SCIENCE GRID THIS WEEK

January 18, 2006

Calendar / Meetings

January

16-20, 5th Nordic Grid Neighborhood Workshop, Uppsala, Sweden

22-26, 21st APAN Meeting, Tokyo, Japan

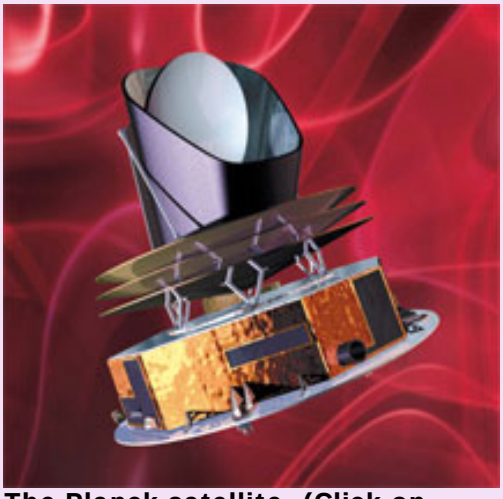
23-26, Open Science Grid Consortium Meeting, Gainesville, Florida

23-25, ACST 2006: The IASTED International Conference on Advances in Computer Science and Technology, Puerto Vallarta, Mexico

26-27, Designing for e-Science: Interrogating new scientific practice for usability, in the lab and beyond, e-Science Institute, Edinburgh, UK

Full Calendar

Image of the Week



The Planck satellite. (Click on image to see full poster.)
Image ESA/Planck

The Planck satellite, a European Space Agency project that launches in 2007, will look back at the dawn of

Feature Story

GLOW Brings Grids to Campus

This is the first in a series of articles about campus grids and the sciences that use them.

Two years ago, a group of leading scientists from very different fields at the University of Wisconsin-Madison were in need of more computing resources. Instead of writing six different grants to fund six separate computing clusters, they joined together to create the Grid Laboratory of Wisconsin. Since then, GLOW has been used to advance research in several branches of physics, engineering, genomics and computer science.

"The computer scientists wanted to get more people involved in grid computing, and many of the researchers on campus needed more resources," says Sridhara Dasu, a particle physicist and the technical lead for GLOW. "We hoped that by pooling our talents and resources, everyone would benefit."

And benefit they have. GLOW has been one of the largest producers of simulated particle physics events for the CMS experiment, last year creating 30 million events that will help predict and analyze the behavior of the newly-constructed particle detector. Millions of neutrinos passing through the massive IceCube detector at the South Pole have been simulated and analyzed. And more than 30 graduate students in chemical and biological engineering have published over 100 papers with simulations performed using GLOW resources.

From the Editor

Your Stories Here

SGTW Editor Katie Yurkewicz

Since its debut in April 2005, Science Grid This Week has featured more than 90 articles profiling grid projects and people, describing scientific and educational applications, reporting from conferences and workshops worldwide, and announcing upcoming grid activities. The SGTW Web site has received more than 41,000 visits and subscriptions to the newsletter have doubled.

This newsletter has succeeded because of the involvement of the grid community, and I hope to hear from even more of you in 2006. SGTW is a place where members of the science grid community can share their news and information with their peers and with the public. If you have suggestions or ideas for content, an interesting image, link or news item, or an article that you would like to publish or reprint in SGTW, please contact me. I look forward to hearing from you, and wish everyone a successful and satisfying New Year.

The Globus Resource Allocation Manager

the globus consortium g journal

One of the most fundamental requirements in grid computing environments is the ability for applications to negotiate the usage of underlying compute resources—for each application to have the best available resources (CPU, storage, networking, etc.) to ensure an appropriate level of performance.

time using the cosmic microwave background, the most ancient radiation in the universe. Planck's telescope will focus radiation onto two arrays of detectors, allowing astronomers to study the fabric of the universe. The Planck@EGEE project, led by the INAF Information Systems Unit in Trieste, Italy, develops and tests grid-enabled simulation and data analysis tools within the EGEE grid infrastructure.

Statistic of the Week

45

Approximate number of interstellar dust grains trapped in NASA's Stardust spacecraft, which returned to Earth on January 15. Through the Stardust@home project, amateur astronomers everywhere will join scientists in the search for these submicroscopic grains.
Source: Stardust Press Release

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Office of Science/ U.S. DOE

Full article

Grids in the News

UC San Diego Partners with Venter Institute to Build Community Cyberinfrastructure for Advanced Marine Microbial Ecology Research and Analysis
UCSD Press Release, January 17, 2006
By Doug Ramsey

Researchers at UCSD will build a state-of-the-art computational resource and develop software tools to decipher the genetic code of communities of microbial life in the world's oceans.

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Sensors watch Barrier Reef coral
BBC News, January 17, 2006
By Jake Krausmann

With the fragile ecology of coral reefs around the globe increasingly under pressure, scientists on Australia's Great Barrier Reef are establishing a network of sensors to better understand this beautiful part of the underwater world.

Read More...

Public to look for dust grains in Stardust detectors
University of California, Berkeley Press Release, January 10, 2006
By Robert Sanders

Astronomy buffs who jumped at the chance to use their home computers in the SETI@home search for intelligent life in the universe will soon be able to join an Internet-based search for dust grains originating from stars millions of light years away.

Read More...

Even at the genesis of the Globus Project, it was clear to the Globus Toolkit community that grid environments must include some general job startup mechanism, and a way to introspect the conditions of the grid to facilitate application adaptation.

In Globus Toolkit grid environments, the Globus Resource Allocation Manager (GRAM) was developed to facilitate processing requests for remote application execution and managing active jobs. GRAM became the protocol interaction between the administrators of each application and the administrators of the available resources.

GRAM is not a scheduler itself—but a standardized, front end interface to different existing scheduler components, such as PBS (Portable Batch System) and Platform's LSF (Load Sharing Facility). Left to their own devices, grid applications would try to maximize resource usage—perhaps to the detriment of other applications' resource requirements. Grid schedulers play the role of enforcing global policies to mediate between applications, and GRAM supports the communication that must take place between different schedulers and the applications they support.

Full article

This article by Karl Czajkowski originally appeared in the January issue of the Globus Consortium Journal.