identified further areas for improvement, for example, in the checking of budget codes, making sure paperwork is complete and checking the alignment between expenditure and the project requirements. These changes have been gradually implemented during PY2, and will continue to be refined during PY3 in the response to audit and reviewers' comments. In particular, the finance team will aim to respond to the reviewers' comments regarding providing clearer top-level information around the costs of global tasks (as shown in section 7.2), and additional reporting has been set up with providers of these services. The targets relating to metrics for the project will similarly be reviewed to give a better picture of the project's performance.

3 TECHNICAL MANAGEMENT

3.1 User Community Board (UCB)

Description: The UCB [R39] has continued to regularly meet more or less monthly, with a few exceptions (holiday breaks, etc.), since this frequency was established about a year ago, increasing from its original quarterly timescale. This was the result of a request from one of the participants and importance agreed across the board. The exceptions to this are typically triggered when the representatives meet at other meetings such as the EGI Forums and other meetings such as the EGI sustainability meeting held recently in Amsterdam. The current membership comprises:

- Steve Brewer, EGI.eu, Chair
- Ian Bird, Worldwide LHC Computing Group (WLCG), *VRC rep*.
- Alexandre Bonvin, Structural Biology (WeNMR), *VRC rep*.
- Monique Petitdidier, Horst Schwichtenberg, Earth Sciences, *participants*
- Tristan Glatard, Life Sciences Grid Community (LSGC), *VRC rep.*
- Claudio Vuerli, Giuliano Taffoni, Astronomy and Astrophysics (AA), *participants*
- Jiri Chudoba, AUGER, *participant*
- Antonella Fresa, Digital Cultural Heritage (DCH), *participant*
- Antonio Lagana, Computational Chemistry (COMPCHEM VO), *participant*
- Antonio Parodi, Hydro-meteorology Research Community (HMRC), *participant*
- Martin Wynne, Humanities (Letter of Intent signed with CLARIN and DARIAH), *participant*

Here "VRC rep." refers to a representative from a Virtual Research community that has signed a Memorandum of Understanding (MoU) with EGI and "participant" refers to an individual or individuals who represent an established community that has ties with EGI and are moving towards VRC status.

Assessment: During the second year of the project the UCB has continued to be a useful channel for communicating with the established Heavy User Communities (HEP, Astronomy & Astrophysics, Life Sciences, Earth Sciences, etc.) as well as newer communities such as Humanities, Hydrometeorology and Digital Cultural Heritage. Whilst not all of the community representatives have attended all of the meetings, many have attended most of them. About a year ago, as a result of another request from a participant, the UCB chair started to produce a summary of each meeting in conjunction with the formal minutes, which is then published on the EGI Blog, thus can be linked to or re-published by the communities themselves and with automatic notification to the EGI press team. In terms of expanding the membership of the UCB, a number of new communities have been engaged in dialogue, but our emphasis has been on the ESFRI projects, which is starting to show results and demonstrated by the participation planned for the CF12.

Score: 4.5

Overall, the UCB runs smoothly, serving the needs of the participants, members and EGI itself. The formal mechanisms – meeting organisation, reports, inputs and outputs – all work well. The

discussions are constructive with members increasingly asking each other about success stories and problem solving during the meeting. Minutes and agendas are always published on Indico once they have been endorsed by those present. The social networking and knowledge transfer that occurs during the year ensures that the EGI Forums and meetings are of high quality as relationships have been established throughout the year and issues and requirements are well understood in advance, as are success stories and planning matters.

3.2 Technical Coordination Board (TCB)

Description: The TCB maintains a regular meeting frequency of 6-8 weeks, alternating between Face-to-Face meetings and phone conferences, as requested by participants. Specific meeting times are settled using Doodle polls that aim at co-scheduling meetings with other popular events in the EGI community. The Doodle poll participation rate clusters around 50-60% of the TCB members.

The TCB comprises of EGI representatives and delegates of the EGI Technology Providers as follows:

Name	Affiliation/Role	Voting right
Steven Newhouse (Chair)	EGI.eu, CTO	Yes
Steve Brewer	EGI.eu, CCO	Yes
Tiziana Ferrari	EGI.eu, COO	Yes
Alberto di Meglio	EMI	Yes
Balazs Konya	EMI (deputy)	As deputy
Helmut Heller	IGE	Yes
Steve Crouch	IGE (deputy)	As deputy
Andre Merzky	SAGA	Yes
Charles Loomis	StratusLab	No
Michel Drescher	EGI, Technical Manager	No
Peter Solagna	EGI.eu (COO deputy)	As deputy
Gergely Sipos	EGI.eu (CCO deputy)	As deputy
Enol Fernandez	EGI, Criteria Definition team lead	No
Alvaro Simon	EGI, Criteria Validation team lead	No
Kostas Koumantaros	EGI, Software Repository team lead	No
Ales Krenek	EGI, DMSU team lead	No

Table 1: EGI Technical Coordination Board Members

Presence of and voting rights granted to Technology Providers represented in the TCB is managed according to the TCB Terms of Reference [R9].

Assessment: The TCB held 6 meetings in the second project year. The list of members remained stable over the last year with only Matteo Turilli joining as chair of the Federated Clouds Task Force later in the year. Individual attendance to meetings ranges from 70% to 90% with a slight decreasing

trend towards 70% by the end of the year. Stakeholder attendance reflects the involvement with the EGI community. EGI Technology, EGI User communities, EGI Operations community were present at every meeting; EGI's 2nd level support unit for Grid Middleware (DMSU) and the Federated Clouds Task Force were present at every meeting as well. The two most involved Technology Providers, EMI and IGE, were represented at every meeting, while SAGA and StratusLab attended the meetings at 90% and 20% rate, respectively. Next to administrative topics, regular items of business were EGI Requirements (including DMSU reports on trends in service desk activities), and reports of endorsed Task Forces (e.g. Federated Clouds Task Force, Accounting Task Force) and Working Groups (Information Discovery, Logging). Where required, 'guests' are invited to speak at TCB meetings regarding other activities within the EGI Communities that are of relevance (e.g. Mario Reale, John Gordon).

Score: 3.5

Formal meeting processes are well established, with the latest process (TCB Requirements management process) being approved towards the end of the year and the participants currently collecting experience with it. Meeting minutes and agendas are regularly published on Indico. The agenda for meetings is not always published well in advance to allow participants to prepare, which is something to be improved over the next period. On the other hand, meeting material is often prepared and delivered on very short notice towards the meeting (one day before, or even on day at times via e-mail). With the approval of the process for TCB Requirements management, the most important duty of the TCB has been formalised including strict timelines; a standing agenda for TCB meetings is emerging with room for other topics to be discussed, where required.

3.3 Operations Management Board (OMB)

Description: The OMB drives future developments in the operations area by making sure that operations evolve with the needs of the community and to support the integration of new resources and middleware platforms (e.g. desktop grids, virtual machines, high performance computing). It does this by providing coordination and management and by developing policies and procedures for the operational services that are integrated into the production infrastructure through the operational support of distributed operations teams. Coordination of software deployment and feedback gathering is delivered through fortnightly operations meetings [R10].

Assessment

The OMB includes operations managers from NGIs, EIROs (CERN), integrated and peer Resource infrastructure Providers distributed across 54 countries. It comprises 113 members (including operations managers and deputies). During PY2 the collaboration with Open Science Grid (OSG) in the US has strengthened. OSG has two permanent observers on the board. The participation of OSG ensures streamlined discussion in various areas including interoperations of peer operational tools, security, accounting and the helpdesk system. The OMB successfully contributes to the periodic gathering, discussion and prioritisation of technology requirements, which are presented to the technology providers through the TCB. Operations requirements can be consulted on a dedicated

wiki page [R11]. The OMB is also contributing annually to the definition of the operations roadmap, which sets the priorities and milestones of operational activities for the enhancement of the production infrastructure [R12]. The OMB is also involved in the definition of the priorities of the products released in UMD and participated in 6 technical surveys [R13]. Participation from small NGIs needs improvement. A travel support programme was defined to facilitate participation to face-to-face meetings. The EGI.eu team responsible for operations coordination comprises 2 members of staff, and comprehensive management of such a wide distributed network of stakeholders is challenging at these staffing levels.

Metrics:

- 9 Operations Management Board meetings from May 2011 to Feb 2012 of which 3 were face-to-face meetings.
- 18 fortnightly operations meetings.
- Organisation of the Information Service Workshop (1 day).
- Chairing of the TCB Accounting Task Force [R14].
- Chairing of the Task Force on Tool Regionalisation Use Cases [R15].

NGI evaluation: 3.8

Issues reported by NGIs:

Effective measures need to be undertaken when procedures reach the last escalation stage in case of partners not respecting their expected obligations.

3.4 Technology Roadmapping

Description: Maintaining the technology roadmap for EGI requires the collection, prioritisation and analysis of requirements from the user and operations communities. From these requirements, new features are sourced from technology providers currently known to EGI, or from open-source or commercial technology providers. Components coming from within the EGI community, in order to provide bespoke functionality needed within the production infrastructure that cannot be sourced elsewhere, are captured within the UMD Roadmap. This continuously evolved documentation translates users requirements and technology evolution into a roadmap describing the functional aspects, release dates, maintenance support, acceptance criteria and dependencies for software components that are offered to the Resource Infrastructure Providers for installation.

