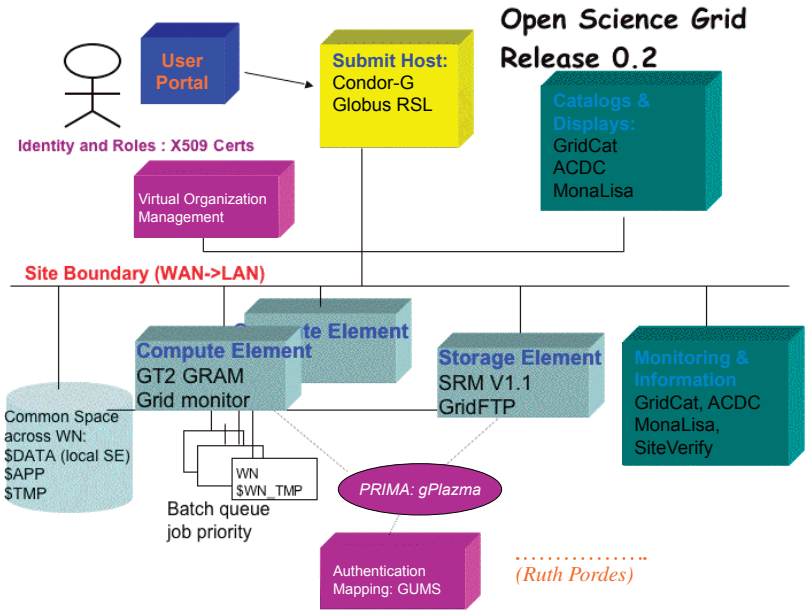
Open Science Grid Services and Operations

OSG Services

In the OSG's service-oriented architecture, workflows of chains of requests to different types of services are constructed. The OSG defines a set of baseline services as a release, which underlies additional specialized services serving the needs of a particular group. The current release, OSG Release 0.2, defines four baseline services: compute elements that provide execution slots for job requests; storage elements that respond to requests for data storage access; a service catalog that provides a list of available services; and VO membership services.

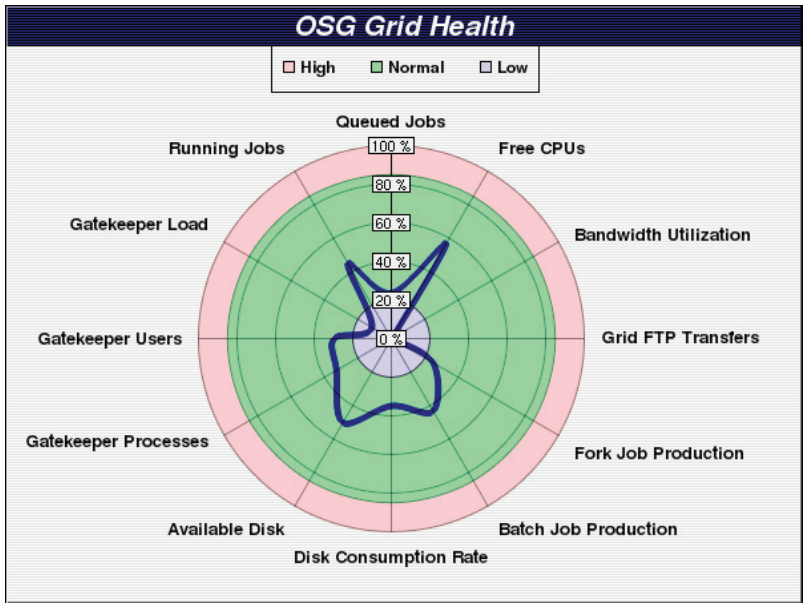


(Ruth Pordes)

These four basic services are the foundation on which OSG applications are built. The next generation, Release 0.4, is now being defined with additional services and refinements. Participants already combine these services in novel ways and develop new, custom and experimental services on the OSG.

OSG Operations

OSG Operations comprises a distributed and collaborating set of organizations called support centers. These centers provide support, monitoring and grid infrastructure services that enable virtual organizations and resource providers to participate in the OSG. The Grid Operations Center (GOC) provides grid-wide services. Support issues are coordinated by the GOC trouble ticket system, and all support centers assign or receive tickets from each other. Monitoring information is aggregated into a grid-wide summary of resource and application performance, with the capability for users to drill down to see individual resource, job, VO or user status and activities.



