EGI-InSPIRE

Annual Report on the status of Software Provisioning activity

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This deliverable provides an overview of the activities carried out by the SA2 tasks during PY4. The document describes the status of the Unified Middleware Distribution (UMD) releases, the processes contributing to the UMD software provisioning and the activities of the Federated Clouds task force.

I. COPYRIGHT NOTICE

II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Peter Solagna	EGI.eu/SA2	2014-05-27
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III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	15-05-2014	Initial version.	Peter Solagna, EGI.eu
2	27-05-2014	Version 1.1 for external review (with contributions from task leaders).	Peter Solagna, EGI.eu
3	11-06-2014	Implemented reviewers comments	Cristina Aiftimiei, EGI.eu
4	13-06-2014	Implemented last reviewers comments	Cristina Aiftimiei, 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 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/.

New terms to be added to the glossary:

AppDB	Applications Database
AuthN	Authentication
AuthZ	Authorization
BDD	Behaviour-Driven development
CANl	Common AuthenticatioN library
CESGA	FUNDACION CENTRO TECNOLOGICO DE SUPERCOMPUTACION DE GALICIA
CESNET	Cesnet, Zajmove Sdruzeni Pravnickych Osob
CSIC	Agencia Estatal Consejo Superior de Investigaciones Cientificas
EGCF	European Globus Community Forum
EPEL	Extra Packages for Enterprise Linux
HiLA	(UNICORE) High Level API
LIP	Laboratório de Instrumentação e Física Experimental de Partículas
OCCI	Open Cloud Computing Interface
PPT	Project Progress Tracking tool
PT	Product Team
PX	Glite ProxyRenewal
QC	Quality Criteria
QR	Quarterly Report
RSS	Rich Site Summary
SLURM	Simple Linux Utility for Resource Management
SME	Small and Medium Enterprises
STORM	STOrage Resource Manager
SSO	Single Sign On
URT	UMD Release Team
UVOS	UNICORE VO Service
URT	UMD Release Team

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 document reports the status and progresses on the Software Provisioning activity in EGI-InSPIRE during the last year.

During the year, SA2 supported the UMD release process, delivering 17 updates of the Unified Middleware Distribution. The support framework has been extended to adapt to the changes the end of the European middleware projects, European Middleware Initiative[1] (EMI) and Initiative for Globus in Europe[2] (IGE), introduced. Now UMD is able to import packages from multiple technology providers, including community repositories such as EPEL or local repositories maintained by the Product Teams (PTs). The extension of the framework slightly reduced the possibility to automate the import process, but this has been compensated by the improvement in the verification process and release building. These improvements allowed verifying and releasing many more products than the previous year with the available resources.

Beside the technical changes needed with the new technology providers' ecosystem, SA2 also coordinated the UMD Release Team, a fortnightly phone call where the representatives of the Product Team present their release plans, and where topics relevant for multiple products or Product Teams are discussed. The URT meetings helped to keep alive the communications channels between Product Teams and between Product Teams and EGI.

As part of the SA2 activities, the Federated Cloud activities progressed both in integrating Cloud middleware and tools with the EGI core platform and in reaching out for new user communities interested in cloud services. The cloud resource centres have started to be certified and integrated in the production infrastructure to prepare for the official announcement at the end of May 2014.

The main activities of SA2 will continue to be supported directly by EGI.eu during PY5 and beyond as core services funded by the NGIs fees.

[1] http://www.eu-emi.eu/
[2] http://www.ige-project.eu/



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1 INTRODUCTION

This deliverable is the third annual report of the Software Provisioning activity. It covers the activities that took place in the time period starting from May 2013 to April 2014, and follows on from the previous annual report D5.9 [R1].

This document describes the following SA2 activities: quality criteria definition and verification, provisioning of the repositories and software provisioning support infrastructure and Federated Cloud integration. These activities are described in Section 2.

Section 3 provides an overview of the UMD updates produced during the year, including also the other packages distributed through the UMD repositories but not formally part of the UMD distribution. Section 4 describes in a quantitative way the impact and the benefits of the software provisioning process for the EGI production infrastructure.

The main challenge faced by software provisioning during the year has been the end of the European funded middleware projects. In the previous three years EMI and IGE supported most of the products released in the UMD repositories, with Memorandum of Understanding in place to agree on the support levels provided for the software releases targeting UMD. After April 2013, SA2 contacted the individual Product Teams (PTs) to assess their support calendar, and their will to continue the active support of their products for the future, e.g. accepting requirements from EGI. After one year, the evaluation of the middleware activities for UMD is positive: there have been no critical issues blocked by lack of support, the communications with the developers continued productively within the UMD Release Team meetings and mailing list. EGI has still in place a MoU for the support of the QosCosGrid[3] (QCG) middleware.

