EGI-InSPIRE

OPERATIONAL LEVEL AGREEMENTS WITHIN THE EGI PRODUCTION INFRASTRUCTURE

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Abstract

MS425 describes the procedures included within the Resource Centre Operational Level Agreement, the Resource Infrastructure Provider Operational Level Agreement and the EGI.eu Operational Level Agreement.

The document also provides information about the technical tools developed and deployed for service level monitoring and reporting, the existing processes for service level management and the work plan for PY4.

I. COPYRIGHT NOTICE

II. DELIVERY SLIP

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III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	01/05/2013	V1.0 for external review	P. Korosoglou, M.Krakowian, T. Ferrari
2	29/05/2013	V2.0	P. Korosoglou, M.Krakowian, T. Ferrari

IV. APPLICATION AREA

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

V. DOCUMENT AMENDMENT PROCEDURE

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

VI. TERMINOLOGY

A complete project glossary is provided at the following page: http://www.egi.eu/about/glossary/. Additional Operations specific terms are provided at the Operations glossary page: https://wiki.egi.eu/wiki/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

Operational Level Agreements (OLAs) are defined in the Information Technology Infrastructure Library [ITIL] and describe how IT groups work together to meet IT service level requirements.

The purpose of an OLA is to optimize the delivery of IT services to customers [CUST] and users. It is an internal agreement that defines how two different units within an organization will work together to support the delivery of a set of IT services to customers and users. The framework includes three OLAs: the Resource Centre OLA, the Resource infrastructure Provider OLA and the EGI.eu OLA.

The EGI.eu OLA [EGIOLA] is the agreement that defines EGI.eu responsibilities and EGI Global Services, which are provided by EGI.eu to RPs through the technical collaboration in place with various EGI partners. The agreement does not cover specific agreements that user groups, RPs and the technology providers might want to negotiate with EGI.eu. The EGI.eu OLA was discussed and approved in January 2013 by the EGI Operations Management Board and technically defines various technical and human services (currently a subset) provided by EGI.eu together with the respective service levels.

The performance reporting tools advanced in PY3 and, in particular, RC monthly reports can now be consulted on the MyEGI portal, and EGI.eu central operational tools are now under monitoring.

Thanks to the approval of the RP OLA in PY2 and the related reporting activities, which followed regularly, the performance of NGI core services has improved considerably in PY3.

The service management processes and the OLA framework will further evolve in PY4 by:

- extending the reporting capabilities of the Operations Portal with RP service reports, EGI.eu service reports ad VO reports, and by
- implementing an improvement plan of the OLA framework and service management processes of EGI.eu to satisfy a set of requirements for federated infrastructures in compliance to ISO/IEC 20000.

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1 INTRODUCTION

EGI operation services are distributed and comprehend Global Services and Local Services [ARCH], where different stakeholders play the role of service provider to different groups of customers.

Crucial to EGI is the maximization of the Quality of Service provided by these services and experienced by an end-user. Services have to comply with a minimum set of requirements to jointly offer a reliable, secure and highly available service infrastructure. These requirements are defined by the OLA framework, which supports service management at various levels: Resource Centre (RC), Resource infrastructure Provider (RP) and EGI.eu. The framework is comprised of three agreements defining the minimum set of services and the corresponding minimum performance provided by Resource Centres, Resource infrastructure Providers (EIROs and NGIs) and EGI.eu.

1) The Resource Centre OLA (RC OLA) is negotiated between a RC and the respective RP at certification time, i.e. prior to be integrated into EGI as defined in the Resource Centre Registration and Certification procedure [PROC09].
2) The Resource infrastructure Provider OLA (RP OLA) is defined between a RP, its respective RCs, and EGI.eu.
3) The EGI.eu OLA defines the agreement made between EGI.eu -as a Global services provider- and the Resource infrastructure Providers. .

This Milestone presents the status of the EGI Operational Level Agreement (OLA) framework, the reporting tools and the procedures in place for the service level management with a focus on the PY3 developments.