(ACDC Grid Dashboard)

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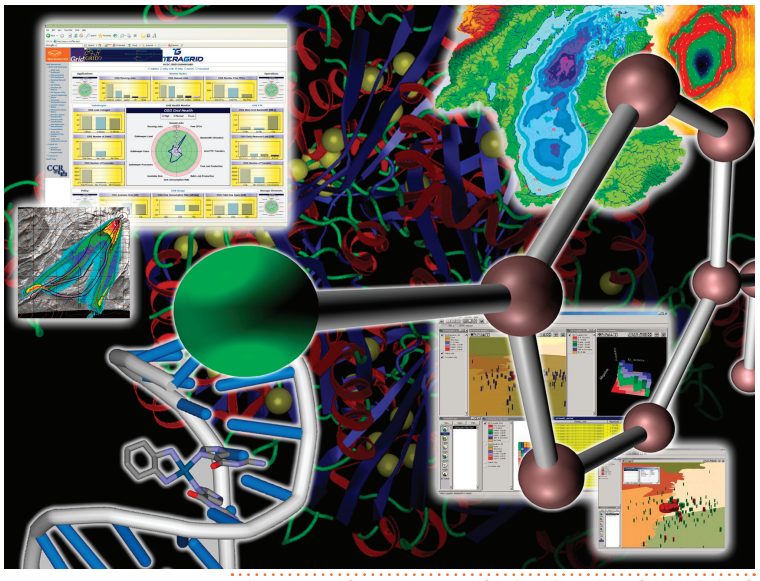
The Open Science Grid Worldwide

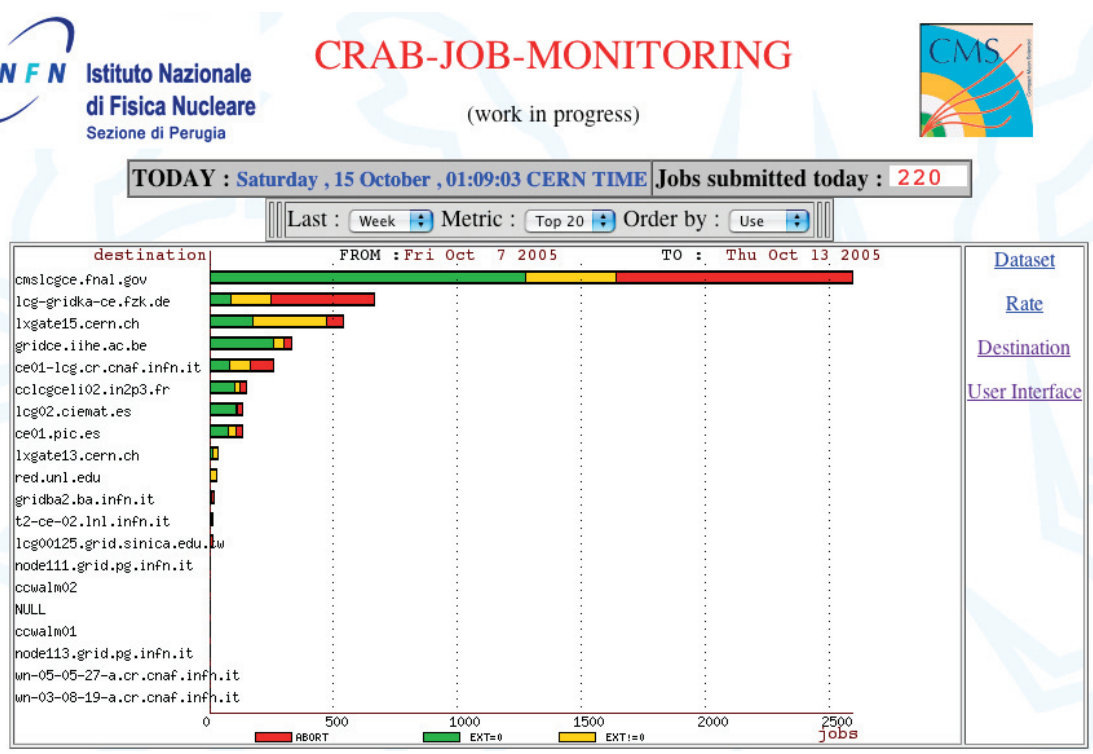
Interoperability and Collaboration



Science applications using the GRASE VO and ACDC Grid. (Mark L. Green, Center for Computational Research, University at Buffalo)

The OSG's reach is global. Many of the scientists who use the OSG are part of international research groups, using computers in many countries and continents and working together to analyze and publish their discoveries. The OSG collaborates with Enabling Grids in E-sciencE (EGEE) in Europe and TeraGrid in the United States, and successfully routes jobs and data between the OSG and its partner grids. The OSG works with many campus and regional grid organizations to bring computing facilities across university departments, or across a region's universities and research laboratories, together with OSG resources. Scientists work to bridge data and jobs across many grids, including those run by the Texas Advanced Computing Center, the Grid Laboratory of Wisconsin, GRASE at the State University of New York at Buffalo, FermiGrid, and the Florida-wide federation of universities supported by the University of Florida.

The OSG also works with its international colleagues from the global physics collaborations working on experiments at the Tevatron, Relativistic Heavy Ion Collider, Stanford Linear Accelerator Center and Large Hadron Collider. Scientists worldwide ensure that adequate networking exists to support the movement of jobs and data to all collaborating facilities. To date, the OSG has sites in Taiwan, Korea and Brazil, and works with local scientists to create grids that support sharing and access across local communities.



CMS job submission crossing multiple grid domains. (Daniele Spiga and Stefano Lacaprara)

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