Assessment: Efficient planning and maintenance of a roadmap requires accurate information on progress and activities from all participants, while at the same time appreciating that medium-term or particularly long-term planning always implies higher likelihoods of deviation from the expressed plan. However, these plans do at least allow for activities to focus on the correct direction of travel as regards the technical evolution as a whole. This concept of forward-looking strategic planning and roadmapping requires a minimum level of commitment and reliability of the sources of information this planning depends on. This is significantly different from an environment that is often experienced in Open Source environments, where any form of commitment or reliability in delivering anything at any given point in time is often based on best effort only. This makes strategic planning



which involves timescales and milestones very difficult – as a knock-on effect only tactical planning will happen.

Interestingly, a major Technology Provider has chosen to follow the Open Source model for software development and planning even though the underlying effort is technically not voluntary (it is funded project effort). And yet, only release schedules covering the next couple of weeks are provided. Anything looking further into the future does not include any indication of an estimated date of availability. This situation makes strategic planning of the Technology Roadmap very difficult and hence tactical planning is the only possibility.

Score: 2

Many attempts were undertaken to introduce a more formal long-term planning process. However, the TCB ratified a process for a more formal requirements collection process that is expected to help manage medium and long-term technology evolution issues.

4 COMMUNITY ENGAGEMENT

4.1 Marketing and Communication

Description: This activity is coordinated by EGI.eu on behalf of the European NGIs and projects, and other international partners. The aim is to communicate the work of the EGI and its user communities and target audiences for the dissemination outputs to new and existing user communities, journalists, general public, grid research and standards communities, resource providers, collaborating projects, decision makers and governmental representatives. Means for dissemination include the project website, wiki site, materials and publications, media and public relations, social media channels and attendance at events in order to market EGI to new users.

Assessment: In November 2011, NA2 and NA3 and the Dissemination team became the marketing and communications team within the combined NA2. This has meant working more closely with the user community support team on outreach to new and existing users through events and publications. Planning for participation at events is now more coordinated, and takes advantage of the contacts established by the user community support team. This means that we are leveraging our attendance at meetings more effectively, for example, by involving local NGIs in running booths, by gathering targeted case studies from the community to display at scientific events (e.g. the EGU General Assembly), and coordinating with presentations being given by high profile users of the infrastructure at that event.

EGI presence at events is also more tightly coupled with outreach activities through online publications and social media. Members of the user community and policy teams have attended events in order to network, and have combined this with blogging for the EGI blog, and also the GridCast blog run by the e-ScienceTalk project. Articles based on these blogs by EGI staff have been published through International Science Grid This Week, which has 8000 subscribers and is regularly re-tweeted through the CERN Twitter account, which has over 460,000 followers. These activities have helped us to target the science community and potential users of the infrastructure.

In PY2, the communications team has also focused on a major campaign to raise awareness of EGI's activities to a policy audience. In addition to attending policy events, such as SciTech Europe in Brussels, we have published a series of strategy articles and project profiles, based on EGI's added value in helping to deliver the Digital Agenda and build the online ERA. We have published extended articles in The Parliament, Pan European Networks: Science & Technology, Public Service Review: European Union and Public Service Review: Science & Technology. This has included issuing a DVD of the EGI SciTech Europe masterclass on the cover of PSR: Science & Technology, and producing a dedicated 8-page booklet on EGI and the Digital Agenda commissioner, Neelie Kroes, emailed to 140,000 Public Service Review subscribers.

Targeting of the general public has been done through social media and the collaboration with e-ScienceTalk, which launched a new e-ScienceCity website aimed at introducing e-Infrastructures and e-Science to a general public audience. The 2D website contains many references to EGI, and there is also a 3D virtual e-ScienceCity hosted in the New World Grid virtual world, which is a growing open source alternative to Second Life. EGI has revised its social media strategy to target its output better,

so that information for the general public is separated from blogs and tweets for the operations, policy and user communities. Two campaigns have been launched through social media, including a hidden 'Easter egg' website accessed through a QR on our promotional T-shirts, and a search for an EGI mascot competition, which attracted over 8000 votes through our new Facebook page. A video based on the WeNMR project's work on developing new anaesthetics from cone snail toxins using EGI resources will be launched at the International Symposium on Grids and Clouds in Taipei, and previewed at the Cloudscape IV event. The video is targeted at a general public audience via YouTube, and further videos are planned covering high energy physics and music research.

A further major area of development has been the EGI website. The website evolved rapidly during the course of the first year of the project, being re-launched with a new design in time for the first EGI Technical Forum in September 2010, and the content developed over the course of the project year. By the EGI User Forum in April 2011, the website was functionally complete. However the bulk of the content was focused at a user audience, who already have a good knowledge of the infrastructure. Material for new users, scientists and the general public was not yet developed, and the look and feel of the site was not as visually engaging as was needed.

A full review of the website was carried out in the light of the review comments, and a new structure for the navigation was developed, together with reworked and additional content. The new structure for the website is based on a dynamic two tier menu, and pulls out strands of content for new users, existing users, the general public, policy makers and others. The new design includes clearer paths to the different types of information, better links to our social media channels and more capacity for visually engaging content, which can be built up over time. Major work has gone into building up the news strand to cover projects and general science news, as well as EGI news, and effort has been focussed on gathering and promoting case studies. These have included a use case on research into dinosaur movement, which was also published as a news item, and in iSGTW. A story was published on the LizzaPAKP grid-enabled application, which is helping city planners to manage drinking water supplies around Belgrade, Serbia. A case study on hunting viruses using the grid was published in iSGTW in January 2012, and is currently one of the top rated stories on the iSGTW website. To gather information about the NGIs in order to feature richer, international content on the website, a Virtual Team was set up in November 2011. Out of 36 NGIs and 23 declared NILs, we received 13 replies (36%). By the 1st of February deadline we had replies (complete with logos) from: Czech Republic, Germany, Spain, France, Greece, Hungary, Ireland, Israel, Italy, the Netherlands, Portugal, Serbia, Slovakia.

The communications team has continued to build on its external contacts, attending social media training with the TERENA-CPR group, and holding regular meetings with e-IRG, TERENA and DANTE communications teams to share communications channels, such as websites, newsletters and news feeds.

Score: 4

The NILs were asked to give feedback on the communications global task, and responses were received from 15 NGIs. Scores ranged from 2 to 5 and comments focused on four main areas: the website, case studies, events and outreach to the general public. The respondents were keen to see the communications team working with publications such as iSGTW, and providing more news about

other projects and scientific work generally. Similarly, they would like to see more case studies, particularly around the ESFRI projects, which will be added as the project progresses, in collaboration with the NGIs. The NILs would like to see a greater engagement with marketing to the general public, and the impact of the three new "Stories from the Grid" YouTube films will be assessed at the start of PY3, as these will be a key tool for marketing our work to the general press, policy makers and the public. The event outreach around the EGI events was also singled out as providing a good insight into grid projects and regional grids, with a suggestion to reach out to communities beyond EGI as strongly as possible. NGI's would also welcome a closer collaboration on outreach at other user events, especially through case studies and demos, as is already planned for the EGU event, and in fact would like to be involved in the central outreach activities as much as possible. EGI will continue to host communications focused sessions and training at EGI events to help NGIs to share experiences, and will aim to host seconded staff from the NGIs in the central team.

4.2 Community Outreach

Description: The main focus for Community Outreach continues to be the two annual EGI Forums. Whilst there is significant overlap between the Community event and the Technical event, having the two very different points of focus emphasises the two clear outlooks from EGI. The forums represent an opportunity for developers, researchers, coordinators, sys-admins, managers, support staff, trainers and even users to deliver and attend presentations, workshops, training sessions and plenaries relating to e-Infrastructure. In addition to this, the outreach team attend events relating to other communities and national organisations in order to present the work and role of EGI as well as to discover the needs of these groups from within their own environment.

Another mechanism for delivering outreach is to run or support workshops held within our partner countries. Such events offer an opportunity to present more specialist services for use by certain members of the community. An example of this was the recent event in Budapest held in February 2012 on workflows [R40]. Although the focus of such events is technical, there is also a more general outreach benefit in interacting with new communities.

EGI also organises occasional events on other themes such as the sustainability meeting at the start of the year to which all of the user communities were invited with more than 70 representatives throughout the community actively participated [R41]. This was an important meeting where the new structure of how services will be managed and delivered was presented and discussed.

Increasingly, the target for community outreach will be the ESFRI projects now that they are starting to find their feet. Although EGI had some discussions with individuals involved in various ESFRI projects, including DARIAH, CLARIN, LIFEWATCH, and ELIXIR for example, on the whole, the projects have not yet established their own internal processes to enable EGI to form meaningful technical relationships. This is increasingly changing and so we are starting to see a positive change in how we communicate with these communities.

Finally, the other significant development over the last few months has been the creation of the NGI International Liaison (NIL) role. Henceforth, NILs will play an important role in coordinating the processes whereby we connect to user communities from within EGI's particular partners. To provide further focus for the NILs, EGI is organising multiple short time-frame projects that will be delivered by 'Virtual Teams' comprised predominately from the NILs.

Assessment: Following on from the from last year's review, the Community Outreach activity has been more closely integrated with the complementary communication and marketing activities under the joint organisational structure of WP2. Organisationally within EGI.eu, this has gone very smoothly and the establishment of the NILs has meant that NGI integration into outreach activities has also deepened. The key visible benefit of these new structures has been the increase in user-related submissions to the latest Community Forum in Munich. Previous events have drawn a strong interest from developers and system integrators but the latest batch of submissions has seen a significant increase in submissions that could be categorised as 'success stories' relating to how research communities are using the infrastructure. Having the EGI community outreach manager serving as chair of the programme community for CF12 has enabled the Users and Communities and Software Services for Users and Communities tracks to be well populated with user-focused content.

