**Operations Management Board (OMB)**

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| **Meeting:** | Operations Management Board |
| **Date and Time:** | 12 April 2014 |
| **Venue:** | F2F meeting, Manchester – Adobe Connect |
| **Agenda:** | https://indico.egi.eu/indico/conferenceDisplay.py?confId=1235 |

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# Participants

|  |  |  |  |
| --- | --- | --- | --- |
| Name and Surname | Participated | Organisation | Membership[[1]](#footnote-1) |
| Emrah Akkoyun |  | TUBITAK, NGI\_TR | Deputy Member |
| Luis Alves | YES | CSC/NGI\_FI | Deputy Member |
| Jan Astalos |  | UI SAV, NGI\_SK | Member |
| Marian Babik |  | CERN | JRA1/SAM |
| Antun Balaz |  | IPB/NGI\_AEGIS | Member |
| Maite Barroso |  | CERN | Member |
| Goncalo Borges |  | LIP/IberGrid | Member |
| David Bouvet |  | CNRS/NGI\_FRANCE | Deputy Member |
| Stephen Burke | YES (AC) | EGI.eu | Information Officer |
| Riccardo Brunetti |  | INFN/NGI\_IT | Member |
| Keith Chadwick | YES | Fermilab | OSG/Security |
| Chun-Chen Chen | YES (AC) | TWGRID/Asia Pacific | Member |
| Jeremy Coles | YES | rl.ac.uk/NGI\_UK | Member |
| Ian Collier | YES | STFC | Invited Participant |
| Linda Cornwall | YES | STFC | SVG Leader |
| Hélène Cordier | YES | CNRS/NGI\_FRANCE | Deputy Member |
| Mario David | YES | CNRS/VERCE Porject | Invited Participant |
| Claire Devereux |  | STFC/NGI\_UK | Deputy Member |
| Miroslav Dobrucky | YES (AC) | NGI\_SK | Deputy Member |
| Helmut Dres | YES | KIT | SA1.6/helpdesk |
| Feyza Eryol | YES (AC) | TUBITAK/NGI\_TR | Member |
| Tiziana Ferrari  | YES | EGI.eu | Chairman |
| Alessandra Forti | YES | WLCG | Invited Participant |
| Sven Gabriel | YES | NIKHEF | EGI CSIRT |
| Luciano Gaido  |  | INFN/NGI\_IT | Member |
| John Gordon | YES | STFC | TSA1.5  |
| Guenter Grein | YES | KIT | TSA1.6 Leader |
| Nikola Grkic | YES (AC) | IPB/NGI\_AEGIS | Deputy Member |
| Emir Imamagic | YES | SRCE/NGI\_HR | Member, TSA1.4 |
| Boro Jakimovski |  | NGI\_MK | Member |
| Christos Kanellopouls | YES (AC) | GRNET | Mini Project Leader |
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| Paschalis Korosoglou | YES | AUTH | TSA1.8 Leader |
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| Malgorzata Krakowian | YES | EGI.eu | TSA1.3 int Leader |
| Alexander Kryukov |  | E-ARENA, ROC Russia | Member |
| Cyril L’Orphelin |  | CCIN2P3 | JRA1 |
| Gilles Mathieu |  | IN2P3/NGI\_FRANCE | Member |
| Ludek Matyska |  | CESNET/NGI\_CZ | Member |
| David Meredith | YES | STFC | JRA1/GOCDB |
| Dimitri Nilsen | YES | KIT/NGI\_DE | Member |
| Mats Nylen | YES | NGI\_SE | Member |
| Dulav Oleg | YES | KIT | TSA1.6/GGUS |
| Alison Packer |  | STFC | TSA1.5 |
| Alessandro Paolini |  | INFN/NGI\_IT | Member/TSA1.7 sw supp |
| Joao Pina  | YES | LIP | Member, TSA1.3 |
| Ernst Pijper | YES | SurfSARA/NGI\_NL | Deputy Member |
| Bozidar Proevski | YES (AC) | NGI\_MK | Deputy Member |
| Rob Quick | YES | OSG Operations | Invited Participant |
| Di Qing | YES | TRIUMF/ROC\_Canada | Member |
| Marcin Radecki | YES | CYFRONET/NGI\_PL | Member, TSA1.7 |
| Miroslav Ruda |  | CESNET/NGI\_CZ | Member |
| Serge Salamanka |  | UIIP NASB/NGI\_BY | Member |
| Renato Santana |  | CBPF/Latin America | Member |
| Alvaro Simon |  | CESGA | VP MPI |
| Mihajlo Savic |  | Uni. B. Luka/NGI\_BA | Member |
| Vladimir Slavnic  |  | IPB/NGI\_AEGIS (Serbia) | Deputy Member |
| Peter Solagna | YES | EGI.eu | SA2 Activity Manager |
| Zdenek Sustr | YES | CESNET/NGI\_CZ | TSA1.7 sw support |
| Magda Szopa | YES | CYFRONET | TSA1.7/COD |
| Tadeusz Szymocha |  | CYFRONET | TSA1.7 COD |
| Jura Tarus |  | CSC/NGI\_FI | Member |
| Onur Temizsoylu |  | TUBITAK/NGI\_TR | Deputy Member |
| Ulf Tigerstedt |  | CSC/NGI\_NDGF | Member |
| Ron Trompert | YES | SURFsara/NGI\_NL | Member, TSA1.7 |
| Marco Verlato | YES | INFN/WeNMR | Invited Participant |
| Paolo Veronesi | YES | INFN/NGI\_IT | Member |
| Luuk Uljee  | YES | SURFsara NGI\_NL | Deputy Member, TSA1.7 |
| Alessandro Usai | YES (AC) | SWITCH/NGI\_CH | Member |
| Anders Waananen | YES | UCPH/Denmark | Member |