[3] http://www.qoscosgrid.org/trac/qcg

2 SOFTWARE PROVISIONING

This section contains the achievements and most relevant activities carried out by the SA2 tasks during the past year.

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

The supported major releases were UMD-2 and UMD-3, while the UMD-1 products versions were unsupported. The whole EGI e-infrastructure was updated to UMD-2 and no issues were found regarding the decommissioning of UMD-1.

Starting with 1st of May 2013 we faced the end of EMI and IGE projects that were the main EGI's technology providers, coordinating many PTs developing the software deployed on the EGI e-infrastructure. Taking advantage of the EGI's well-known and well-established policies and procedures regarding the software provisioning, continuously improved to meet new requirements and changes, the independent PTs, part of EMI, continued to contribute to the UMD release, providing improved versions of their components. The European Globus Community Forum (EGCF) has supported Globus products, after the end of the IGE project.

Starting Oct. 2013 UMD-2, entered the security support period, the number of updates for UMD-2 products significantly reduced, since only security patches were released. UMD-2 reached end of life at the end of April 2014, at the moment of writing EGI Operations are carrying out a infrastructure-wide campaign for the decommission of the UMD-2 software, pushing sites to upgrade to UMD-3, as was done for UMD-2 at the beginning of PY4. The only product still supported for UMD-2 is dCache, and this will allow early adopters and verifiers to focus on UMD-3.

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

The UMD Release Team meeting continued regularly, twice a month, maintaining active the communications with the Product Teams. During the meetings SA2 disseminated the release schedule of UMD and the Product Teams reported about the plans for new releases.

The Federated Clouds task force expanded the number of use cases and the exploration of the technical solutions to be deployed in the cloud infrastructure. During the year the task force integrated new technologies in the testbed, for example automatic virtual images distribution and a consistent authentication and authorization framework. The integration with the EGI core platform is completed for most of the Cloud stacks used in the testbed, and several cloud resource centres completed the certification procedure to become production sites integrated in the EGI infrastructure.

2.1 Quality Assurance: Definition of the UMD quality criteria

A new version of the Quality Criteria (QC), the 6th [4], was produced, passing through several iterations/drafts (reference table below). The 6th release of the documents includes a complete review of all the criteria focusing on security and interoperability criteria that reduced the verification effort and allowed external teams to take care of verification of products. The new version was produced by reducing the previous list of criteria to a core set of generic criteria that assure the minimum quality requirements for the products to be used in EGI's infrastructure (dealing with documentation, security, information publishing, accounting, monitoring and support) and by providing a wiki[5] with the list of specific tests that should be performed for each product. A complementary wiki page[6] with information on testing generic criteria and a git repository[7] with sample tests for the products was also made available. The team has also created a simplified verification template[8] that covers all the products (so the mapping is no longer needed) and updated the verification guideline[9] with the changes and instructions for the verifiers.

The improvement of the Quality Criteria continued with the preparation of v.7, focused on the automation of the verification process as much as possible by creating virtual machines (VMs) on the verification testbed and contextualizing them to install and configure the software to be verified. Some of the tests included in the criteria are also being developed using Behaviour-Driven development[10] (BDD) tools.

(Following the release schedule the next update of the QC document will be in 2015)

Revision	Publication date	References
Release 6 1st draft	20-4-2013	Document link [http://egi-qc.github.io/qc6/draft1.html]
Release 6 2nd draft	20-8-2013	Document link [http://egi-qc.github.io/qc6/draft2.html]
Release 6 final version	20-10-2013	Document link [http://egi-qc.github.io/qc6] Release notes [https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Release_6]
Release 7 1st draft	20-12-2013	Document link [http://egi-qc.github.io/qc7/draft1.html]
Release 7 2nd draft	21-2-2014	Document link [http://egi-qc.github.io/qc7/draft2.html]

[4] http://egi-qc.github.io/qc6
[5] http://wiki.egi.eu/wiki/EGI_QC6_Specific
[6] https://wiki.egi.eu/wiki/EGI_QC6_Testing
[7] https://github.com/egi-qc/qc-tests
[8] https://documents.egi.eu/document/1993
[9] https://wiki.egi.eu/wiki/EGI_Verifier_Guideline_QC6
[10] http://en.wikipedia.org/wiki/Behavior-driven_development

Release 7 final draft	21-4-2014	Document link: [http://egi-qc.github.io/qc7] Release notes [https://wiki.egi.eu/wiki/EGI_Quality_Criteria_Release_7]