Score: 4

In many ways it is still too early to formally evaluate the impact of the organisational changes and re-emphasis of effort that have taken place over the last year. However, from the point of view of how we are moving towards a more community focused and user-driven approach, the new services and practices are running smoothly and gaining momentum. As the various VT projects start to deliver more benefits this will also contribute to bringing more users on board. The Community Forum in Munich will provide quantitative and qualitative evidence of this trend, which will be analysed after the event and reported in greater detail at the end of the year.

4.3 Technical Outreach to New Communities

Description: Converting a potential new user community to being an actual user community requires substantial effort and planning at the European and national level. This may include identifying which resources will be used within the production infrastructure, ensuring the integration of new resources into EGI, porting applications to an EGI platform, deploying new services to meet the needs of new communities, training new communities, etc. A team of three at EGI.eu provides coordination for this activity and works with the NGI International Liaisons and their national partners in VT projects to ensure that a coordinated, systematic and strategic approach is taken.

Assessment: This activity was established in Nov 2011, therefore has only been running for roughly three months by the time of the production of this report. During this time, the EGI.eu team has made good progress with technical activities in the field of requirements, assessment of a number of robot certificate users; collaboration with SHIWA and ScalaLife on technical user support; establishment of a portal and MATLAB sub-communities within EGI; and contributions to the Community Forum. On top of that, the team supported the development and planning of the AppDB, Training Marketplace and VO Services (now called Customer Relations Manager system) and is involved in four, already active VT projects (Intelligence Collection; ESFRI Contact List; MPI; Federated Identity Providers Assessment). The team has also helped NGIs formulate and promote four additional VT projects (Fire simulation; Speech Processing; Application Porting How-to Guide; ESFRI Demonstrators).

Score: 3

The activity is still in a nascent staged but has worked well and as planned since its start in Nov 2011.

5 COMMUNITY TECHNICAL SERVICES

5.1 VO Services

Description: The technical instantiation of a user community within the infrastructure is a VO. Virtual Resource Communities are supported by various technical services to collect availability, accounting and monitoring information about their VOs and other additional information that will improve operation of the VO. The VO Services group within EGI.eu currently provides a basic, Nagios-based, VO-specific and VO-centric testing and monitoring system for VRCs and is extending this service with additional components and capabilities as the communities' needs evolve. The team also evaluates other VO services producing white papers and manuals for VRCs who wish to operate such services themselves. The VO Services activities focus on assisting the task of setting up and operating a VO. It supports VOs in the whole process of start-up, management and operation, highlighting tools, services, documentation and procedural guidelines to optimise resources usage and developing tools as integrator dashboards or file catalogue improved views, aiming at increasing the efficiency of the VO operational tools.

Assessment: The EGI VO Services has developed a well-defined package of tools and services that emerging VOs can use or deploy. This package has been extended during PM13-18 with a VO Admin Dashboard and LFCBrowseSE, currently in its third version. The total number of service instances that were offered by the team during the period rose to four (1 VO SAM instances at LIP and 2 at UPV; 1 VO Admin Dashboard at LIP). The LFCBrowseSE is used by the LSGC VRC for SE decommissioning. While the team made progress according to the plans with extending the portfolio of provided services and reviewed tools, the activity has been removed from the NA3 activity and has become part of SA1 after PM19. The reasons of this step were:

- The services offered by the team are mature enough to be supported by NGI operational teams; further innovation would not increase their usability.
- The VO services did not attract significant new user communities during PY1, thus could not be fitted into the new NA2 work package where effort from NA3 has been moved as part of the restructuring of the project.
- The effort of the "NA3 VO Services" team was used from PM19 in the NA2 activity to provide a "Customer Relationship Management" software for the outreach activities that NGIs and EGI.eu perform.

Score: 3

The team made satisfactory progress according to the plans.

5.2 Software Acceptance Criteria

Description: Based on the prioritised requirements obtained from the operations and end-user communities, software acceptance criteria are defined to capture the key functional and non-functional features expected from the delivered technologies. Regular review of Quality Criteria is based on collected feedback, such as regular peer reviews, Software Verification, Staged Rollout, and infrastructure incidents collected by the DMSU.

Assessment: The Software Quality Criteria Task regularly releases iterations of complete set of Quality Criteria for the software that is included in the Unified Middleware Distribution. Following the established 6-month cycle two iterations of the documents are published and tracked in the EGI wiki [R16]. Coverage of UMD Capabilities continuously improved, with the latest draft version of version 3 covering all UMD Capabilities [R17]. To improve efficiency of the Software Verification process, the third iteration of the Software Quality Criteria will publish sets of documents that collate all relevant Quality Criteria for a given Product under verification – a verification report template and process description in one [R18].

Score: 3

The activity established regular communications with relevant Quality Assurance teams of the Technology Providers for regular mutual feedback. The activity works mostly autonomous with regular executive reporting.

5.3 Software Verification

Description: Before software is published for production use in the UMD section of the EGI Software Repository, delivered software is verified against the published Quality Criteria, where applicable. Software Verification entails the deployment of the software in a controlled testbed, and check the functional requirements encoded in the Quality Criteria. Verification reports are written and published for any interested party to use as required.

Assessment: The verification process continues following established processes documented in the EGI Wiki pages Criteria Verification [R19], Verifier Guideline [R20] and Verification Testbed [R21]. A steady flow of product updates coming from Technology Providers are verified before handed over to Staged Rollout, with continuously improving efficiency [R17]. Detailed effort tracking has been implemented in collaboration with TSA2.4 and is available at [R22] for internal purposes. Metrics are collected and aggregated regularly and automatically and are made available in a raw format at [R23].

Score: 3

The activity had a spike of elevated effort consumption once the main Technology Providers (i.e. EMI and IGE) were starting to regularly deliver new and updated products for inclusion into the UMD. As expected, this peak dropped over the course of time. However, more proactive work towards UMD release planning would benefit the overall process and help turning Software Provisioning into a fairly self-sustainable and nearly autonomous activity.

5.4 Software Repository

Description: The software repository provides the coordination needed by EGI for the release of software, e.g. the UMD, into production. Technology providers can contribute their software components into the repository, it manages the workflow as the software components are validated to ensure they meet the defined quality criteria and then placed into staged rollout.

Assessment: The Software Repository activity provided their support in a reliable way as expected. It provided the infrastructure for regular releases of software for production rollout: six UMD releases, five CA trust anchors releases and eight SAM/Nagios releases.

Score: 3

The provided service is reliable and continues mostly without too much intervention. Management and proactivity could be improved, as well as documentation of the processes and constraints put on external interfaces. The activity tends to be inert towards necessary changes, and how they are introduced. For example, providing repository metrics was delayed for a long time since it is technically difficult or impossible to provide perfectly accurate figures, resulting in delaying to provide anything at all. Typical for academic environments, this needs to change towards a more agile approach where a minimally functional feature is deployed and then assessed for change, rather investing a lot of effort with the same risk of having it change the feature anyhow.

5.5 Application Database

Description: The EGI Applications Database (AppDB) [R25] stores tailor-made computing applications for scientists, and grid application developer tools for software developers. It embraces all scientific fields, from resources that simulate exotic excitation modes in physics, to applications for complex protein sequences analysis. Storing pre-made applications and reusable tools means that scientists and grid application developers can achieve their goals with EGI in a shorter time. The aim for AppDB is twofold: 1) to inspire scientists and developers of DCI applications to use EGI and its resources due to the immediate availability of the software that they need to use; and 2) to avoid duplication of effort across the user and user support communities.

Assessment: The functions of the system gradually evolved during PQ5-PQ7 with many new releases with sufficient support and information for users. At the same time – according to the Google Analytics statistics – the number of unique visits significantly dropped: PQ5-534; PQ6-212; PQ7-154. However, it has been recently recognised that Google Analytics is unable to properly capture user traffic on the service, due to the dynamic nature of the AppDB web interface, its underlying technologies (AJAX with Zend and Dojo frameworks) and its web gadget instance. A web analytics monitor has been therefore recently created for AppDB based on the open source Piwik framework. In PQ8 the team – together with the EGI.eu UCST – will monitor the service with both Google Analytics and Piwik, will compare the results and depending on the result they will switch to Piwik solution to capture and report visitor metrics about the service. It is expected that the Piwik report will show an increase in use, which is expected as AppDB has several new gadget instances in NGI, user community and other third party sites. (E.g. e-IRG) The number of applications and tools that are registered in the system slightly lowered. However, this number is misleading as the merging of similar (or same) application instances by the AppDB and EGI.eu teams during a recent AppDB purging phase caused a drop of approx. 30-35 entries out of almost 400.

Some of the recently finished and the planned developments are expected to cause a broadening in uptake of AppDB within the EGI community in 2012 (e.g. better integration with portal-based applications; Write API). The role of AppDB in the EGI strategy (e.g. support for cloud-applications,

EMI software registry initiative) will be also discussed in this year and will influence the mid-term development and the sustainability strategy of the system.

Score: 4

Despite the fact that the team could not finish a few sprints (short development cycles) from the 6-month workplan in PQ5 and PQ6, the developers made good progress and released new AppDB versions on a regular basis. Most of the delays were caused by new tasks that had to be added to satisfy priority requests. Decisions about which sprint to delay were made after careful prioritisation and as a result they have not caused delay to significant items in the plan. The team operated in a pro-active manner and identified new approaches (e.g. gadgets, traffic monitoring) that have been or will be adopted to other services within EGI.