# ACTION REVIEWS

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Action Owner** | **Content** | **Status** |
|  |
|  |  |  |  |
| **Actions from the 12 April 2013 OMB meeting** |
| **30/01** | NGIs for site managers | NGIs to contact site managers of sites offering MPI support through CREAM CEs so that in preparation to SAM Update 22, all sites supporting the MPI capability register eu.egi.MPI service end points) | IN PROGRESS |
| **30/02** | T. Ferrari | To request UCB feedback about the changes to the Service Operations Security Policy already approved by the OMB 🡪 CLOSED in May: the UCB expressed no issues | CLOSED |
| **30/03** | T. Ferrari | To discuss the usage of long proxy certificates with the user communities with the UCB | OPEN |
| **30/04** | T. Ferrari | To constitute a working group with users and NGIs for requirements gathering 🡪 CLOSED. Expressions of interested collected from UCB and OMB in May. | CLOSED |
| **30/05** | T. Ferrari | To discuss with the UCB the interest in a CVMFS service for application software installation |  |
| **Actions from the 26 March 2013 OMB meeting** |
| **29/01** | T. Ferrari | Discuss new GGUS workflows for the handling of stale tickets with the UCB 🡪 workflows approved by April OMB meeting and following to this by the UCB  | CLOSED |
| **29/02** | G. Grein | Provide a text description of the GGUS workflows for the handling of stale tickets 🡪 <https://wiki.egi.eu/wiki/FAQ_GGUS-Waiting-For-PT-Process> and <https://wiki.egi.eu/wiki/FAQ_GGUS-Waiting-For-Submitter-Process> | CLOSED |
| **29/03** | NGIs | To provide feedback about the two proposed GGUS workflows to handle 1. Tickets that do not get information from the submitter and 2. Tickets that do not get a response from the supporters 🡪 workflows approved by OMB and UCB, will be implemented in the June release of GGUS | CLOSED |
| **29/04** | NGIs | To provide feedback about the proposed resource application and allocation framework either on the OMB mailing list or during the EGI Community Forum during the session “Operational Services: Coordinated offering of a federated resource pool” (Wed 10/04, 11:00 am). 🡪 no input received. Framework is approved. Summary document for council will be prepared. | CLOSED |
| **Actions from the 26 February 2013 OMB meeting** |
| **28/01** | NGIs | The APEL team provided a prototype of the APEL regional repository that is now ready for testing. NGIs who are interested in this service to be deployed nationally are invited to come forward and get in contact with the APEL team (via a GGUS ticket). | CLOSED |
| **28/02** | D. Kelsey | Clarify if publishing of accounting is made mandatory by current EGI policies, and suggest any change or further action to address the local policy issues raised by sites/NGIs (<https://rt.egi.eu/rt/Ticket/Display.html?id=5036>) | OPEN |
| **28/05** | T. Ferrari | To contact NGIs hosting a NGI accounting DB to propose a plan for enforcement of the personal data retention policy at an NGI level | IN PROGRESS |
| **28/06** | T. Ferrari | To assess the need of GGUS support to security operations activities, the use cases and the requirements that may emerge from the assessment 🡪 Being discussed with CSIRT, an update is expected in May 2013 | IN PROGRESS |