A more detailed overview of the EGI OLA framework is given in section 2. The description of the EGI.eu OLA is provided in Section 3. Section 4 provides an update on the current targets for Resource Centres and Resource infrastructure Provider services. The related reporting mechanisms are described in section 5. Section 6 presents the PY4 work plan, and Section 7 concludes the deliverable.
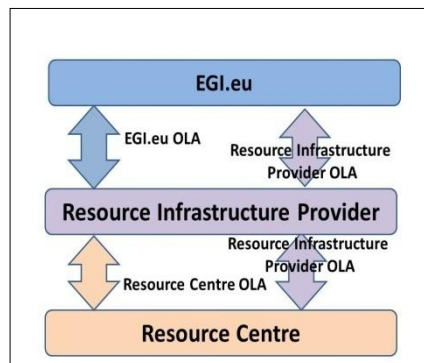
2 OLA FRAMEWORK

The OLA framework is the mechanism adopted within EGI in order to integrate resource providers into the pan-European production infrastructure while ensuring interoperation of operational services, Quality of Service, and to enforce a common set of policies and procedures.

The Quality of Service (i.e. as perceived by an end-user) and its maximization are of crucial importance from the EGI perspective. It is therefore important that the providers of services and resources within EGI commit to a minimum set of requirements to jointly offer a reliable, secure and highly available service infrastructure.

EGI OLA framework incorporates three types of OLAs (Figure 1):

1) The Resource Centre OLA (RC OLA). This agreement is defined between a Resource Centre (RC) and the respective Resource infrastructure Provider (RP).
2) The Resource infrastructure Provider OLA (RP OLA). This agreement is defined between a Resource infrastructure Provider (RP), its respective Resource Centers (RCs), and EGI.eu.
3) The EGI.eu OLA (which is to be distinguished from the top level EGI OLA framework). This agreement is defined between the set of EGI Global Services that EGI.eu offers in collaboration with the EGI partners and the RPs.

Figure 1. The entities in the EGI OLA framework. The arrows in the diagram indicate the partners involved in the respective OLAs.

3 EGI.EU OLA

The EGI.eu OLA [EGIOLA] is the agreement that defines EGI.eu responsibilities and EGI Global Services, which are provided by EGI.eu to RPs through the technical collaboration in place with various EGI partners. The agreement does not cover more specific agreements that user groups, RPs and the technology providers might want to negotiate with EGI.eu.

The EGI.eu OLA was discussed and approved in January 2013 by the EGI Operations Management Board and defines various technical and human services provided by EGI.eu together with the respective service levels.

Configuration information about the technical Services offered by EGI.eu is available from the EGI service registry (GOCDB). These services are: the central Accounting Portal and Database, the Operations Portal, the incident management system (GGUS), the service registry (GOCDB), the Metrics Portal and the messaging infrastructure and monitoring (SAM). More services will be progressively added to the agreement as soon as assessment and reporting mechanisms of the related service level targets become available. The EGI.eu Services and associated targets are presented in detail in section 4.1.3.

The EGI.eu OLA also defines the responsibilities of EGI.eu as a service provider, which are:

- the management and coordination of
    o the Operations Management Board – a EGI policy board which aims to define policies needed to provide a reliable transparent infrastructure composed of multiple national infrastructure providers;
    o operations integration;
    o security operations, training and Security Incident Response;
    o user and operations support;
    o technical roadmapping;
    o maintenance and development of documentation.
- the provisioning of a Virtual Organisation for Site Administrators for technical troubleshooting of the infrastructure (DTEAM VO);
- the provisioning of a Virtual Organisation for support of operations monitoring and availability/reliability computation of services (OPS VO);
- the provisioning of EGI Global Services;
- the promotion of the EGI operations advancement according to the needs of the EGI ecosystem;
- the provisioning of ticket triage, assignment, oversight and follow-up.

EGI.eu and third parties providing services on behalf of EGI.eu which violates the service targets specified in EGI.eu OLA document for two consecutive months, are requested by EGI.eu to provide justifications and a plan for service enhancement. The violating party must provide a status report and a plan for the improvement of the service within one month from the date of notification.