Table 1: Quality criteria documents

2.2 Quality Control: Verification of conformance criteria

During the last year a series of improvement were applied to the tools, procedures and testbed used in this activity:

- the SA2.3 team created the VMpublisher[11] script to distribute the new verified VM images through EGI's Federated Cloud taskforce sites or external users. This new tool is based on the VMcaster[12] tool and the VM Marketplace[13]. The script can be used after any successful verification by SA2 staff to generate a VM image that contains a deployed instance of the new UMD software, ready to be used by EGI sites. This mechanism gives user communities the ability to test new software versions without the need to spend time installing and configuring a new machine.
- the verification templates were upgraded to use the new Quality Criteria version, for all the UMD products, including the new products provided by QosCosGrid technology provider.
- network testbed configuration was updated to support IPv6. The new VMs instantiated during verification process have IPv6 public addresses by default. The new configuration allows to EGI verifiers to detect issues related with TP services or if the UMD middleware is not IPv6 compliant
- ReleaseCandidate-tester, the tool used by SA2.3 team to detect repository dependencies issues before an UMD release, was also updated. The new script was rewritten in python and now is available from github[14]. It is now included into each VM after each instantiation.
- a new set of configuration files for the most important Technology Provider products were provided. These configuration templates are now available from github[15] and can be used by SA2 verifiers to configure Technology Prividers' (TP) products in an automated way. These templates are also available on the VM instantiated within SA2 testbed

From all products verified during this period, more than 350, two products, the SL6 versions of GridWay 5.14.0 and the SL5 version of Gridsafe 1.3.1 for UMD-3 were rejected in uarterly Report QR13. The issues found with GridWay were solved and an updated version, 5.14.1, passed the verification in QR15.

[11] https://github.com/alvarosimon/VMpublisher
[12] https://github.com/hepix-virtualisation/vmcaster
[13] https://appdb.egi.eu/browse/cloud
[9] https://github.com/alvarosimon/RC_tester
[10] https://github.com/egi-qc/configuration-templates

2.3 Provision of a Software Repository and support tools

During PY4 SA2, and specifically TSA2.4, continued to provide a reliable and flexible infrastructure for the support of the software provisioning workflow. The infrastructure, which includes software repositories and other support tools, has been extended to add a new major release UMD-3, released during May 2013.

Processes to download packages from external repositories have been further simplified to be as much generic as possible. Packages can now be downloaded from every source, being a web server or a yum/apt repository, reducing to a very minimum the pre-requisites for the Product Teams who want to contribute to UMD.

This high flexibility costs part of the automatisms used in the process, which increased the chances of errors in importing a new product release. This has been considered acceptable since the additional overhead is not substantial and the number of product releases has been reducing after the end of the European funded middleware projects.

The other activities in the areas covered by TSA2.4 are detailed in the following sections.

2.3.1 IT support

IT support operates many EGI.eu services, such as the website, Indico, wiki, document DB, and more. The work during PY4 focused mainly on routine support of the tools and the users. The main reported activities are:

- Maintenance of the EGI web site
- Updated the look and feel of the EGI web site
- Monthly updates of inspire-members list from PPT
- Implemented deletion of user for EGI SSO[16]
- Ongoing backoffice administration, maintenance and user support.

2.3.2 Repository Front-end

The repository front-end, which is the set of web tools used by the users to retrieve information about the UMD releases and products, has been stable during the year.

The main reported activities are:

- Admin support for the web front end, this includes upgrades for the WordPress content management system, and minor changes in the content of the web pages.
- Minor bug fixes and enhancements for the RSS feed plugin.
- Added support for UMD-3 in the web pages and web tools.

2.3.3 Repository Back-end

The repository backend is the business logic layer that handles the release of new software in UMD, from the import of new packages to the build of an UMD release. The process has been further generalised during PY4, this required only small changes in the back-end, since the extensions performed during PY3 sufficed the new requirements. The main activities on the back-end during the

[16] https://www.egi.eu/sso/

year have been the extension for the support of the new major release UMD-3 and regular maintenance and operation of the system.