5.6 Training Marketplace

Description: The training services are aimed at supporting cooperation between trainers and users in different localities and projects by connecting the groups through the activities that are established within the NGIs and scientific clusters. The goal is to enable users to achieve better scientific performance when using EGI and guide the establishment of self-sustainable user communities. Among the provided services include a list of training events, which allows trainers to advertise their training events and to be made aware of other training events being run within the community. The marketplace includes a map of these training events, a repository of training materials and other resources and a web gadget that can be used to embed customised instances of these services into different websites [R26].

Assessment: STFC took over the development of the training services within the UK NGI from UEDIN in early 2011. STFC rapidly restructured and integrated the services into a "Training Marketplace" before the start of PY2. During PQ5, PQ6 and PQ7 the Training Marketplace had several releases, some of these based on replacement of Drupal modules, resulting in richer functionality and/or more intuitive interfaces. Unfortunately, the number of unique visitors on the site dropped significantly during the same 9 month long period: PQ5-425; PQ6-324; PQ7-197, despite materials advertising the training marketplace being produced and distributed at events by the marketing team. This however may be linked to the issues experience with Google Analytics mentioned in the previous section. Nonetheless, the developer team is trying to reverse this trend in 2012 by planning new functionalities for the Marketplace that could make the system and content stored within it more customisable and reusable for individual countries, projects, groups and use cases (e.g. through improved web gadgets; through tagging of stored items). The possibility of a sustainable Training Marketplace through commercial content providers will be also assessed before the end of the year.

Score: 3

During the PY2 the main developer of the Training Marketplace has left STFC. The team managed this change so it did not cause any interruption to the delivery and further development of the service. The development of the system went as planned with only small items (e.g. integration with UCST NAGIOS interface) suffering delays.

5.7 Core Services

Description: Auxiliary core services are needed for the good running of Infrastructure Services. Examples of such services are VOMS service and VO membership management for infrastructural VOs (DTEAM, OPS), the provisioning of middleware services needed by the monitoring infrastructure (e.g. top-BDII and WMS), and the catch-all CA.

Assessment: The DTEAM VO assists RC administrators and operations teams in troubleshooting. Its support is a mandatory requirement for all RCs that deploy VO-enabled middleware. It is served by two geographically distributed VOMS servers in Thessaloniki and Athens (voms.hellasgrid.gr and voms2.hellasgrid.gr). During PY2 seven new NGI groups were created (NGI_FI, NGI_NDGF, NGI_DE, NGI_IT, NGI_IE, NGI_UK and NGI_SA) and 3 ROC Groups were decommissioned (ROC_Italy, SEE and DECH). The DTEAM VO is successfully used by a large number of NGIs as demonstrated by the accounting figures below, and AUTH – the partner responsible of DTEAM VO management – was responsive and supportive.

During PY2 three new Registration Authorities of the catch-all CA were set-up in Senegal, Egypt and for SixSq (partner in StratusLab) in Switzerland. This brings the total number of RAs to 7. The catch-all CA is an important service for new user communities and to support user authentication in the early stages of creation of a new grid infrastructure.

A TOP-BDII, a WMS and an LB service were installed as catch all services for NGIs that do not operate their own services for the site certification process (especially for small NGIs). In addition a portal was built, that syncs with GOCDB and gives the ability to the NGI Managers to add and remove on demand uncertified sites from the catch-all TOP-BDII.

Metrics:

- DTEAM
  - 551 members across the whole infrastructure
  - 495,000 jobs executed (May 2011 to date) mainly concentrated in Germany, Italy, United Kingdom, and IberGrid (in descending order)
- 71 users distributed across 13 VOs (SEE-GRID CA, catch all CA instance)

NGI Score: 3.5 (feedback from operations survey)

Improvements for PY3:

- Possible replication of the VOMRS service for OPS membership management

6 OPERATIONS AND TOOLS

6.1 Infrastructure Services and Tools

6.1.1 Message Broker Network

Description: EGI provides a network of brokers, as a messaging common infrastructure for the exchange of information between operational tools and other systems.

Assessment: During PY2 the broker network underwent major software upgrades to improve reliability, scalability and operability. These will continue in PY3.

The ActiveMQ software deployed in the broker network was updated twice. One update in November 2011 was major update from ActiveMQ 5.3 to ActiveMQ 5.5. The second update was in January 2012 was a minor update from ActiveMQ 5.5.1-fuse-01-06 to ActiveMQ 5.5.1-fuse-01-20.

Purpose of the upgrades was the rolling into production of new features and the improvement of the messaging infrastructure in various ways. Reliability and availability of the messaging system was enhanced through the usage of virtual destinations. Scalability was improved to reduce the number of connections to the broker network that are left pending, and the implementation of a test network was completed to try new software releases. The difference between “camel routes” and “virtual destinations” is in how data is consumed. With camel routes a message is recorded until it is consumed and then deleted, while with topics a message is published to a consumer without keeping record. A time to live of 3 days is adopted by default. This improves the reliability of message delivery. ActiveMQ 5.5 also supports dynamic failover. The last software upgrade will address various issues raised by NGIs. Further enhancements are planned in PY3.

Metrics:

- Monthly average availability: 99.2% (Jan – Dec 2011)
- 4 GGUS support tickets (May 2011-Feb 2012)

NGI Score: 3.5 (feedback from operations survey)

Improvements for PY3:

- Availability of accounting of messaging broker network
- Easier mechanisms to test the delivery of a message
- Enhancement of the authorization framework adopted by messaging for giving access to messages

6.1.2 Monitoring

6.1.2.1 Service Availability Monitoring

Description: The Service Availability Monitoring Infrastructure is a distributed service based on Nagios and messaging. The central service include systems such as the MyEGI portal for the visualisation of information, and a set of databases for the persistent storage of information about

test results, Availability statistics, monitoring profiles and aggregated topology information. The central services need to interact with the local monitoring infrastructures operated by the Resource infrastructure Providers.

Assessment: During PY2, 5 major SAM updates and 2 minor updates went through staged rollout and were deployed in the distributed SAM infrastructure, which was expanded to comprehend 32 national/federated SAM instances and one central visualization portal – MyEGI [R24]. The SAM systems are centrally monitored. MyEGI was developed by JRA1 to fix various bugs and considerably extend its functionality. MyEGI was developed by JRA1 to fix various bugs and considerably extend its functionality. Grid map access to monitoring availability results is now provided and the MyEGI Programmatic Interface is the authoritative source of Availability and Reliability statistics.

Metrics:

- 5 major SAM updates and 2 minor updates
- 200 GGUS support tickets (May 2011 – Feb 2012)

NGI Score: 3.6 (feedback from operations survey)

Improvements starting from PY3:

- Improvement of MyEGI usability and response time, bug fixing
- Integration of regional services and easier mechanism to add regional probes
- Geographically distributed failover configuration of SAM

6.1.2.2 Security Monitoring

Description: Security Monitoring is an important part of Security in a distributed infrastructure. One of the EGI CSIRT activities is to provide EGI, NGI and site security staff with tools and procedures to contain security incidents and to monitor sites for weaknesses that could lead to an incident. Tools have been and continue to be developed to allow monitoring both at Site and NGI level, as well as EGI level by CSIRT members themselves.

EGI CSIRT collects various pieces of information on the infrastructure, using security probes and sensors developed by EGI CSIRT members. Data collected by these probes (e.g. if a site is running a vulnerable version of some software) is displayed on the visualization tool, known as The Security Dashboard, to provide high-level overviews to staff at various levels according to their authorisation. This includes sufficient detail to allow staff to resolve any issues detected. Members of the EGI CSIRT can view all details and if necessary, follow up with sites to assist them to address any security issue. The system also archives information to allow the evaluation of the security trends. Further function such as security metrics and monthly or quarterly security reports are being developed.

Assessment: The security monitoring framework has been significantly extended since the start of EGI. Requirements were collected during PQ2 prior to the implementation of the Security Dashboard and the first prototype was evaluated. The security monitoring probes have been extended from the initial set. These currently include CRL checks, dangerous file permissions (world writeable), vulnerable file permissions check, and Torque vulnerability check etc. New security probe can be

added on demand. A Pakiti client provides a list of installed packages on all sites to the EGI Pakiti servers, and this provides input to the dashboard. Results produced by the security monitoring tools are available in the new EGI Security Dashboard [R25] developed and released by EGI-InSPIRE JRA1 as component of the general Operations Portal. The Security Dashboard was initially released in Q3 of 2011, feedback and further requirement were solicited from NGI security officers and an improved version will be in production by the end of PY2.

NGI Score: 3.8 (feedback from operations survey)

Improvements for PY3:

- The Security Dashboard prototype will be consolidated and its usage integrated with operations on duty activities during PY3. Complete documentation will be released.

6.1.2.3 Network Monitoring

Description: EGI is a highly distributed networked infrastructure of grid services using network connectivity for remote job submission, data transfer and data access, hence tools are needed for network troubleshooting and performance monitoring.

Assessment: EGI leverages on troubleshooting and monitoring tools whose development is a community effort. In PY2 Downcollector was decommissioned due to the lack of community effort available to maintain it. The HINTS system and NetJobs are up and running and volunteering pilot sites were enrolled. Demonstrations and periodic reports about the GN3 PerfSONAR tool are periodically delivered to the operations community during the major face-to-face events. The overall uptake of network monitoring tools is currently limited.

Metrics:

- 6 sites configured with NetJobs
- HINTS probes installed in 5 sites

Score: 4

Improvements for PY3:

- A deployment campaign of PerfSONAR MDM will start in PQ3 in case of expression of interest from VOs. This was discussed in PQ7 with the WLCG community and will continue in PY3.
- Support of network monitoring tools will be a joint collaboration with GN3. A MoU with DANTE will be finalized in PY3 and this activity will be part of the collaboration.