| **28/08** | R. Trompert/COD | To consider the evolution of the ROD index to be a relative metric that reflects the number of sites. Pros/Cons? (<https://rt.egi.eu/rt/Ticket/Display.html?id=5043>) | OPEN |
| **28/11** | P. Solagna | To report on verification activities around ARGUS (<https://rt.egi.eu/rt/Ticket/Display.html?id=5049>) 🡪 output of verification activities is reported here: <https://wiki.egi.eu/wiki/Middleware_argus_interoperability> | CLOSED |
| **28/12** | U. Tigerstedt | To report to EGI CSIRT (S. Gabriel) on issues faced by ARC-CE when used with ARGUS 🡪 no testing results ready, but when testing will be performed, results will be made available at <https://wiki.egi.eu/wiki/Middleware_argus_interoperability> | CLOSED |
| **28/13** | NGIs | To provide feedback on the central emergency user suspension implementation proposal by Friday 22 of March 🡪 policy is approved by April OMB and following to this, by the UCB. Broadcast sent at: <https://operations-portal.egi.eu/broadcast/archive/id/939> | CLOSED |
| **Actions from the 18 December 2012 OMB meeting** |
| **27.03** | COD | To organize nagios probe working group and participation of NGIs to sub-groups 🡪 see doodle <http://doodle.com/mzcruxd3nvnd32gh> 🡪 ARC evaluation in progress 🡪 <https://wiki.egi.eu/wiki/Task_forces#Nagios_probes_Working_Group> | CLOSED |
| **27.06** | G. Borges  | To open a RT requirement for the operations portal to request the differentiation in the operations dashboard of alarms generated by probes for mw version monitoring from other plain alarms | OPEN |
| **Actions from the 20 November 2012 OMB meeting** |
| **26.01** | K. Koumantaors | To keep the OMB informed about progress in migrating notification features of VOMRS to VOMS 🡪 difficulties are being experienced to keep the current notification features available in VOMRS. The problem is being discussed with the VOMS developers. 🡪 waiting for the EMI 3 release of VOMS 🡪 27-05-2013 discussion in progress with developers | ON HOLD |
| **Actions from the 26 March 2012 OMB meeting** |
| **20.03** | E. Imamagic | to assess the availability of storage occupation tests in Nagios 🡪 EMI probes have still to be included into SAM, a dependency on the gLite 3.2 UI and DAG is currently delaying this integration. Action on hold until migration to EPEL will be complete. 🡪 request submitted to the SAM Nagios working group (https://rt.egi.eu/guest/Ticket/Display.html?id=5622) | IN PROGRESS |
| **Actions from the 24 January 2012 OMB meeting** |
| **18.04** | E. Imamagic | To assess deployment of NGI SAM failover configuration (<https://rt.egi.eu/rt/Ticket/Display.html?id=3457>) 🡪 waiting to have the operations tools SAM in production at CERN 🡪 action can move to in progress now that a SAM tool for monitoring of NGI SAM installations is available 🡪 at the May OMB the running of NGI SAM tests as OPERATIONS test will be discussed. By running monitoring as OPERATIONS tests SAM performance issues will be detected. | IN PROGRESS |
| **18.05** | E. Imamagic | To distribute documentation on how to trouble shoot the message broker network (<https://rt.egi.eu/rt/Ticket/Display.html?id=3459>) 🡪 IN PROGRESS. Waiting to see the status of the next May SAM update. 19/06: SAM update released to end of June.  | IN PROGRESS |
| Note: Actions from previous meetings are closed. |