2.4 Federating Institutional Private Clouds

During PY4 the activities in the federation of cloud resources made big progresses, driven by the task force that continued to meet regularly on a weekly base, including many contributors both within and outside the EGI community.
New resource providers have approached to join the federated cloud pre-production infrastructure, this includes also a commercial SME cloud provider, 100%IT. 100%IT is the first commercial provider ever to start a federation process with the EGI resources. The integration activity is monitored in the group wiki pages[17], which are used also as communication channel to disseminate the progresses of the task force.
The task force collaborated with the EGI Operations testing the operational procedures used for the EGI production services with the cloud middleware. The outcome of this test and evaluation activities has been a further development of the EGI core procedure documents. EGI cloud providers have been extensively tested with a slightly modified certification procedure[18] to include specific steps for cloud resources. During Q16 several resource centres completed the procedure becoming fully eligible of being part of the EGI production infrastructure. The commercial provider, 100%IT, was the first beta-tester of the certification procedure, and the first cloud provider eligible for the production status.
In collaboration with the EGI AppDB[19] the task force is developing an automated Virtual Machine Images (VMI) distribution mechanism to enable a uniform work environment for the users, who can now register their VMI in AppDB and have them distributed among the FedCloud resource providers.
The EGI Fedcloud Task Force contributed to the evolution of the cloud standards, for the OGF OCCI Standard the task force produced a contextualization extension currently under approval. Another important standards extension has been the Usage Record v2, to store accounting data for cloud services. All these standard evolutions have been used in the testbed and will be used in the EGI production cloud services to interact with the EGI core platform.
The task force during PY4 started the work towards a consistent AuthN and AuthZ infrastructure, leveraging on the existing EGI AAI, to be used for the different cloud stacks, in order to allow uniform authentication of the users in the federated cloud providers. The target mechanism is the OpenStack Keystone model, and the implementations are already deployed in the FedCloud testbed and successfully tested with the EGI X509 authentication mechanism.
The support for new user communities continued deploying new Proof of Concepts (PoC) in the testbed, like:

- the Catania Science Gateway framework (CSGF)[20] – that provides application developers with a tool to create Science Gateways in short time and in a very easy way. The CSGF exploits the

[17] https://wiki.egi.eu/wiki/Fedcloud-tf:ResourceProviders
[18] https://wiki.egi.eu/wiki/PROC18
[19] https://appdb.egi.eu/
[20] http://www.catania-science-gateways.it/

EGI Federated Cloud capabilities through a new plugin implementing the service model SaaS exploiting OCCI

- the BioVel[21] use cases:
  - the OpenModeller web-service[22] in Europe (niche modelling),
  - Sustain BioSTIF[23] web-service (data visualization).
  - The OpenRefine[24] - a framework for viewing and cleaning large amounts of messy data
- The Peachnote[25] use cases:
  - upload and start a prepared VMware VM
  - run a small Hadoop and HBase cluster in the cloud
- ESA[26]
  - the PoC[27] deploys and tests performances of a computing cluster, by running a set of processing jobs on it.
- ENVRI[28] use case:
  - data access, catalog and dissemination – EISCAT 3D[29]

The Federated Cloud task force activities and progresses were presented in many events during the year, for example in all the main EGI forums and in the CloudScape conference[30].
More details on the Federated Cloud activities, the use cases and the proof of concept are available at [R2].

[21] http://www.biovel.eu/
[22] https://wiki.biovel.eu/display/doc/Ecological+Niche+Modelling+%28ENM%29+Workflow
[23] https://wiki.biovel.eu/display/doc/BioSTIF+User+Manual
[24] https://wiki.biovel.eu/display/doc/BioVeL+Google+Refine
[25] https://wiki.egi.eu/wiki/FedCloudPeachnote
[26] http://www.esa.int/ESA
[27] https://wiki.egi.eu/wiki/FedCloudESAPoC
[28] https://wiki.egi.eu/wiki/EGI_ENVRI
[29] https://www.eiscat3d.se/
[30] http://www.cloudscapeseries.eu/Content/CloudscapeSeries.aspx?Cat=0!12!7!0

3 PROCESSED SOFTWARE RELEASES

In the period covered by this document, more than 350 component updates have been verified by SA2 in collaboration with SA1.3, for the staged rollout coordination. This includes also multiple architectures for the same component release, for example a product released in Debian, Scientific Linux 5 and 6 is verified three times. This section provides an overview of the UMD releases produced during the year for the middleware software, and the releases of the components for the monitoring infrastructure, and for the authentication PKI used in EGI.eu.

UMD Update	Number of verified components	Verification effort [h]	Average verification effort per product [h]
UMD 1.10.1	2	1	0.5
UMD 2.5.0	20	59	3.0
UMD 2.6.0	13	42	3.2
UMD 2.7.0	9	32	3.6
UMD 2.7.1	2	3	1.5
UMD 2.7.2	2	2	1
UMD 2.8.0	8	28	3.5
UMD 3.0.0	58	240	4.2
UMD 3.1.0	55	173	3.2
UMD 3.1.1	6	18	3.0
UMD 3.2.0	50	310	6.2
UMD 3.2.1	2	8	4.0
UMD 3.3.0	63	183	2.9
UMD 3.4.0	15	74	4.9
UMD 3.5.0	32	116	3.6
UMD 3.6.0	18	76	4.2

Table 2, verification effort for the UMD updates described in this document. Emergency and revision releases are in *italic*.