6.1.3 Operations Portal

Description: EGI.eu provides a central portal for the operations community that offers a bundle of different capabilities, such as the broadcast tool, VO management facilities, a security dashboard and an operations dashboard that is used to display information about failing monitoring probes and to open tickets to the Resource Centres affected. The dashboard also supports the central grid oversight activities. It is fully interfaced with the EGI Helpdesk and the monitoring system through

messaging. It is a critical component as it is used by all EGI Operations Centres to provide support to the respective Resource Centres.

Assessment: 7 different software upgrades were rolled to production from the beginning of PY2 to date (starting from version 2.6.1 to the current version 2.9). One new version of the regional package was released in May 2011. Many new features were brought to production for each of the facilities and views offered, among which: new administration consoles for both the central and the regional version of the tool, the integration with the SAM programmatic interface to consume and display availability and reliability statistics, the implementation of a VO registration procedure together with the UCST VO control dashboard and new summary user views, the extension of the COD dashboard, the VO ID card management tool, the release of two brand-new facilities – the Security Dashboard and the VO operations dashboard.

Metrics:

- Average monthly Availability (Jan-Dec 2011): 99.86%
- 7 software updates
- 1 central instance and 4 NGI installations (IberGrid, NGI_BY, NGI_CZ, NGI_GRNET)
- 63 GGUS support tickets (May 2011 – Feb 2012)

NGI Score: 3.7 (feedback from operations survey)

Improvements for PY3:

- Operations Portal currently uses special topic in messaging system for receiving alarms from SAM system. Topic in messaging system does not ensure that message is delivered to the subscriber. In order to make the synchronization mechanism more reliable it was proposed to switch from topic to Virtual Destination, which ensures that message is delivered to the subscriber.
- The operations portal will display alarms in case of underperforming Resource Centres during the course of the month. This will streamline the oversight procedure, which is currently manual.

6.1.4 Accounting

Description: The EGI Accounting Infrastructure is distributed. At a central level it includes the repositories for the persistent storage of usage records, and a portal for the visualisation of accounting information. The central databases are populated through individual usage records published by the Resource Centres, or through the publication of summarised usage records. The Accounting Infrastructure is essential in a service-oriented business model to record usage information. Accounting data needs to be validated and regularly published centrally.

Assessment: The Accounting Repository and Portal were kept working reliably throughout 2011. The RGMA input interface was finally closed at the end of February 2011. There was a major release of the accounting portal in 2011. With the “Canopus” release a new graph engine was rolled to production, together with a refactoring of “VO Manager” and “Site Manager” views, the XML export with perma-linking in the custom view.

The new Secure STOMP-based repository was released for testing by third-party accounting systems, which currently publish summaries, by direct database insertion. The rolling to production of the SSM based infrastructure originally planned for PQ5 is now postponed to PQ8; this is forced by the SL4-5 migration of the production service by end of Feb 12. The central database migration originally also planned in PQ5, is postponed to PQ9 to allow the collection of records from existing APEL clients not using SSM and using the private ActiveMQ broker network.

The interoperations of the central accounting repository and usage record schema with UNICORE, GLOBUS and ARC has been one the main technical work areas of PY2, which involved EGI-InSPIRE JRA1, the external technology providers, and the coordination of EGI interoperations. The works of the TCB task force on accounting started in February 2012. Accounting requirements were collected in February 2012 for discussion at the TCB.

Metrics:

- Accounting Portal
  - Release "Canopus" v4.0 (24 Oct 2011)
  - Two scheduled interventions
  - Average monthly availability (Jan- Dec 2011): 99.55%
  - 35 GGUS support tickets (May 2011 – Feb 2012)
- Accounting repository
  - Average monthly availability: N/A
  - 79 GGUS support ticket – APEL SU (May 2011 to date)

NGI Score: 3.5 (feedback from operations survey)

Improvements for PY3:

- Development of new accounting views displaying usage of national resources by national vs. international users.
- Integration with ARC/SGAS, GLOBUS and UNICORE.
- Accounting portal PI interface.
- Accounting of storage, local jobs and parallel jobs.

6.1.5 Helpdesk

Description: EGI provides support to users and operators through a distributed helpdesk with central coordination (GGUS). The central helpdesk provides a single interface for support. The central system is interfaced to a variety of other ticketing systems at the NGI level in order to allow a bi-directional exchange of tickets (for example, those opened locally can be passed to the central instance or other areas, while user and operational problem tickets can be open centrally and subsequently routed to the NGI local support infrastructures).

Assessment: The EGI helpdesk system was successfully extended to support software provisioning workflows and software support workflows. EGI now receives grid middleware products from external technology providers. The second level support for middleware issues is performed by the EGI's Deployed Middleware Support Unit (DMSU). All middleware related tickets are routed through

this support unit in GGUS. To enable this, a separate helpdesk instance, the Technology Helpdesk has been created. The third level support is then done by the technology providers, optionally using their own issue tracking systems. For EMI, support units have been created in the Technology Helpdesk on the level of the product teams or on the level of specific components. The Technology Helpdesk is not only used inside EGI, but also by EMI. Only at the level of the product teams does a ticket leave the Technology Helpdesk to be transferred to the bug tracking tool used by this product team. Some of these tracking systems are interfaced with the Technology Helpdesk, for others the transfer is currently done manually. For IGE and SAGA, the initial workflow is simpler as there is just one-third level support unit in the Technology Helpdesk. The whole set of legacy support units, together with their descriptions and support teams, was updated.

The EGI helpdesk comprises one central instance (GGUS) and 9 NGI instances of which 3 are x-GUS instances.

Metrics:

- Average monthly availability (Jan-Dec 2011): 99.96%
- 7 software upgrades
- 8938 opened tickets in GGUS (May 2011- Feb 2012)
- 213 GGUS support ticket – GGUS SU (May 2011 – Feb 2012)

NGI Score: 4.2 (feedback from operations survey)

Improvements for PY3:

- High availability of GGUS
- New report generator
- Support of security tickets opened by the Security Dashboard

6.1.6 GOCDB

Description: EGI relies on a central registry (GOCDB) to record information about different entities such as the Operations Centres, the Resource Centres, service endpoints and the contact information and roles of people responsible of operations at different levels. GOCDB is a source of information for many other operational tools, such as the broadcast tool, the Aggregated Topology Provider, the Accounting Portal etc.

Assessment: A new release was rolled to production (v. 4.2) supporting scoping of Sites and Service Endpoints into EGI and Local categories (Sites and Service Endpoints marked as being part of the EGI are exposed to the central operational tools while Local entities are not considered part of the EGI). This release also rolled into production many bug fixes and a large scale refactoring of the database and MVC logic as part of the earlier v4.1 release.

The set-up of the failover configuration of the master instance was completed. This includes a 2 hourly export and refresh of the secure download for the database, and testing of the DNS switching mechanism. Documentation on wiki was greatly improved.

Metrics:

- Average monthly availability (Jan-Dec 2011): 99.45%
- 4 unscheduled downtimes, 3 scheduled interventions
- Two software updates (release 4.1 and 4.2)
- 58 GGUS support tickets (May 2011 – Feb 2012)

NGI Score: 3.5 (feedback from operations survey)

Improvements for PY3:

- Failover configuration
- Finer grained roles and permissions
- Virtual sites

6.1.7 Metrics Portal

Description: The Metrics Portal is the tool for the registration of EGI-InSPIRE metrics.

Assessment: The first production release was open to the public and used for the recording SA1 metrics of QR6. Its use increased in the preparation of QR7. New metrics, HTML and Excel reports for NGIs have been developed in response to user needs.

Metrics:

- 4 GGUS support tickets (May 2011- Feb 2012)

NGI Score: 4

Improvements for PY3:

- Adaptation to new set of project performance indicators

6.2 Support

6.2.1 1st level: Ticket Process Management

Description: Through the EGI helpdesk support issues are routed through to NGI support teams. Some of these requests may be related to specific support units but others issues relating to users' use of the e-infrastructure will require human intervention either from an operational or user support aspect.

Assessment: During PY2 TPM activities concentrated on ticket assignment to other specialized support units and management of inactive tickets or badly assigned tickets, in order to ensure proper progress. Shifts are organized to ensure continuity during business hours.

The TPM service was responsive and effective in ticket routing.

The rate of tickets solved directly by TPM is relatively small (about 5 tickets per month) if compared to the volume of tickets received.

Metrics:

01 May 2011 – 05 March 2012

- Number of tickets submitted to TPM: 2826 (7.1 ticket/day)
- Number of ticket solved by TPM: 83 (4.26%)
- Average response time: 0 h 54'
- Average solution time: 6 h 50'
- Median of solution time: 0 h 04'
- 75% percentile of solution time: 1 h 38'

NGI Score: 3.9 (feedback from operations survey)

Improvements for PY3:

- The 1st level support duty together with 2nd level support should be together re-defined and the associated level of funding rebalanced in order to ensure that all deployed supported products receive specialized support and a more efficient usage of human resources.

6.2.2 2nd level: Deployed Middleware Support Unit (DMSU)

Description: The Deployed Middleware Support Unit provides technical support for incidents around operative Grid Middleware. Processing support tickets assigned by TPM, the DMSU assesses whether changing middleware configuration or deployment can mitigate the described incident. In conjunction with 3rd level expert support provided by Technology Providers, the DMSU assesses whether the reported incident constitutes a persistent software problem, which requires fixing through software update cycles. Inhabiting this pivotal position within the Grid Middleware related support infrastructure, the DMSU is empowered to actively assign and maintain prioritisation of patch development and publication in Software updates.