# Introduction

T. Ferrari/EGI.eu (see slides)

The OMB meeting calendar is confirmed until August included.

The gLite decommissioning is completed. An updated is provided on the status of EMI-1 service monitoring probes deployed on the central Nagios instance “midmon” dedicated to this.

With SAM Update 22 the approach to MPI monitoring will change: only CREAM CEs publishing the MPI service type in GOCDB will be subject to monitoring and the MPI monitoring probes were enhanced. Concerns are expressed by NGI\_NL about the running of complex jobs in small sites. E. Imamagic: the probe – which is currently being verified – is successfully running in all MPI sites.

**ACTION (NGIs): In preparation to SAM Update 22 all sites supporting the MPI capability are requested to add the corresponding service entries in GOCDB (type eu.egi.MPI).**

**DECISION. The OMB approves the implementation of two new GGUS workflows for handling 1. Unresponsive ticket submitters (documentation:** [**https://wiki.egi.eu/wiki/FAQ\_GGUS-Waiting-For-Submitter-Process**](https://wiki.egi.eu/wiki/FAQ_GGUS-Waiting-For-Submitter-Process)**) and 2. Unresponsive supporters (documentation:** [**https://wiki.egi.eu/wiki/FAQ\_GGUS-Waiting-For-PT-Process**](https://wiki.egi.eu/wiki/FAQ_GGUS-Waiting-For-PT-Process)**).**

The User Community Board will be consulted for feedback.

**DECISION. The OMB approves the deployment of a probe that checks the publishing of User DN information into the accounting records (for sites who have no policy issues about this)**.

The probe is already deployed on the “midmon” Nagios instance. ROD teams are requested to provide feedback about the probe.

# Policy extension for central emergency suspension

D. Kelsey/STFC on behalf of the Security Policy Team presents various changes to the Service Operations Security Policy that are proposed for approval, with a focus on the change which requires the implementation of procedures to support the central emergency suspension of users:

You must implement automated procedures to download the security emergency suspension lists defined centrally by Security Operations and should take appropriate actions based on these lists, to be effective within the specified time period.

T. Ferrari asks about the difference between Must/should in the text. D. Kelsey: sites must have procedures implemented, but the can choose - in specific cases - to overrule the black list. Sites are not supposed to inform users about suspension activities (all sites are suspending the same user).

Suspension of users can be implemented at different levels (CAs, VOs and sites) but EGI operations have control on the sites, not on CAs or even VOs, hence the most effective implementation is on sites. VOs can prevent users to instantiate proxies with VO extensions, but not cannot remove existing proxies. CRL can take more than 24 hours to be effectively released by CAs and deployed.

**DECISION. The OMB approves the proposed changes to the Service Operations Security Policy**.

**ACTION (T. Ferrari): to contact the UCB to request approval**.

OSG has been collaborating to the definition of the changes to the policy, and has enforcement mechanisms that are compatible to ARGUS (GUMS is deployed at sites).

# Compromised certificate operational procedure

L. Cornwall/STFC presents the work in progress for the definition of a procedure for the handling of compromised certificates. This procedure is need to support CSIRT to act in an agreed manner, save time and protects sites. The work in progress and it should be finalized during 24-25 April CSIRT meeting.

Central emergency suspension allows a centralized blacklisting of a user DN suspected of malicious use. By doing so, sites are protected during an incident, especially in case of those which occurs out of business hours. A DN can be re-instated quickly after the end of the incident.