As shown in Table 2 during the year there have been one major release of UMD (UMD 3.0.0) and 10 minor updates for UMD-2 and UMD-3. There have been also 4 emergency and revision updates, which are releases containing one or two components targeted to patch critical bugs or dependencies problems introduced by a previous release. One of the consequences of the end of the EMI project is that currently Product Teams are using several repositories as main target for their releases, this made more difficult to handle the cross-dependencies and required, in some cases, to release a fix with missing dependencies after an UMD update, even with the extensive deployment simulation that are used to test dependencies before every release.

Excluding emergency and revision updates – which require usually less time for the verification - the average verification time for a product has been 3.8 hours, which is substantially smaller than the 6 hours of last year. This improvement in the efficiency of the verification process is due to the increased experience of the verifiers, to the simplification of the Quality Criteria, but also to the improvements in the technical tools that are used to instantiate the virtual machines and the services and

3.1 UMD

In May 2013, SA2 provided the third major release of the Unified Middleware Distribution, UMD-3. The transition to a new supported major release was smooth and without particular changes from the UMD-2 release during PY3. A new set of repositories was created to support UMD-3, and maintained in parallel with the UMD-2 and UMD-1 repositories. In one of the first updates UMD-3 included also a new set of middleware products, the QosCosGrid middleware, from the new technology provider the Poznan Supercomputing and Networking Center.

UMD-1 was decommissioned few months after the release of UMD 3.0.0 and no UMD-1 updates were needed after April 2013. Repositories are still available but considered deprecated.

UMD-2 reached the end of standard support in October 2013 and end of support in April 2014, the UMD-2 components still deployed are being upgraded while this report is being produced and the UMD-2 repositories will be deprecated at the end of this process, with the exception of dCache that has an extended support calendar in UMD-2 – probably until July 2014.

EMI project ended in May, and before the end of the project Product Teams released a big number of updates after a small period of time from the release of the third EMI major release, all targeting UMD-3. That increased the backlog of the UMD software provisioning mainly for the verifiers of SA2.3, producing some small delays in the release of products in UMD.

Many EMI Product Teams continued to produce regular updates with new features and bug fixes. IGE and QCG submitted both two updates of their products during the year. Considering the requirements of the infrastructure and the changes in the products, SA2 decided not to cut a new major release in May 2014, but to continue the support of UMD-3, since there were no real major updates from the technology providers.

3.1.1 UMD-1 Updates

3.1.1.1 UMD 1.10.1

Release Date: 05/04/2013

Announcement: http://repository.egi.eu/2013/04/05/release-umd-1-10-1/

Included Products: 2

Rejected/not published products: 0

This last UMD-1 update introduced a repackaging of the UMD-1 CREAM needed in order to solve a security vulnerability, and an updated jclassads that includes libraries needed to satisfy EMI WN dependencies.

3.1.2 UMD-2 Releases

3.1.2.1 UMD 2.4.1

Release Date: 05/04/2013

Announcement: http://repository.egi.eu/2013/04/05/release-umd-2-4-1/

Included Products: 2

Rejected/not published products: 0

This was an emergency release for UMD-2 containing an update of UMD 2 CREAM, providing SHA2 support and affix for a vulnerability bug, and a new jclassads, including libraries needed to satisfy EMI WN dependencies

3.1.2.2 UMD 2.5.0

Release Date: 24/05/2013

Announcement: http://repository.egi.eu/2013/05/24/release-umd-2-5-0/

Included Products: 10

Rejected/not published products: 0

This 7th update of UMD-2 included 5 updates of products from EMI and 2 updated products from the IGE technology provider, providing several bug fixes. All the products are supporting SL5 and SL6, several were released for Debian6.

3.1.2.3 UMD 2.6.0

Release Date: 12/06/2013

Announcement: http://repository.egi.eu/2013/06/12/release-umd-2-6-0/

Included Products: 6

Rejected/not published products: 0

Minor update of UMD-2, this release introduced minor and revision releases of 6 EMI products.

3.1.2.4 UMD 2.7.0

Release Date: 22/10/2013

Announcement: http://repository.egi.eu/2013/10/22/release-umd-2-7-0/

Included Products: 5

Rejected/not published products: 0

The 8th regular update of UMD-2 introduced 4 updated products from EMI and 1 updated product from the IGE technology provider, solving a security vulnerability bug,

3.1.2.5 UMD 2.7.1

Release Date: 30/10/2013

Announcement: http://repository.egi.eu/2013/10/30/release-umd-2-7-1/

Included Products: 1

Rejected/not published products: 0

This was an emergency release adding missing rpms that were not released in UMD 2.7.0 and that broke the top BDII installation.