Assessment: The DMSU has established its processes very early on in the project and continues to refine these over time. It delivers its work reliably and regularly while continuously improving its efficiency and knowledge. Communication with both EGI Operations (EGI-InSPIRE SA1) and Technology Providers is good, though details could be improved.

Score: 3

In general the delivered work is good. However the DMSU needs to improve in its self-perception in relation to Technology Providers. Even though collaboration is necessary and should be encouraged, a clear distinction in the responsibilities between DMSU and 3rd level expert support is necessary. Collecting metrics to get a better overview of the dynamics of that collaboration is still perceived as a "we against them" – which is not the case. This somewhat academic aversion against (good) common practice in the business world needs to be turned in embracing a means to efficiently indicate potential problems that require solving.

6.2.3 Network Support

Description: EGI provides network support for the resolution of end-to-end network performance issues.

Assessment: Request of network support through GGUS is really minimal (different external support channels exist). Effort was hence concentrated on testing of IPv6 UMD software and operational tool readiness. A task force of NGIs interested in the implementation of an IPv6 testbed was constituted in December 2011. Testing activities were coordinated with the HEPIX group, with the external technology providers and EGI-InSPIRE JRA1.

Metrics:

- Number of GGUS tickets (May 2011 to date): 2

NGI Score: 3.5

Improvements for PY3:

- Collaboration with NRENs and NREN end-to-end performance teams to get support in case of connectivity problems
- Focus effort on IPv6 testbed activities

6.3 Operations Management and Coordination

6.3.1 Operations Coordination

See section 3.3.

6.3.2 Grid Oversight (COD)

Description: EGI.eu central Grid oversight activities are intended to supervise the activity performed locally by the Regional Operator on Duty (ROD) teams of the EGI Operations Centres. Central Grid oversight assist existing ROD teams in user and operations support, check the monthly performance delivered by Resource Centres and NGIs/EIROs, hold the responsibility of certifying new Operations Centres, provide training to new ROD teams also assist existing ROD teams in user and operations support. The quality of the support work delivered by the ROD teams is measured through a ROD performance index that is computed on a monthly basis. Central Grid Oversight is responsible of taking appropriate actions if metrics indicate that a ROD is not functioning properly.

Assessment: During PQ2 the Resource infrastructure Provider OLA came into force and COD extended its duties to the follow-up of underperforming NGIs/EIROs and contributed to the definition of the OLA itself. As of PQ7 COD has been also engaged in the notification of problems with the NGI monitoring infrastructure that are reflected in a high percentage of UNKNOWN monitoring results. Various NGIs required support because of their level of maturity still under consolidation.

Newsletters for a streamlined communication with the NGI operations teams were regularly issued every month [R29]. Grid oversight was also engaged in the certification of new resource infrastructure providers to complete the transition from EGEE legacy ROCs to NGIs.

The Grid oversight global service is of great importance to ensure a smooth integration of new Resource infrastructure Providers.

Metrics:

- 8 newsletter issues
- Certification: NGI_FI, NGI_IE, NGI_IT, NGI_SA (in progress), NGI_UK
- Decommissioning: IT ROC, DECH ROC
- Average monthly workload: 501.2
    - PQ5: 656/791/560
    - PQ6: 537/356/348
    - PQ7: 469/234/560

NGI Score: 4 (feedback from operations survey)

Improvements for PY3:

- Automation of underperformance follow-up tasks
- Definition of a smooth transition process of NGI/Resource Centre from testing to production
- Technical support and training to new Resource infrastructure Providers

6.3.3 Availability/Reliability Management

Description: Availability/Reliability Management is responsible of overseeing of monthly service levels delivered at different levels by Resource Centres, by Resource infrastructure Providers and centrally by EGI.eu. In case of low performance, the service providers are generally contacted to provide plans of improvement of their services. In case of extended underperformance Resource Centres are suspended. This service is also responsible of producing updated performance reports in case problems with the computations are reported.

Assessment: This global task accomplished a number of important milestones. The first version of the Resource Centre (RC) Operational Level Agreement was approved by the OMB during PQ5 [R30]. The first version of the Resource infrastructure Provider (RP) OLA [R31] defining the service level targets of services for information discovery and of NGI regional operator on duty support services. The RP OLA came into force as of Jan 2012. Definition of NGI service targets was preceded by an assessment phase of current performance to allow NGIs to adapt service configuration to meet the minimum performance requirements of EGI. The first top-BDII availability and reliability report was distributed in PQ6. The service level targets of EGI.eu services were assessed in PQ7 in preparation to the EGI.eu OLA.

A new procedure for re-computation of performance statistics was defined and approved by the OMB during PQ6. Monthly availability and reliability statistics were regularly validated and distributed to the operations community.

Availability and reliability averaged per quarter across the whole infrastructure have been both steadily increasing.

Metrics:

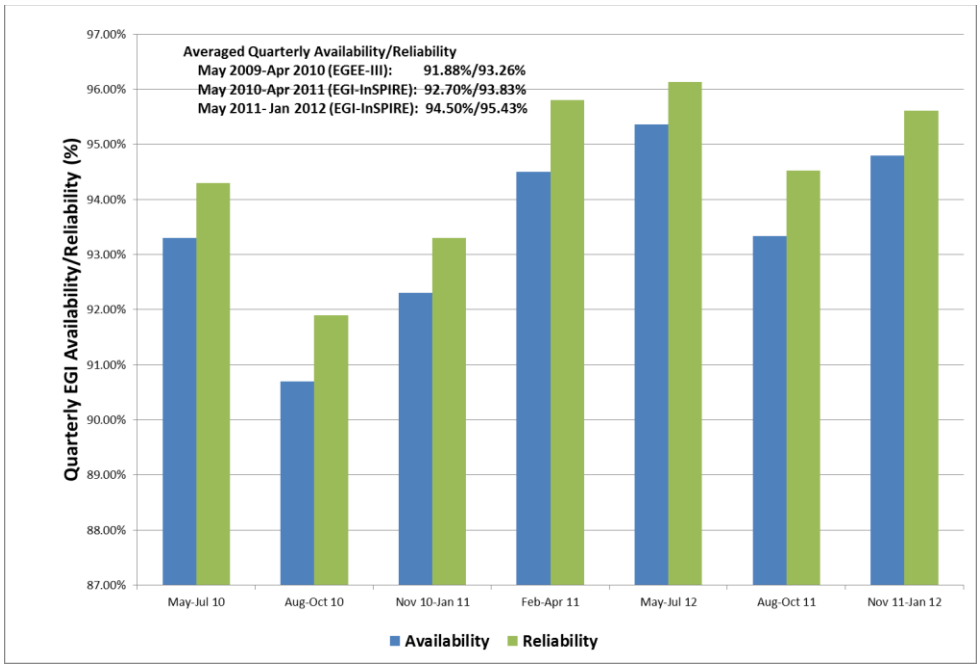

Figure 1: Quarterly availability and reliability of RCs avg. across EGI May-Jan 2012.

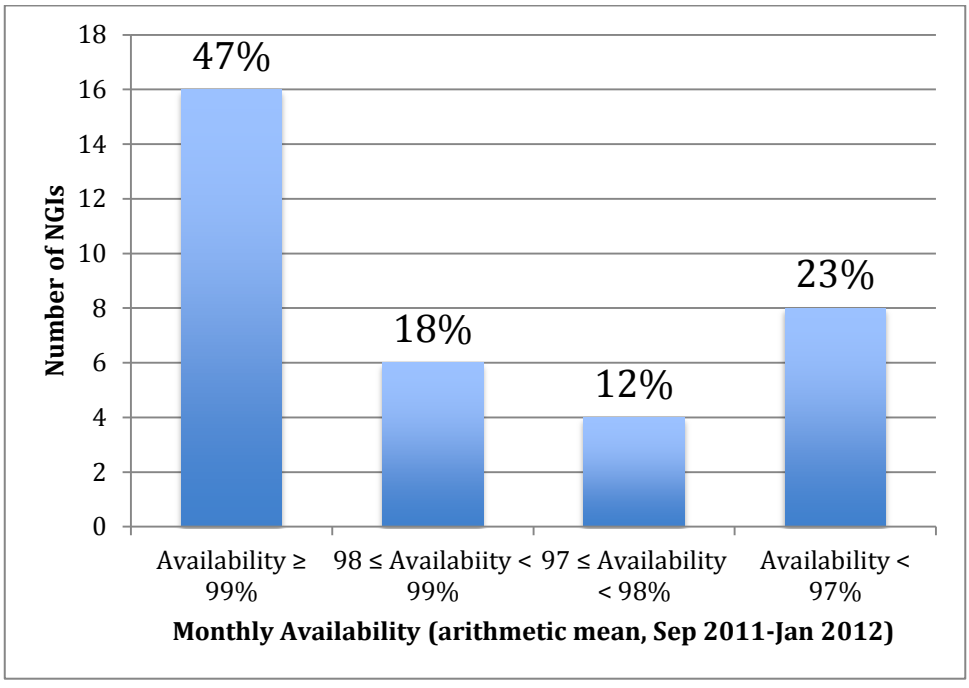

Figure 2: NGIs by top-BDII services monthly availability avg. Sept-Jan 2012

NGI Score: 4 (feedback from operations survey)

Improvements for PY3:

- NGI availability and reliability reporting system integrated with the operations portal
- Reduced fraction of UNKNOWN test results
- Increase in RC availability

6.3.4 Coordination of Operations Security

Description: Security is recognised as an important aspect of e-Infrastructures and requires co-ordination between the EGI participants at various levels, in particular for the prevention and handling of incidents. Various EGI central groups carry out this co-ordination role. The security policy group (SPG) is responsible for developing security policies. The Software Vulnerability Group (SVG) aims to eliminate existing software vulnerabilities from the deployed infrastructure and prevent the introduction of new ones. The EGI Computer Security Incident Response Team (CSIRT) is responsible co-ordinating operational security in areas of security incident response, security monitoring (as presented in Section 6.1.2.2), security training and dissemination, as well as carrying out security drills (cyber-security exercise) to improve the response to future incidents.

