

The Open Science Grid and the European Grid Initiative The OSG Executive Team

The Open Science Grid Goals

The Open Science Grid consortium (OSG) provides end-to-end support for scientific, research and educational organizations to build and access campus, national and community based distributed computational facilities. The OSG itself provides a common shared US national high throughput computational facility for a diverse mix of scientific researchers, which federates with peer facilities at the national and international level.

As part of its international mission, the OSG is committed to an energetic collaboration with EGI and the Europeans NGIs to continue the model and vision towards a global international cyber-infrastructure for research and science based on cooperating, autonomous grids.

The OSG provides an open environment for collaboration towards these goals across a broad range of multi-disciplinary scientists and researchers, IT providers, software developers, educators and administrators. The OSG project is jointly funded by the DOE SciDAC-2 and the National Science Foundation for an initial five-year program of work beginning in September 2006. This multi-agency sponsorship is facilitating adoption of the organization, technologies and methods at all scales – from small university campus groups and individual PIs to the large DOE laboratory facilities and thousand people physics collaborations.

The capabilities, capacity and performance of the OSG distributed facility are driven by the user communities. The most challenging are the high energy physics experiments. OSG is the US computing infrastructure for the ATLAS and CMS experiments - part of the Worldwide Large Hadron Collider (LHC) Computing Grid. Other physics users include the Laser Interferometer Gravitational Wave Observatory (LIGO), the Fermilab Tevatron experiments and the STAR Relativistic Heavy Ion Experiment are the most prolific. There is active engagement in OSG by scientists from other domains including computer science, biology and astrophysics. This dynamic mix of collaborations is ensuring the evolution of a generic cyber-infrastructure that supports the needs of many scientific communities.

OSG & the Enabling Grids for EScience (EGEE)

The OSG and its predecessor collaborations in the United States have had ongoing collaboration with the EGEE and its predecessor projects in many aspects of technology, operation and organization. OSG has applied its principles of multiple autonomous infrastructures federating and interoperating to form a seamless infrastructure as seen by the users and global communities we support.

This collaboration has been, and continues in EGEE-III, to be very effective and, we believe, contributes significantly to the ongoing usability, robustness and evolution of the infrastructures contributing to the needs of the international scientific and research communities, in particular the experiments of the worldwide LHC effort (see below) but also to the needs of other physics collaborations such as the Tevatron experiments at Fermilab, the Auger experiment, and recently, building the technologies to make OSG resources available for running the WISDOM drug discovery application.

Specific areas of collaboration include: ongoing participation in software, design and policy discussions in joint engineering and blueprint meetings; joint security policies; common software base provided by the OSG Virtual Data Toolkit (VDT); common use of X509 extended attribute proxy certificates for user and resource authentication and dependence on the procedures and policies of the International Grid Trust Federation; buy-in to the concept of Virtual Organization (VO) group based use of distributed infrastructures and a common VO management toolkit (gLite/INFN VOMS); common security middleware developments; operations automated ticket exchange, cooperating support processes and joint monitoring initiatives; common dependence on joint software build and test developments of the ETICS and Metronome projects; ongoing interoperability testing and validation of new software releases; dependence on a common storage management protocol and interfaces using the Storage Resource Manager (SRM); consistent resource information publishing information and definitions using the Glue Schema; joint editorship of the International Science Grid This Week e-newsletter; contributing sponsorship of the ICEAGE grid summer school;

OSG & the World Wide LHC Computing Grid

The major global scientific community that OSG and EGEE contribute to is the World Wide LHC Computing Grid (WLCG) and LHC experiments. The Open Science Grid provides the shared, common, distributed facility in the US on which the WLCG, ATLAS and CMS community infrastructures are built, and on whose services they are critically dependent. OSG provides access to the LHC Tier-1, Tier-2 and Tier-3 resources in the US, publishes the centrally collected resource, accounting and service validation information from OSG to the WLCG, and provides services and capabilities meeting MOU'd commitments from the United States to the WLCG.

As such, the Open Science Grid has for the past three years – since the “kickoff meeting in July 2005 – been an exemplar National Grid Initiative/Infrastructure federating with the EGEE and NorduGrid to provide the global distributed system for LHC.

OSG & EGI

The OSG plans an energetic collaboration with EGI to continue the model and vision towards a global cyber-infrastructure for research and science based on cooperating, autonomous grids. We are convinced of the value that our collaboration with EGEE over the last eight years brings to a similar collaboration with EGI. We are encouraged that our model of interoperating federated infrastructures is now being adopted by our partners in Europe. Our commitment remains of working towards our vision of a global cyber-infrastructure and we continue to be energetic towards its implementation.

We are committed to continue to support and evolve the OSG Virtual Data Toolkit and, to the best of our ability, the included technologies, to meet the needs of the EGI as well as the OSG and other communities. We expect that the existing agreements on the VDT with the WLCG and other organizations can be extended towards the EGI organization itself, as well as to each and all of the constituent National Grid Initiatives as they are interested.

The OSG has an active area of engagement with new communities that already include groups in Europe and other nations. OSG would expect to increase the effort and engagement with the NGIs that are part of the EGI community, as well as the EGI itself, in the support for new and expanding research and science collaborations. Examples include ITER, LIGO-II, fusion simulation, and e-health and drug discovery.

We expect to expand and evolve the intra-VO and inter-VO policies and supporting technologies to enable management of the ensemble of resources, spanning multiple infrastructures, to make most effective use of resources in environments of sufficiency or over-subscribed. We are eager to work with the EGI on such issues as they span grids, and on the bridges and other technologies needed to support a seamless global environment as seen by the users and applications. We encourage the EGI to include relationship with national grids outside of Europe in its' vision and to reflect this responsibility in the organization chart of EGI. Given the autonomous nature of the European NGIs, the relationship between these grids and grid infrastructures in other continents should be also addressed.

In terms of technical and policy work the OSG is ready and open to engage with the EGI management and working groups at all levels. In terms of organizational commitment OSG is ready, as national grid infrastructure in the United States, to work with our funding agencies on an appropriate level and statement of collaboration.

The key challenge from OSG's current experience is the ongoing commitment of management and time of on-the-ground contributors to a true spirit of collaboration of peers, together with an acknowledgement of the value and need for continued open dialog, technical engagement and concrete common and joint activities and deliverables.

We subscribe to the vision at the start of the EGI design blueprint: “Research does not stop at national borders. While national infrastructures are fundamental in providing local connectivity and resources to researchers, they need to be linked seamlessly at a world-wide level to enable global scientific collaboration.” The Open Science Grid is fully committed and capable of being a leading contributor to this vision, providing a sustained national infrastructure in the United States that continues to federated with European peers, and working diligently the necessary collaborations to evolve the technologies and policies towards the ultimate goal.