3.1.2.6 UMD 2.7.2

Release Date: 01/11/2013

Announcement: http://repository.egi.eu/2013/11/01/release-umd-2-7-2/

Included Products: 1

Rejected/not published products: 0

This was an emergency release adding missing rpms that were not released in UMD 2.7.0 and that broke the site BDII installation.

3.1.2.7 UMD 2.8.0

Release Date: 11/02/2014

Announcement: http://repository.egi.eu/2014/02/11/release-umd-2-8-0/

Included Products: 4

Rejected/not published products: 0

This release included updates – providing bug fixes and new features - for the following EMI products: CREAM, GridSite, PX and GridWay from IGE.

3.1.3 UMD-3 Releases

3.1.3.1 UMD 3.0.0

Release Date: 14/05/2013

Announcement: http://repository.egi.eu/2013/05/14/release-umd-3-0-0/

Included Products: 27

Rejected/not published products: 0

UMD 3.0.0 is the third Major release of UMD (Unified Middleware Distribution) made available for EGI's production infrastructure. This release contains support for both Scientific Linux 5 and 6 and also Debian 6 (Squeeze). It includes the first 25 products released in UMD-3, these products were prioritized in agreement with the Operations Management Board. The release included also 1 product from IGE and the UMD-3 repository configuration package.

3.1.3.2 UMD 3.1.0

Release Date: 26/06/2013

Announcement: http://repository.egi.eu/2013/06/26/release-umd-3-1-0/

Included Products: 22

Rejected/not published products: 0

The first update of UMD-3 was released one month after the major release, this short release schedule was necessary to include the high priority components that could not be released in UMD 3.0.0, and some bug fixes updates for products already released. All the products are supporting SL5 and SL6, several were released for Debian6.

3.1.3.3 UMD 3.1.1

Release Date: 01/07/2013

Announcement: http://repository.egi.eu/2013/07/01/release-umd-3-1-1/

Included Products: 3

Rejected/not published products: 0

Revision update for UMD-3, this release introduces important bug fixes on some components between which the EMI UI, component affecting the vast majority of users of the production infrastructure.

3.1.3.4 UMD 3.2.0

Release Date: 12/09/2013

Announcement: http://repository.egi.eu/2013/09/12/release-umd-3-2-0/

Included Products: 26

Rejected/not published products: 0

The second regular update of UMD-3 introduced 1 new product from EMI and 5 new products, part of the QCG[31] platform, from a new technology provider, Poznan Supercomputing and Networking Center[32] (PSNC) In this released there were also 18 updates for EMI products and 2 for IGE products, already in UMD-3, introducing bug fixes and new features

3.1.3.5 UMD 3.2.1

Release Date: 11/10/2013

Announcement: http://repository.egi.eu/2013/10/11/release-umd-3-2-1/

Included Products: 1

Rejected/not published products: 0

Revison release of UMD-3 including important bug fixes and improvements of one of the EMI's storage management solutions, STORM.

3.1.3.6 UMD 3.3.0

Release Date: 13/12/2013

Announcement: http://repository.egi.eu/2013/12/13/release-umd-3-3-0/

Included Products: 22

[31] https://wiki.egi.eu/wiki/QosCosGrid_Platform
[32] http://www.man.poznan.pl/

Rejected/not published products: 0

This release included updates – providing bug fixes and new features - for the following products: ARC, BDII (core, site, top), CANl, CREAM, DPM, GridWay, ProxyRenewal, UNICORE HILA and UVOS.

3.1.3.7 UMD 3.4.0

Release Date: 29/01/2014

Announcement: http://repository.egi.eu/2014/01/29/release-umd-3-4-0/

Included Products: 9

Rejected/not published products: 0

Forth update of UMD-3 providing bug fixes and new features for 7 EMI products and 2 products from the QCG technology provider.

3.1.3.8 UMD 3.5.0

Release Date: 20/02/2014

Announcement: http://repository.egi.eu/2014/02/20/release-umd-3-5-0/

Included Products: 15

Rejected/not published products: 0

This update contained new products versions, solving many bugs, also security vulnerabilities, from all three technology providers, EMI (8 products), IGE (5 products) and QCG (2 products).

3.1.3.9 UMD 3.6.0

Release Date: 07/04/2014

Announcement: http://repository.egi.eu/2014/04/07/release-umd-3-6-0/

Included Products: 9

Rejected/not published products: 1

Sixth revision update of UMD-3 containing new versions of 7 products from EMI's technology providers and the first release in UMD of the CREAM & WN for the SLURM batch system.