Assessment: The EGI Security teams accomplished several milestones in various areas. Existing procedures (EGI Security Incident Handling Procedure and EGI Software Vulnerability Issue Handling Procedure) were updated and a new procedure was created (EGI CSIRT Critical Vulnerability Operational Procedure) to provide a mechanism to resolve the problem when a critical vulnerability is found on sites. A plan for vulnerability assessment (the detailed examination of code to check for possible vulnerabilities jointly with EMI) was defined. A ticketing system for incident response – RTIR has been put into production. EGI Security Service Challenge 5 was run and completed in June 2011, a total of 40 EGI sites participated which is an unprecedented scale compared to past SSC's. The security dashboard was released and sites, NGIs as well as EGI can monitor their security through the security dashboard. Finally, security training sessions for system administrators were organized at the EGI Technical Forum 2011. No sites have been suspended during PY2 because of security issues. EGI successfully coordinates with EUGridPMA.

Metrics:

- Security Vulnerability Group
  - PQ5: 3 vulnerabilities reported, 2 advisories issued
  - PQ6: 6 vulnerabilities reported, 1 advisories issued
  - PQ7: 11 vulnerabilities reported, 4 advisories issued
- EGI CSIRT
  - PQ5: 1 multiple-site security incident, 1 security advisory issued
  - PQ6: 3 security incidents
  - PQ7: 3 security incidents, 2 security alerts

NGI Score: 4 (feedback from operations survey)

Improvements for PY3:

- Further improvement of RTIR
- Extension of the framework for SSC5 regional NGI runs
  Preparation of SSC6 focused on VO and CSIRT incident response capabilities and their collaboration.

6.3.5 Coordination of Interoperation

Description: EGI.eu coordination is necessary to ensure a successful interoperation of the various stakeholders: Resource Centres, Technology Providers, the EGI.eu Technical Manager and the EGI repository managers.

Assessment: During PY2 the integration into the EGI operations infrastructure of both GLOBUS and UNICORE was completed with the exception of accounting. Integration activities were carried out with NGIs in the framework of a GLOBUS task force and a UNICORE task force. Service types were added to GOCDB and GLOBUS probes were released in SAM Update 11 (Jul 2011), while UNICORE probes were released in SAM Update 13 (Sep 2011). The uptake of both GLOBUS and UNICORE is expected to increase in the above-mentioned NGIs. In NGI_PL all RCs will expose compute resources through both gLite and UNICORE interfaces (both stacks are supported by the NGI). The uptake of GLOBUS is expected to expand in both NGI_UK and NGI_DE. The first IGE1 (Globus) products have passed the software provisioning for UMD update 1.2.0 in September. The RC OLA approved in May 2011 was extended to be applicable to all RCs regardless of the middleware supported.

New integration activities started in PQ2: EDGI software for the integration of desktop Grids and EGI – in collaboration with the EDGI project [R26], QCG software for the support of multi-scale applications – in collaboration with the MAPPER project [R27], and of EU-DAT services.

The integration into accounting is now coordinated by the TCB accounting task force.

Integration has been suffering from the handover of coordination duties because of personnel turnover. To mitigate this EGI.eu performed coordination during PQ5 and PQ6. For PY3 this responsibility is assigned to SRCE.

Metrics:

- 19 GLOBUS service instances in NGI_UK and NGI_DE
- 26 UNICORE service instances in NGI_DE and NGI_PL
- RC supporting MPI: 108 (+12.5% from May 2011)

NGI Score: 2.8 (feedback from operations survey)

Improvements from PY3:

- Extension of RC certification procedure for GLOBUS-only and UNICORE-only RCs
- EDGI integration

6.3.6 Coordination of Staged Rollout and related support tools

Description: New technology releases made available to EGI, are verified to ensure that they meet the original requirements and subsequently gradually deployed in the production environment (staged rollout). Verification takes place by deploying and assessing the software against the publicly published criteria. Updates of deployed software need to be gradually adopted in production after internal verification. This process is implemented in EGI through staged rollout, i.e. through the early deployment of a new component by a selected list of candidate Resource Centres. The successful verification of a new component is a precondition for declaring the software ready for deployment.

Given the scale of EGI, change management requires careful coordination to ensure that every new capability is verified by a representative pool of candidate sites, to supervise the responsiveness of the candidate sites and ensure that the staged rollout progresses well without introducing unnecessary delays, and to review the reports produced. It also ensures the planning of resources according to the foreseen release schedules from the Technology Providers.

Assessment: Coordination of staged rollout successfully managed to increase the number of early adopter teams from 45 (May 2011) to 56 (Feb 2012), to coordinate the testing and reporting activities of these teams as part of the final stage of software provisioning, and to liaise with the EGI and IGE release managers. 5 different middleware stacks were involved in early adoption activities: ARC, dCache, gLite, GLOBUS and UNICORE. The procedures for staged rollout were gradually improved and streamlined. Coordination started to engage with user communities and peer grid infrastructures to test interoperability with application software and other middleware distributions.

The currently allocated effort is underestimated.

Metrics:

- UMD 1.0.0: staged rollout of 54 products/81 tests/2 rejected.
- UMD 1.10/1.2.0/1.3.0: staged rollout of 30 products/49 tests/3 rejected.
- UMD 1.4.0/1.5.0: staged rollout of 30 products/50 tests/0 rejected.

NGI Score: 3.7 (feedback from operations survey).

Improvements for PY3:

- Further enhancement of the staged rollout process.
- Extension of early adoption activities to new platforms: sl6 and Debian.

6.3.7 Coordination of Requirements Gathering

Description: A transparent requirement processing system is needed to offer a system where the user or operations community can requirements, or to share them within the whole EGI community. All of these requirements are investigated, analysed and prioritised within a transparent and structured process. The prioritised requirements can then be acted upon by other parties as appropriate. Depending on the domain and potential impact, identified needs might be met by the User Support Teams or Operations within EGI or by technology providers external to EGI be they community-based, project-based or commercial. The progress and outcomes of whichever solutions are adopted will be fed back to the requesting community on a regular basis.

Assessment: Requirements are gathered, discussed and prioritized periodically (usually on a quarterly basis) and presented to external technology providers. This process, which started for the first time in January 2011 was successfully conducted during PY2 and culminated with a requirements gathering campaign in Jan 2012 in preparation to contribute to the preparation of technical roadmap of EMI and IGE. A catalogue of requirements is always maintained to provide a high-level summarized view of the open requests to the community [R28] and status updates are discussed at OMB meetings.

Metrics:

- 55 requirements in the operations requirement catalogue
- Status of submitted requirements (Jan 2012)

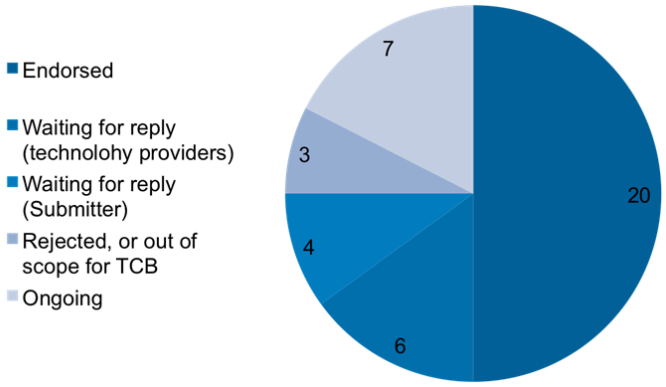

Figure 3: Status of Requirements

NGI Score: 3.5 (feedback from operations survey)

Improvements for PY3:

- Easier browsing of existing requirements – RT is considered to be unfriendly
- Harmonization of provided requirements with the overall EGI Technical Roadmap

6.3.8 Coordination of Documentation

Description: EGI.eu is responsible of maintenance and development of operational documentation, procedures, best practices, etc. EGI.eu provides coordination of this community activity needed to connect partners with specialized expertise.

Assessment: GOC WIKI – the legacy EGEE documentation repository, was decommissioned during PQ6 and the relevant material was migrated to the EGI wiki and updated. All existing relevant procedures from EGEE were updated and migrated to the EGI wiki. The documentation section of the EGI wiki [R32] now features various sections: manuals, troubleshooting guides, FAQs, best practices, procedures, and manuals. The coordination of EGI documentation was severely impacted by the turnover of personnel appointed to run this activity starting from PQ7. EGI.eu mitigated the problem by contributing to the development of new documentation directly, by maintaining and updating the documentation space on wiki and by soliciting the contribution of NGIs to new documents.

Metrics:

- 4 new procedures
- 214 wiki pages in the operations category

NGI Score: 3.5 (feedback from operations survey)

Improvements for PY3:

- Definition of tree of categories in the EGI wiki for smoother navigation of documentation

7 ANALYSIS

7.1 Activity Summary

A summary of the assessments made in this document is provided in the following tables. There are only two services areas that pose immediate concerns:

- **Roadmapping:** Although technology providers such as EMI are included and integrated into the various discussions relating to requirements and EGI's future needs, feedback on these requirements does not provide the detail needed for building an accurate roadmap. For instance, significant new functionality is given a release date in EMI 2 – this means the functionality could appear in a product release at some point between May 2011 (when it could come out in an incremental product release) or not until April 2012 (when the complete EMI 2 is released). Minor changes may be released as part of the regular incremental releases however no more than 2-3 weeks notification is given of the functionality that is going to be in any release. These two features of EMI's operating model make it impossible to provide substantive technical roadmaps.
- **Coordination of Operational Interoperation:** Performance of this activity was compromised during the early part of the year due to staff turnover at KTH due to maternity leave. The work has been transferred to SRCE during PM18 to PM30.