Minimum service level targets in the EGI.eu OLA have been negotiated with NGI operations managers and user communities. For existing Operations Centres acceptance of the EGI.eu OLA is a requirement for being part of EGI, while for new ones acceptance is part of the certification procedure. The EGI.eu OLA is periodically reviewed and updated.

4   SERVICE LEVEL TARGETS AND SLM PROCEDURES

EGI Service Level Management Support Unit (SLM) is responsible within the EGI Incident Management tool (GGUS) for ensuring that all IT Service Management Processes, Operational Level Agreements etc. are appropriate for the agreed Service Level Targets.

The EGI SLM Support Unit handles the process and distribution of monthly Availability and Reliability reports that provide information about the performance of the individual RCs, as well as of the EGI Resource Infrastructure Provider (RPs). Both EGI participants and the integrated infrastructures are concerned by this process as all EGI certified RCs are bound to the same minimum set of Service Level Targets and to the acceptance of the RC OLA.

4.1   Targets

The following service targets are constantly monitored:

- Availability which is defined as the percentage of time that the service was up and running appropriately.
- Reliability which is defined as the percentage of time a service is up and running appropriately, excluding periods of scheduled intervention
- Unknown which is defined to be the percentage of time where there is no monitoring information regarding the status of the service.

While Availability measures the level of correct functionality delivered by a set of capabilities, Reliability estimates the quality of problem/incident management of a service.

4.1.1   Resource Centres

It is mandatory that EGI certified Resource Centre (RCs) provide the following monthly targets, based on ROC_CRITICAL profile:

Table 1. RC service level targets as defined in the RC OLA.

Availability	must be above 70%
Reliability	must be above 75%
Unknown	must be below 10%

4.1.2   Resource infrastructure Providers

It is mandatory that EGI RPs comply with the following monthly targets:

Table 2. RP service level targets as defined in the RP OLA.

Top-BDII Availability	must be above 99%
Top-BDII Reliability	must be above 99%
ROD performance index	must not exceed 10

4.1.3   EGI.eu

The Service Targets for each EGI Global service may differ due to the criticality and available support level of the services. For critical services, which are important in the day-by-day operations of the infrastructure and heavily used by the users or middleware services, EGI.eu has to assure an almost

continuous availability: 99% Availability and Reliability on a monthly basis. For services with a lower grade of criticality a lower minimum performance is specified, although a good level is still required. For human support services (e.g. 1st, 2nd, 3rd Level Support and Grid Oversight) the targets are defined in the EGI.eu OLA according to ticket response time.

It is mandatory that EGI Global service providers comply with the monthly targets, as specified in the following table.

Table 3. EGI.eu OLA service level targets.

Type of service	Service	Service Target
Consulting and Support	1st , 2nd and 3rd Level Support	**Ticket response time** • Top priority: immediate within support hours • Very urgent: within 8 support hours • Urgent: within 16 support hours • Less Urgent: within 40 support hours
	Grid Oversight	1 hour response time within the support hours
	Central EGI helpdesk	Availability/Reliability: 99%/99%
Software	Repository of validated software	Availability/Reliability: Repository frontend: 90%/99% Repository backend: 90%/99%
Operations Tools and Services	Service Availability Monitoring (SAM) central service	Availability/Reliability: 95%/99%
	Operational Tools and Meta-service Monitoring (Ops-Monitor)	Availability/Reliability: 99%/99%
	Operations Portal	Availability/Reliability: 99%/99%
	Accounting Portal and database	Availability/Reliability: Repository: 99%/99% Accounting Portal: 99%/99%
	GOCDB	Availability/Reliability: 99%/99%
	Security monitoring tools	Availability/Reliability: 99%/99%
	Grid Services for RC certification	Availability/Reliability: 99%/99%

Grid Services	Virtual Organisation Management service	Availability/Reliability: 99%/99%
	Workload Management service	Availability/Reliability: 99%/99%
	Information Discovery service	Availability/Reliability: 99%/99%

4.2   SLM Procedures

4.2.1   Resource Centers

Failure to meet the specified targets (as these are defined on Table 1) triggers the conditions for actions as described below:

Condition for suspension: RCs that have an Availability of less than 70% for three consecutive months will be suspended, i.e. removed from the production infrastructure.

