

Open Science Grid receives \$30 million award

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Scientists on the track to discovery got good news this month when a powerful computing tool received critical government funding. A five-year, \$30 million award to the Open Science Grid Consortium, announced by the National Science Foundation and the U.S. Department of Energy's Office of Science, will operate and expand the Open Science Grid, a computing environment used by scientists to harness computing resources and scientific data from around the world.

"The ability to reliably share and analyze petabytes of data is critical to scientific discovery. This investment in sustaining and extending the Open Science Grid is an important component of the petascale science infrastructure," said Michael Strayer, director of the Scientific Discovery through Advanced Computing program and associate director for Advanced Scientific Computing Research in DOE's Office of Science.

The OSG is built and operated by a unique partnership of universities, national laboratories, scientific collaborations and software developers that work together to create a common distributed computing environment, or grid, for scientific research. Computing resources from more than 50 sites in the United States, Asia and South America are shared through the OSG. These resources range from small clusters of ten computers to large facilities with thousands of processors and millions of gigabytes of data storage.

"The OSG has been operating since 2005 and has already had an impact

on several areas of scientific research, from particle physics to biology," noted Joseph Dehmer, director of the NSF's Division of Physics. "The NSF has partnered with the DOE's Office of Science in support of the OSG's efforts to empower scientific communities by providing them with effective and dependable access to an unprecedented distributed computing facility."

Fifteen members of the OSG Consortium, including eleven U.S. universities and four national laboratories, will receive funding through the NSF and DOE Office of Science awards. Over the next five years, the consortium will reach out to more scientists and scientific collaborations, helping them to harness the power of grid computing for their research.

"OSG Consortium members contribute to and benefit from the OSG, making it a true community cyberinfrastructure," says Fermilab's Ruth Pordes, executive director of the OSG. "Our computing services support diverse research groups, and developers of campus and regional grids – points of entry to the grid for university scientists and students – are beginning to use the OSG environment to provide access to their resources."

Scientists from many fields, including astrophysics, bioinformatics, computer science, nanotechnology, nuclear science and particle physics, use the OSG infrastructure. The LIGO Scientific Collaboration will use the OSG to integrate its computing facilities and enable its search for gravitational waves. Two particle physics collaborations rely on the OSG to fully participate in experiments at the Large Hadron Collider in Geneva, Switzerland.

"The U.S. particle physicists participating in the ATLAS and CMS experiments at the LHC will depend on the OSG to connect them with the data when it starts flowing from CERN in 2008," said Robin Staffin,

associate director for High Energy Physics in the DOE's Office of Science. "Scientists will use LHC data to address profound questions about the universe, such as the origin of mass and the nature of dark matter."

Together with other grid computing projects, from computing grids on university campuses to large national and international grid projects, the consortium works to create a worldwide computing infrastructure for scientific research.

"Distributed computing and cyberinfrastructure have the capability to transform research, but these tools and methods remain challenging for most scientists," added Miron Livny from the University of Wisconsin-Madison, OSG's facility coordinator. "Efforts such as the OSG work to democratize computing by lowering the barrier to individual scientists using distributed computing facilities."

Source: Fermi National Accelerator Laboratory

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