7.1.1 Governance and Administration

Service	Score	Service	Score
Council	4	Strategy Planning and Policy	4
Executive Board	4	Admin/Finance/Secretariat	4.5

Table 2: Governance and Admin Score Summary

7.1.2 Technical Management

Service	Score	Service	Score
User Community Board	4.5	Operations Management Board	3.8
Technical Coordination Board	3.5	Technology Roadmapping	2

Table 3: Technical Management Score Summary

7.1.3 Community Engagement

Service	Score	Service	Score
Marketing and Communication	4	Tech. Outreach to New Communities	3
Community Outreach	4		

Table 4: Community Engagement Score Summary

7.1.4 Community Technical Services

Service	Score	Service	Score
VO Services	3	Software Repository	3
Software Acceptance Criteria	3	Application Database	4
Software Verification	3	Training Marketplace	3
Core Services	3.5		

Table 5: Community Technical Services Score Summary

7.1.5 Operations and Tools

Service	Score	Service	Score
Message Broker Network	3.5	Coord. Staged Rollout / Tools	3.7
Service Availability Monitoring	3.6	Coord. Requirements Gathering / Tools	3.5
Security Monitoring	3.8	Ticket Process Management	3.9
Networking Monitoring	4	Deployed Middleware Support Unit	3
Operations Portal	3.7	Network Support	3.5
Accounting Portal	3.5	Operations Coordination	3.8
Helpdesk	4.2	Grid Oversight	4
GOCDB	3.5	Availability/Reliability Management	4
Metrics Portal	4	Coord. Operations Security	4
Core Services	3.5	Documentation	3.5
Coord. Operational Interoperation	2.8		

Table 6: Operations and Tools Score Summary

7.2 Service Costs

The following costs are based on figures submitted through PPT by the partners for the first year of the project for the EGI Global Tasks – the activities undertaken by one or more organisations in the EGI community to serve the needs of the whole EGI community.

Service Area	Year 1				
	Person Months	Total Cost	EC Contribution	EGI.eu Contribution	Other
Governance, Admin and Policy	74.4	€613,024	€403,686	€170,311	€39,027
Technical Management	47.3	€412,732	€103,183	€309,549	€0
Community Engagement	67.6	€458,354	€114,589	€343,766	€0
Community Tech Services	70.9	€622,916	€155,729	€155,729	€311,458
Infrastructure Services/Tools	92.5	€931,734	€232,933	€232,933	€293,657
Support	49.6	€322,359	€80,590	€80,590	€135,786
Operations Coordination	65.9	€688,363	€172,091	€172,091	€344,181
Operational Tool Development	19.8	€140,785	€55,901	€688	€56,430
TOTAL	**487.9**	**€4,190,267**	**€1,318,702**	**€1,465,657**	**€1,180,539**

Table 7: Service Cost by Activity

In *Table **7***, the Total Costs for each service activity are based on the effort recorded in PPT and the costs provided in the Form C (or average costs when these are not available), the EC contribution, EGI.eu contribution (either from EGI.eu participants directly to work done at EGI.eu or paid by EGI.eu to partners undertaking the work) and contribution from other sources – primarily contributions from the partner to the cost of the local effort. Note: EGI.eu global tasks are funded at 75% by the EC

for first two years of project, by which will adjust to 25% for the final two years. EGI.eu pays partners 25% of their costs for undertaking EGI Global Tasks. These costs are broken down into each individual service in *Table **8***.

Service	Year 1				
	PMs	Total Costs	EC Funding	EGI.eu Funding	Other
Project Management	10.6	€111,991	€111,991	€0	€0
Strategic Planning & Policy	34.4	€237,297	€59,324	€159,856	€18,117
Admin, Finance, Secretariat	35.3	€299,969	€241,429	€19,513	€39,027
Technical Management	54.6	€478,211	€119,553	€325,919	€32,739
Training Marketplace	0.8	€4,644	€1,161	€1,161	€2,322
Marketing & Communication	21.6	€134,634	€33,658	€100,975	€0
Community Outreach	14.8	€126,333	€31,583	€94,750	€0
Technical Outreach.	31.2	€197,388	€49,347	€148,041	€0
VO Services	7.6	€59,478	€14,870	€14,870	€29,739
Software Criteria & Verification	31.5	€167,094	€41,774	€41,774	€83,547
Software Repository	15.5	€191,952	€47,988	€47,988	€95,976
Application Database	14.6	€189,222	€47,305	€47,305	€94,611
Message Broker Network	4.5	€30,744	€7,686	€7,686	€15,372
Operations Portal	22.0	€143,900	€45,214	€20,576	€78,110
Accounting Portal	11.7	€72,519	€18,580	€17,379	€36,559
Accounting Repository	4.9	€36,944	€10,888	€6,483	€19,573
Metric Portal	0.6	€2,752	€688	€688	€1,376
Service Availability Monitoring	29.3	€423,350	€115,201	€90,231	€217,918
Network Monitoring	6.0	€70,762	€17,690	€17,690	€35,381
Helpdesk	20.8	€187,139	€46,785	€46,785	€93,570
GOCDB	11.8	€93,883	€23,471	€23,471	€46,941
Core Services	0.9	€10,526	€2,632	€2,632	€5,263
Coordination Interoperation	7.2	€84,457	€21,114	€21,114	€42,229
Staged Rollout	8.1	€49,600	€12,400	€12,400	€24,800
Ticket Process Mgmt. (1st Supp)	13.5	€98,795	€24,699	€24,699	€49,397
DMSU (2nd Support)	36.1	€223,564	€55,891	€55,891	€111,782
Grid Oversight (COD)	16.1	€251,121	€62,780	€62,780	€125,560
Availability/Reliability Mgmt.	0.9	€10,526	€2,632	€2,632	€5,263
Coord. Operations Security	15.3	€102,429	€25,607	€25,607	€51,214
Coord. Documentation	6.0	€99,043	€24,761	€24,761	€49,522
TOTAL	**487.9**	**€4,190,267**	**€1,318,702**	**€1,465,657**	**€1,405,908**

Table 8: Service Cost by Individual Service

Some of these services are delivered by technical experts (e.g. coordination tasks) while others are technical services that need to be operated, maintained and developed. These costs are broken down in *Table **9*** where the service operation costs includes the time taken to deploy and configure the technical service; maintenance costs refer to incremental development work undertaken to address issues found in the operational use of the service; and service development refers to new significant items of functionality prepared in response to community wide needs. A detailed cost analysis and assessment for the operational tools developed by EGI-InSPIRE within WP7 will be available in the D7.2 "Annual Report on Operational Tool Maintenance and Development Activity" [https://documents.egi.eu/document/1063] for the reference period PQ1-PQ7.

Technical Services	Total Effort	Total Cost	Service Operation	Service Maintenance	Service Development
Training Marketplace	0.8	€4,644	€929	€0	€3,715
VO Services	7.6	€59,478	€11,896	€0	€47,583
Software Repository	15.5	€191,952	€38,390	€0	€153,562
Application Database	14.6	€189,222	€37,844	€0	€151,377
Message Broker Network	4.5	€30,744	€19,598	€11,146	€0
Operations Portal	22.0	€143,900	€62,036	€16,373	€65,491
Accounting Portal	11.7	€72,519	€44,747	€22,217	€5,554
Accounting Repository	4.9	€36,944	€25,933	€5,505	€5,505
Metrics Portal	0.6	€2,752	€0	€0	€2,752
Service Availability Monitoring	29.3	€423,350	€336,837	€48,448	€38,066
Helpdesk	20.8	€187,139	€101,743	€46,968	€38,428
GOCDB	11.8	€93,883	€52,198	€20,842	€20,842
Core Services	0.9	€10,526	€10,526	€0	€0
Availability/Reliability Mgmt.	0.9	€10,526	€10,526	€0	€0
TOTAL	**145.7**	**€1,457,579**	**€753,205**	**€171,498**	**€532,875**

Table 9: Technical service cost breakdown (Operations, Maintenance & Development)

As can be seen, some services are new to the community and the majority of the effort is invested in developing new functionality. Other services are mature and the majority of effort is invested in operations and maintenance with little need for new functionality. Some services are developed elsewhere and just need to be deployed and operated.

8 CONCLUSIONS

This report describes the services being offered throughout the EGI ecosystem and provides a self-assessment of the EGI Global Tasks as they are currently being offered and provides a means for ensuring their continuous improvement.

Different sustainability models are being considered for the different service categories based on the main beneficiaries of the different services:

- NGIs and their resource centres benefit directly from centralised technical services and support that help coordinate and integrate EGI's technical activities and should be the primary contributors to these services:
    - Infrastructure Services/Tools: €934,486
    - Operations Coordination: €688,363
    - Operation of the Community Technical Services: €622,916
    - Support: €322,359
- The establishment and promotion of EGI as a service for the European Research Area will directly benefit the EC and its goals within Europe 2020 and they should be the primary investor in this activity:
    - Governance, Administration and Policy Development: €613,024
    - Community Engagement: €458,354
    - Innovation in operational tools and community technical services: €138,033
    - Technical Management: €412,732

Work will continue in PY3 to refine the costing around these services and to formally define an EGI Service Portfolio.

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