Conditions for justification: RCs not providing minimum monthly performance (70% availability, 75% reliability) are requested to provide justification through a GGUS ticket.

RPs that exhibits a list of sites above 10% of Unknown status MUST provide justification through a GGUS ticket. In a GGUS ticket COD will ask the RP to investigate the issue and fix the problem. NGIs RPs should close the ticket as a sign that they are aware of the problem.

4.2.2   Resource infrastructure Providers

Resource infrastructure Providers not providing the requested monthly performance for one month (as these are given in Table 2) MUST provide a service improvement plan.

The maximum value of the ROD performance index must not exceed 10. Above this value ROD teams have to provide explanations and deliver a plan for the improvement of the oversight service.

4.2.3   Request for changes in the monitoring results

The procedure for requesting changes (re-computations) to the calculated SAM results is defined in [PROC10].

This procedure documents the steps for requesting a correction in the SAM test results and in the related availability and reliability statistics, if applicable.

This procedure applies only to EGI OPS test results. Procedures for the computation of VO-specific availability report are VO-specific and are out of this scope.

Note that monitoring results can be recomputed only in the case of problems with the monitoring infrastructure itself. No re-computations will be performed in case of issues with the deployed middleware (e.g. in case of documented bugs affecting the availability of a production service end-point), which will be consequently reflected in lower availability/reliability.

The deadline for requesting re-computations is 10 calendar days after the publication and announcement of the monthly availability and reliability reports for a given month, which is typically the first Monday of the next month.

According to the re-computation requests received, the final reports are regenerated only once for each month, after the deadline of the re-computations has been passed.

4.2.4 Request changes in the Availability and Reliability profile

A change in the profile is needed every time a new Nagios test needs to be added or removed to/from the profile, in order to have its results included/removed in/from Availability and Reliability monthly statistics. A change in the OPS Availability and Reliability profile affects the computation of the monthly Availability and Reliability statistics of all EGI Resource Infrastructures and Resource Centres.

This procedure is defined in [PROC08] and is applicable to the EGI OPS Availability and Reliability profile. The procedure requires that the new profile is calculated in parallel with the old one and the results are compared for at least one month. Any change applied is global, as it has effects on all EGI RCs. This procedure does not apply to VO-specific Availability and Reliability profiles used by non-OPS Vos (e.g. user communities, national operations Vos, etc.).

5 REPORTING TOOLS

The Service Availability Monitoring [SAM] is the grid monitoring and availability/reliability calculation system of EGI. The SAM monitoring infrastructure is used to monitor the resources and services within the production infrastructure; ad-hoc monitoring probes are developed for new integrated services with the purpose of checking the functionality exposed by their public interfaces.

SAM is made up of several components [SAM], some commodity ones and some specifically designed and developed to meet SAM needs by EGI-InSPIRE JRA1. These include:

- Nagios instances for the execution of tests,
- Messaging services for the transport of test results between various components,
- Databases for storing configuration information such as:
  - the Aggregate Topology Provider (ATP)
  - the Profile Management Database (POEM) [POE]
  - the test results produced by Nagios which are permanently stored in the Metric Result Store (MRS) for the whole infrastructure.

Other components include the Availability Calculation Engine (ACE) [ACE], which processes the raw test results and calculates metrics such as RC and service end-point availability and reliability. The MyEGI portal [MYE] is provided to consult the monthly reports[1] and visualize both test results and Availability/Reliability calculations[2] for RCs and the central EGI.eu operations tools. The detailed methodology for computing statuses and availability is described in the "ACE Service Availability Computation" document [ACE].

Information about the performance achieved by RC, RP and EGI.eu services in PY3 is documented In [D4.8].