Gridsafe, from IGE, version 1.3.1 for SL5 was rejected due to dependencies issues.

3.2 EGI Trust Anchors

Total number of updates: 4

Accepted updates: 4

Rejected updates: 0

The IGTF Certification Authorities (CA) trust anchors releases are not formally part of UMD, but are distributed through the UMD repositories. The quality criteria are not applicable to this distribution but errors in the Certification Authorities configuration in the EGI sites can lead to major disruption of the production services, preventing users to authenticate in these services. The IGTF distribution is therefore tested in staged rollout by early adopters for several days before rolling it in production.

When possible, based on the release notes provided by IGTF, the distribution is tested in a site with the higher probability to have users with certificates released by the CAs in the change log.

3.3 Service Availability Monitor (SAM)

Total number of updates: 1

Accepted Updates: 1

Rejected updates: 0

The Service Availability Monitor (SAM) tool is a distributed infrastructure for the monitoring of the EGI resources. It has a central instance and at least one instance deployed for every NGI in charge of running the tests vs the NGI's services. SAM is not part of UMD releases, but it is distributed in the UMD repositories, to make the packages available for the NGIs and it is tested in staged rollout by one or two early adopter NGIs. After receiving positive feedbacks from the early adopters the release is announced for a wider deployment.

During the last year there was only one release for SAM, which included a considerable refactoring of the product. The new release required an extensive testing, with particular attention to the documentation to guide the service administrators in the upgrade. The release was approved for wide deployment with comments for the improvement of the documentation.

4 IMPACT OF THE SOFTWARE PROVISIONING PROCESS

One of the main purposes of the EGI software provisioning process is to catch possible critical problems before the new product release goes into production and it is widely deployed. This is ensured by testing the software releases in the verification step, performed by TSA2.3, deploying it in a controlled environment and checking a list of requirements. After the verification products are deployed in production sites and exposed to real users and use case, by a limited number of expert site administrators.

Type of products	Number of product updates submitted	Number of updates rejected
Middleware components	345	23
EGI SAM releases	1	0
IGTF CA Trust anchors releases	4	0

Table 3, Products tested and products rejected

Table 3 contains the list of products that have been processed in the software provisioning workflow during PY4.

A large number of products from the external Product Teams have been verified during PY4, SA2 processed almost 370 updates of the middleware products distributed in UMD, 23 products were rejected either during the quality criteria verification or the staged rollout. From these updates there was only one emergency update (reference) caused by security vulnerabilities discovered in the middleware distributed in the production infrastructure, that needed a fast response both from the technology provider and from the SA2 team.

Only one release has been published for the EGI distributed monitoring system (SAM), as reported in section 3.3 it was approved for wide deployment with feedbacks regarding the improvement of the documentation.

IGTF produced four updates of the CA trust anchors release, which is deployed in all the EGI sites to enable the X509 certificates produced by the IGTF certification authorities. IGTF releases are not tested in verification but directly in production by some early adopter sites, and there were no rejected releases during PY4.