The procedure can be used in a number of use cases:

* System compromised - has proxies or private keys compromised
* Sharing of user certificate with others
* Private key of proxy coped to location readable by others
* User e-mailed proxy to mailing list with archive publicly accessible

A central emergency suspension does not necessarily mean that the user did something wrong. No action will be undertaken in case of misconfiguration, or low impact exposure of proxies.

A CA can request the revocation in case of root compromise where private keys are stored; in this case, EGI CSRIT will have to carry out investigations.

Consequences:

* **Service certificates compromised:** certificate cannot be used to submit jobs.
* **Robot certificate compromised:** robot certificate should be carefully protected. Will be handled as a plain user DN in case of compromise. Until resolved, users will not be able to submit jobs.
* **CA compromised:** EGI CSRIT should alert CA, IGTF, eugridpma. All the rest will be handled by IGTF, re-issuing of trust anchors is needed in this case.

Use case to be added: A proxy is compromised but not the certificate. Do the users have to revoke its certificate in case of a compromised proxy? This is only meaningful for long proxies for example 1 year proxies (a number of user communities is still using long proxies, WLCG included).

**ACTION (T. Ferrari): to assess the usage of long proxies (e.g. 1 year) with the UCB**.

# Data management across multiple infrastructures: the VERCE use case

M. David/CNRS presents one of the user community use cases that are being investigated to allow data access, transfer and processing across multiple infrastructures: EGI, EUDAT and PRACE.

The objective of the VERCE project is to empower seismologists in data and metadata management, in particular of “designing and developing a research platform to deliver to seismology and earthquake community, an integrated computational and data environment that presents a coherent virtual environment in which to conduct research”. Services being developed by EUDAT are interesting for VERCE and are being evaluated.

VERCE resources are located in: LRZ (DE), SCAI (DE), France (INSU01-PARIS) and other private institutes (IPGP, INGV, UEDIN, ULIV, KNMI/ORFEUS), as well as PRACE (CINECA, LRZ). VERCE is evaluating the possibility to integrate its resources into GOCDB: through GOCDB scoping for VERCE resources and the use of custom service types.

VERCE has two different use cases: a data intensive one (where data access and volume is the bottleneck) and a compute intensive one (compute capability).

In the data intensive use cases small raw data is processed. Data is in file format (from seismological stations).

1. In the preprocessing phase (partitioning of data sets) any compute resource suitable can be used, this is a good use case for EGI. Output of pre-processing serves as input to the next phase.
2. Processing phase (signal processing) is a compute-intensive parallel problem (each wave form is treated independently without communication). Requires HPC resources.
3. Cross correlation (data intensive) – both HTC and HPC resources.
4. Analysis aggregates the data from the cross correlation phase.

A scientific gateway is being developed with the DISPEL workflow engine and OGSA DAI as enactment platform. Data management needs are: data management, discovery, movement, staging and archiving. Pre-processing and processing phases are a facing parallel problem. Short medium term storage is needed to support the full lifecycle of a workflow analysis.

Software to be used: iRODS, MonetDB, GridFTP/srm (dcache and dpm) in EGI.

A common authorization and authentication layer is needed 🡪 for private resources username/password is used, while access to Grid resources is X.509 based. Access to HPC resources is based on username/password or GSI. STS is being evaluated. More integration is needed.

Job scheduling submission monitoring 🡪 jsaga under evaluation testing by DISPEL, CREAM CE and GRAM in grid, unicore6 or local job management systems. EMI execution interface would allow submission to UNICORE and CREAM/ARC in a seamless way reducing the complexity on the client side.

The collaboration between EGI and VERCE is expected in the following technical areas:

* Improving data access, data movement, and data management across the EGI infrastructures and the VERCE platform.
* Leveraging the access, identification and authorization protocols, services and policy between EGI and VERCE.
* Supporting VERCE data-intensive data and work flows enactment on the EGI infrastructure.
* Collaborating on oriented Scientific Gateways supporting VERCE seismology data-intensive applications and users.