5.1 RC OLA reporting

5.1.1 Mechanism for Report Generation

The monthly Availability/Reliability reports are produced by the ACE component and are made available normally on 1st Monday of the following month.

In case of problems related to the monitoring infrastructure itself, site administrators and/or regional operations staff may request a re-computation of Availability and Reliability results for a given month via GGUS. The deadline for requesting re-computations is 10 calendar days after the initial announcement of the reports for a given month. This is documented in procedure: "Recomputation of SAM results or availability reliability statistics" [PROC10].

In case of no requests for re-computation, the first reports published at the beginning of the month are considered as final reports.

5.1.2 Availability and Reliability Profile

Availability and Reliability profiles are a collection of metrics/services defined for Availability/Reliability calculations (i.e. VO-wise). Each profile defines a computation algorithm. Metrics can be in different levels such as critical, non-critical etc. Currently, the primary profile for calculations for RCs is the ROC_CRITICAL profile[3].

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[1] https://grid-monitoring.egi.eu/myegi/reports/monthly/

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

[3] http://grid-monitoring.cern.ch/myegi/sam-pi/metrics_in_profiles/?vo_name=ops&profile_name=ROC_CRITICAL

5.1.3 Extensions needed for GLOBUS, UNICORE and QCG

Nagios probes for Globus, UNICORE and QCG based services are distributed within the SAM release but currently they are not in the profile for the availability and reliability calculation. The inclusion of such probes in the ROC_CRITICAL profile, after a period of validation in PY3, will lead to availability/reliability calculation also for sites deploying only Globus, UNICORE or QCG.

For sites deploying mixed middleware versions a unified availability calculation algorithm needs to be implemented. For instance, a combination of service metric results for different middleware services exposing the same capability should be applied (i.e. as it is now done, for example, for CREAM-CE and ARC-CE on sites deploying both interfaces).

5.2 RP OLA reporting

5.2.1 Top-BDII reports

A wiki page is used to track the authoritative Top-BDII instances that are operated by the NGIs and is maintained directly by the Operations Centres staff. Multiple instances can be listed if needed.

The information from this wiki page is used by a custom script to generate the monthly availability Top-BDII results. The script queries the SAM Programmatic Interface and retrieves the monthly statistics for each instance and if an NGI hosts more than one instances the hourly A/R statistics for the Top-BDII metrics are combined in an OR-algorithm.

The script generates an XLS file with the table and a PDF, which are then circulated together with the Resource Centre RCs Availability/Reliability tables.

The results from this process are visible on the Operations Portal. Thanks to the approval of the RP OLA in PY2 and the related reporting activities which followed regularly, the performance of NGI core services improved considerably in PY3 reaching an averaged reliability of 99.98% from May 2012 to March 2013 exceeding the PY3 target of 99%.

A new framework for RP OLA reporting was designed and is now being implemented in EGI-InSPIRE JRA1. The new mechanism will extract information from GOCDB groupings instead of wiki. Groupings are entities in GOCDB which provide information about the authoritative service end-points provided by the NGIs. The Operations Portal will be responsible of both RP performance calculations and reports.

Groupings were for the first time supported by GOCDB v4.3 (released in April 2012). NGIs are now able to group their core services into a NGI-specific service group – which has an agreed naming policy of NGI_XX_SERVICES.

Core instances added to NGI_XX_SERVICES are supposed to be only those which are under NGI responsibility and provide production quality services (no testing instances). As a result of the campaign which started in January 2013 all NGIs have by now created NGI services groups and the official list can be found under [GSG].

All services types which were requested to be registered under the NGI service group were consulted in collaboration with the NGIs and middleware developers in order to understand which of them are core and which not. The complete list of core service types can be found under [GST].

5.2.2 ROD performance index

The Regional Operator on Duty (ROD) performance index (formerly known as ROD OLA metric) was introduced to track the level of Grid Oversight service delivered by Operations Centres according to RP OLA. The index was accepted during Technical Forum 2011 in Lyon and is available on EGI Operations Portal [RODPI].