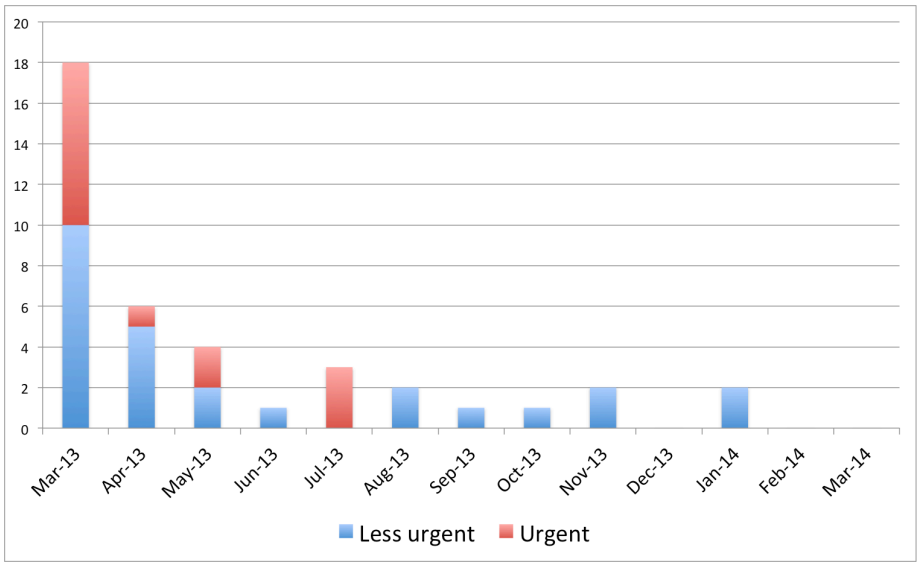

Figure 1, helpdesk tickets opened during the software provisioning

Figure 1 shows the distribution of helpdesk tickets opened by verifiers during the verification or staged rollout steps prior to the software release in UMD. There were no “very urgent” and “critical” tickets during PY4, since the higher grades of severity are usually not applied for problems not affecting production, but all these tickets were forwarded with high priority to the developers who could provide feedback or plan patches where needed. Not all the tickets resulted in a rejection of the product release, since in many cases developers were able to provide a workaround for the issue, and the information of the issue and possible solutions have been added to the UMD release notes, to complement the release notes provided by the developers.

During the PY4 we observe a clear improvement in the quality of the products that were delivered to the production infrastructure. This was achieved not only through a close collaboration with the Products Teams but is also due to the overall improvement of the Software Provisioning process, the simplification of the Quality Criteria, the availability of automatic tools for the verification and testing activities.

5 PLANS FOR THE FUTURE

SA2 support of the EGI-InSPIRE project for the software provisioning activities will end with the end of PY4.

All the SA2 activities supported in the past four years by the EGI-InSPIRE project will continue as EGI.eu core services activities, provided by the partner NGIs and co-funded by EGI.eu using part of the fees paid by the council members. As result of the bid run among the EGI.eu partners the software provisioning services will be provided by the same NGIs that provided them during the EGI-InSPIRE project.

The acceptance criteria will continue to be edited and extended by CSIC, with a lower amount of releases than in the past four years, there will be an update every year. Considering that the quality criteria have been evolved and refined during the project years, this has been considered acceptable: there is no need to have a continuous release process for the criteria, but still UMD will maintain the capability to adapt the document and the verification templates for the requirements gathered during the next 12 months, with an option to renew for an additional year.

The verification of the acceptance criteria will be performed by CESGA and LIP. The resources devoted to these activities have been allocated in order to verify approximately 250 products per year. This quantity is lower than the work done during PY4, but is – as an example – in line with PY3, considering the lower amount of releases from the Product Teams in the next 12 months, and the extension of the framework to accept external verifiers, this effort has been considered a good estimation in order to keep the quality of UMD high without over-committing resources to this activity.

The software provisioning infrastructure and collaboration tools will continue to be provided by GRNET and CESNET. The resources committed are enough to maintain the current set of service producing new major releases, as well as extending the repositories for a new O.S. release (e.g. SL7) but not to create new repositories for other Linux distributions. Currently UMD supports Debian and Scientific Linux, considering the platforms deployed in the infrastructure these options are fulfilling the resource centres requirements.

Federated cloud activities will continue as part of the EGI-InSPIRE activities during the project extension PY5. The main milestone for the following months is the official rolling in production of the Cloud services as part of the EGI production services portfolio, which is expected for May 2014. The provisioning of production services will be overviewed by the EGI Operations as the other services provided in the EGI infrastructure, and the taskforce will focus on supporting new use cases and to integrate new technologies or extend the integration with the core infrastructure where necessary, for example by developing more effective monitoring probes.

6 CONCLUSIONS

This document summarizes the achievements of the last year of SA2 activities for software provisioning.

During PY4, SA2 produced a new major release for UMD (UMD-3) and 15 minor or revision updates. These releases updated a total of more than 350 components, including the sub component verified separately and the product verified multiple times for multiple platforms. This is an increase compared to the past year (when the count stopped at about 200), and the increase in the efficiency of the verification template and technical virtualization infrastructure reduced the overhead and maintaining the overall required effort approximately at the same level.

One more technology provider started the collaboration with EGI in order for its products to be released in the UMD repositories as well, Poznan Supercomputing Centre providing QosCosGrid middleware.

The URT meetings have continued to be a contact point for the main developers contributing to UMD, and the calls have been regular every 14 days. During the Technical Forum in Madrid, in September 2013, there have been the first Face-to-Face URT meeting, with a very good attendance from the Product Teams. Through the URT, SA2 gathered the critical information about the products currently in UMD, such as the support calendar for the production releases of the middleware components, or possible backward incompatibilities expected in future updates.

The main achievements of the year have been the release of the third UMD major release, the transition to the post-EMI and post-IGE phase including the extension of the technical framework and the new communication channels with the individual Product Teams, and the planning of the core services provisioning to be ready to start after the end of PY4.

7 REFERENCES

R 1	D5.9 Annual report on software provisioning activities [https://documents.egi.eu/document/1657]
R 2	Federated Cloud Wiki [https://wiki.egi.eu/wiki/Fedcloud-tf:Main]