# Inter-NGI usage accounting reports

K. Koumantaros/GRNET reports on the results of the Inter-NGI virtual team. Inter-NGI accounting reports are now available from the Accounting Portal under the Reports section. Accuracy of the data collected and aggregated has been progressing improving thanks to the increasing number of sites publishing User DNs. All NGIs are requested to check the accounting information provided by the Inter-NGI reports.

The first report is accessible at http://go.egi.eu/1670.

Discussion: there is a need to know OSG usage across EGI and vice versa. Currently only cross-EGI reports are available.

# Supporting user communities across EGI and OSG: the WeNMR use case

M. Verlato/INFN presents the objectives of the WeNMR collaboration, the service portfolio and how the grid infrastructure of EGI is currently being used and accessed. Access to the grid is mediated by a portal supported by the use of robot certificates (see slides). Submission to WMS resources is via WMS.

The WeNMR VRC is supported in South Africa, Taiwan, Brazil, Argentina, Venezuela (GISELA). WeNMR is interested in running on DEISA and PRACE via EMI-ES. Access to resources is based on a combination of owned resources and opportunistic usage of existing ones.

SBGrid (Software Consortium for Structural Biology) is a consortium of 220 structural biology groups and is an OSG VO. An existing science portal is used for job execution on OSG resources. The consortium has many members world-wide. The SBGrid portal is complementary to the WeNMR one. SBGrid users should have an option to register into the WeNMR VO for execution on EGI resources (increasing number of users, now 76). 15% of users are from US. SBGrid is supported by 22 OSG sites for a total amount of 40,000 of CPU cores (same amount as WeNMR). SBGrid was enabled on WMS, tests of data transfer have been executed, LFC registration testing succeeded, as well as installations of CS Rosetta on OSG and EGI sites, with minimal changes.

GliteinWMS is a pilot-based submission mechanism supported for the SBGrid VO in OSG. Glideins are submitted by the OSG factory with a SBGrid VO proxy.

Accounting: SBGrid is accounted through GRATIA. Publishing of accounting should be just a configuration matter; integrated access of accounting from OSG and EGI is needed. In this specific use case, two VOs are being used and accounting data needs to be joined.

R. Quick: Using an established VO in OSG is quicker in terms of resource allocation, but supporting WeNMR would be possible too. Accounting portal will have a PI interface so that a query can be instrumented to extract data.

Accounting exchange is already in place, it should be only a matter of configuration for the OSG side to publish to APEL also WeNMR together with the LHC VOs. As WeNMR is using the SBgrid VO, some specific queries must be run.

The CHAIN portal jsaga components were reused to use other grids in particular Garuda in India. Currently implementing a condor adaptor, this to be deployed behind the WeNMR portal. A use case was submitted to XSEDE. The OSG pilot will be moved to production, this requires an adaptation of the scripts that constituted the WeNMR portal backend.

How to reuse the work of WeNMR for other VOs? The WeNMR portal is distributed, packaged for installation on other sites. This can be proposed to other VOs as well, however it is not reusable with pilot jobs as it is based on WMS.

WeNMR support: developers use GGUS so the interface with OSG for support is working fine. A new VO could be enabled.

# OSG Update

R. Quick/OSG

CA has changed now to OSG PKI. Smooth transition to the CA, on March 25th 2013 DOEGrids PKI stopped issuing new certificates.

A new service - OASIS (OSG application software installation service) is a production service since April, it is based on CVMFS. GSI SSH login for VO software managers is supported, stratum 0 and multiple distributed stratum 1 servers constitute the infrastructure. A SLA is available for application installation (3-4 VOs are using it). WeNMR is also moving to CVMFS for application installation. An integration should be considered. SBGrid (Software Consortium for Structural Biology) expressed interest on the OSG side. The infrastructure being used by WeNMR is supported by STFC.

Pacman installations will no longer be offered from June 2013.

VO use cases to push further the EGI-OSG integration are: GLAST, WeNRM, WLCG. Others are: auger belle, cdf, dzero, ilc, lsst (also working on CVMFS).