The ROD performance index is the sum of:

- the number of tickets expired in the operations dashboard daily and
- the number of alarms older than 72h appearing in operations dashboard daily

A ticket in counted as expired in the Operations Portal dashboard[4] if the "Expiration date" is set at a time in the past. The "Expiration date" field is set according to escalation procedure [PROC01], but can be freely changed by ROD. It refers to the date when the status of issue should be checked next time.

The ROD performance index is calculated monthly from the data gathered by EGI Operations Portal. Note that this does not take into account weekends.

5.3 EGI.eu OLA reporting

In order to track the availability performance of the operational tools maintained by EGI-InSPIRE partners on behalf of EGI.eu, the services endpoints were added to GOCDB, and described with a specific set of service types. The services were grouped under EGI.eu Operations Centre entity[5] in order to produce availability calculation using the existing SAM infrastructure.

Most of the operational tools development teams already delivered probes to test the functionalities of their tools. The probes have been integrated in the SAM infrastructure [SAM] together with a new profile OPS_MONITOR_CRITICAL[6] to contain the relevant probes to be used for the availability/reliability calculation of the central tools. The results of EGI Global services monitoring are provided by MyEGI[7].

The Operations Portal will be responsible for the calculation of EGI.eu performance statistics and the generation of monthly reports. This development is planned for PQ13.

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[4] https://operations-portal.egi.eu/dashboard

[5] https://goc.egi.eu/portal/index.php?Page_Type=View_Object&object_id=12607&grid_id=0

[6] http://grid-monitoring.cern.ch/myegi/sam-pi/metrics_in_profiles/?vo_name=ops&profile_name=OPS_MONITOR_CRITICAL

[7] https://grid-monitoring.cern.ch/myegi/

6 FUTURE WORK

RP performance reports. Currently RP reports are manually generated by extracting statistics for the top-BDII service from the SAM Programmatic Interface. These reports will be improved in two ways. As service topology information of NGIs and EIROs is now complete and provided by GOCDB, a larger number of services will be included in the RP monthly reports. Reports will be computed and provided by the Operations Portal. Different reports will be generated: for the technical services (i.e. top-BDII, VOMS, WMS and other grid service endpoints) and for the operational tools (i.e. SAM instances, regional accounting databases etc.).

RP and EGI.eu reports. A new availability and reliability reporting module is being developed by the Operations Portal to make EGI.eu and RP monthly reports available by the Operations Portal. In addition, the Operations Portal will provide a VO-oriented view of availability and reliability statistics that will provide statistics based on a service group that only includes instances that are relevant to the VO.

VO reports. The existing performance reporting framework will be extended with a new set of VO-oriented statistics will be made available by the availability and reliability dashboard of the Operations Portal. For each active VO, these will be generated from the existing "OPS" test results and will be aggregated to only include services actually supporting the VO according to what is published into the information discovery system (top-BDII). On an hourly basis a given service (defined to be the group of instances providing the same functionality to the VO) will be considered to be available if the largest fraction of instances has been fully available (100% of availability) to the VO. The availability of different services will be compound with an AND operation. The actual algorithm will adapted as needed after an internal validation of a few months.

Evolving the OLA framework into a set of OLAs and SLAs. In collaboration with the FedSM project [FSM], EGI.eu will review the operations service portfolio and the related processes assessing the current adequacy to service management best practices and standards (ITIL and ISO/IEC 20000 standards) and in particular to the requirements defined by the FedSM model, and will implement an improvement plan to adapt to these. The EGI.eu service management model adheres to the following minimum set of requirements identified by FedSM [REQ] by providing defined and documented procedures:

- For negotiating SLAs, where documentation and procedures will specify the required scope of the negotiated SLA, the output format in which the SLA must be stored, and how the SLA and service targets are defined.
- For maintaining a service catalogue clearly specifying differentiated service offerings.
- For reviewing services and SLAs at planned intervals.
- For service performance monitoring and reporting the results to relevant parties.
- For establishing OLAs, well-aligned to specific services offered to customers.

Objective of this improvement plan is to satisfy these requirements:

- Services to be delivered shall be agreed with customers. SLAs shall include agreed service targets.
- A service catalogue shall be maintained.
- Services and SLAs shall be reviewed at planned intervals.
- Service performance shall be monitored against service targets.
- For supporting services or service components provided by Federation members, OLAs shall be agreed.

7   CONCLUSIONS

The milestone summarizes the advancements made in PY3 with respect to EGI Operational Level Agreements for services provided by EGI.eu, RPs and RCs, the current status of the monitoring tools for performance reporting, the related operational procedures and the PY4 work plan.

The OLA framework defines the service quality levels and the responsibilities of delivering quality services to the end users. The OLAs have been defined as middleware independent as possible to be applied to the middleware stacks currently in use by the infrastructure. With the integration of other middleware types in the EGI infrastructure, the OLAs may be updated to be compatible with the new services, as part of an evolution process developed within the OMB.

In PY3 a new OLA was defined and approved: the EGI.eu OLA, concerning the EGI.eu core technical services. The related monitoring and reporting functions are being implemented within EGI-InSPIRE JRA1.

As the GOCDB service groups are widely deployed by the NGIs to group their core services it is now possible to extend the RP OLA to include more core services in the RP OLA, on top of the Top-BDII, to have a more precise picture of the quality level of the service provisioning.

The main task for PY4 will be the extension of the current reporting framework to include RP and EGI.eu services and the implementation of VO-oriented performance views; these will be provided by the Operations Portal availability and reliability module under implementation in EGI-InSPIRE JRA1.

8 REFERENCES

[ACE]	Computing of Service Availability Metrics in ACE https://tomtools.cern.ch/confluence/display/SAMDOC/Availability+Computation
[ARCH]	EGI Operations Architecture: grid service management best practices https://documents.egi.eu/document/763
[CUST]	ITILv3 Customer http://www.knowledgetransfer.net/dictionary/ITIL/en/Customer.htm
[D4.8]	Annual Report on the EGI Production Infrastructure, EGI-InSPIRE Deliverable D4.8, March 2013 https://documents.egi.eu/document/1664
[EGIOLA]	EGI.eu Operational Level Agreement https://documents.egi.eu/document/1093
[FSM]	A Strategic Roadmap on ITSM in federated e-Infrastructures (http://fedsm.eu/)
[GSG]	GOCDB Service Groups https://wiki.egi.eu/wiki/NGI_services_in_GOCDB#NGI_service_groups
[GST]	GOCDB Service Types https://wiki.egi.eu/wiki/NGI_services_in_GOCDB#Service_types
[ITIL]	ITIL Glossary http://www.itil-officialsite.com/InternationalActivities/ITILGlossaries_2.aspx
[MYE]	MyEGI Documentation (https://tomtools.cern.ch/confluence/display/SAM/MyEGI/)
[POE]	Profile Management Database (https://tomtools.cern.ch/confluence/display/SAM/POEM)
[PROC01]	Escalation Procedure https://wiki.egi.eu/wiki/PROC01
[PROC08]	Management of the EGI OPS Availability and Reliability Profile https://wiki.egi.eu/wiki/PROC08
[PROC09]	Resource Centre Registration and Certification https://wiki.egi.eu/wiki/PROC09
[PROC10]	Procedure for the re-computation of SAM results and/or availability/reliability statistics https://wiki.egi.eu/wiki/PROC10
[RCOLA]	EGI Resource Centre Operational Level Agreement https://documents.egi.eu/document/31
[REQ]	FitSM: Standards for service management in federated IT infrastructures. Part 1: Requirements, April 2013 http://fedsm.eu/sites/default/files/FitSM-1-2013.pdf
[RODPI]	Regional Operator on Duty (ROD) performance index https://operations-portal.in2p3.fr/dashboard/rodOlaMetrics

[RPOLA]	Resource infrastructure Provider Operational Level Agreement https://documents.egi.eu/document/463
[SAM]	Service Availability Monitoring https://wiki.egi.eu/wiki/SAM