The current integration activities are:

* Interoperating services: ticketing accounting and monitoring
* Communication cooperation
* Security incidents: need to formalize exchange of information and incident response

GLUE2 support plans have not changed since TF2013: no real move is planned now.

OSG has no resource allocation procedures at the moment.

OSG has no specific workflows to enforce policies around support. The support service is regulated by a SLA and its enforcement is a human process.

CREAM evaluation: No plans of deployment at the moment, no requirement but still using CE MON.

# Availability/Reliability Mini Project

K. Koumantaros/GRNET provides an overview of the objectives of the Availability/Reliability Mini Project which was approved to enhance the current Availability/Reliability computation framework, which has some known limitations. The objectives of the Mini Project are to support: the creation of ad hoc profiles for availability computation, NGI VO availability, VO specific availability computations.

The Mini project is led by consortium: GRNET CNRS/IN2P3 and SRCE.

A requirements capture phase will drive developments. ACTION (T. Ferrari): to constitute a working group with users and NGIs for requirements gathering.

The Operations Portal will be the visualization tool, separated from the computation part.

Some of the questions to be addressed in the requirements gathering phase are:

* The data retention policy
* What kind of profiles have to be supported
* User interface requirements
* Regional service for computation

Scale problems will be resolved if ACE will be distributed (instead of being centralized as it is today). Data granularity and data retention need to be discussed.

# CVMFS - Beyond LHC Computing

Ian Collier/STFC (see slides for details)

CVMFS is establishing itself as a reliable system for VO application software installation that greatly simplifies VO and site operations. It is adopted by WLCG and other VOs. A read only file system is used to access to experiment software in WLCG and condition data. CVMFS removes the need of local software tagging and software can be installed once and made available at any site with CERN VM-FS.

CVMFS is based on a robust decentralized network of repository replicas. Since the end of 2012 the RAL tier1 offers a non-LHC stratum 0 service with a replica at CERN.

The CVMFS is now accessible to various VOs. The WLCG infrastructure is constituted by a stratum 0 in the middle and a set of 5 replicas (North America, CERN, RAL, Europe and ASGC in ASIA). Replicas are needed not because of performance, but because a replica can be put in maintenance. Network latency is not really an issue.

The current production version requires from 5 to 10 GB per repository, currently LHC has 2 repositories. But the disk space required tends to increase. CVMFS works also on a single file server that exports NFS to the worker nodes. Data is served by http.

Automount kicks in when browsing: download of any file is not needed. With cvmfs once mount is complete, all enquires are local, which is different from NFS, and speeds up performance: files are downloaded when used. Space per WN to be offered is 20 GB (CVMFS requires a local data cache). Can be used for VM images, no large packaging needed for VMs, this is quite important for cloud. It is possible to re-export via NFS (this is useful for sites with little space for caches or problems with local policies).

Real benefit comes with a distributed network like the one in WLCG. RAL tier1 offers non LHC stratum 0 primarily for UK.

**ACTION (T. Ferrari) to discuss with the UCB the interest in a CVMFS service for application software installation**.

Network implementation: can be different from WLCG, however there is no reason why an existing replica for WLCG cannot be used to support other VOs.

REQUIREMNTS

Stratum 0 does not need to be reliable - replicas have to be. It is used to put the software into the system. The replicas have an up time requirement.

OSG SLA: around the whole mesh (network)

Are multiple stratums 0 possible? The replica is performed with a cron if accepts the software.

One repo per VO, with unique path root, path is the VO way of configuration for the domains. It tells you where they are replicated.

Will application software be exposed to anyone? In the new client ACLs are available to restrict access to VO software. Keith: Even with ACLs some privileged users can access.

OSG managing role of people In GOCDB equivalent of OSG

K. Koumantaros: the EGI appDB could become a stratum 0 of CVMFS.

CVMFS is developed at CERN and support is via Jira.

United Kingdom, IberGrid, Germany, NDGF, SRCE and Greece are interested in investigating the offering of a service for application software installation and in evaluating especially the NFS export.

1. Member, Observer, in Attendance [↑](#footnote-ref-1)