SCIENCE GRID THIS WEEK

August 30, 2006

Calendar/Meetings

August

29-September 1, Euro-Par 2006, Dresden, Germany

September

4-5, First EELA Conference, Santiago, Chile

6-14, 2006 National Virtual Observatory Summer School, Aspen, Colorado

11-12, 6th Annual Global LambdaGrid Workshop, Tokyo, Japan

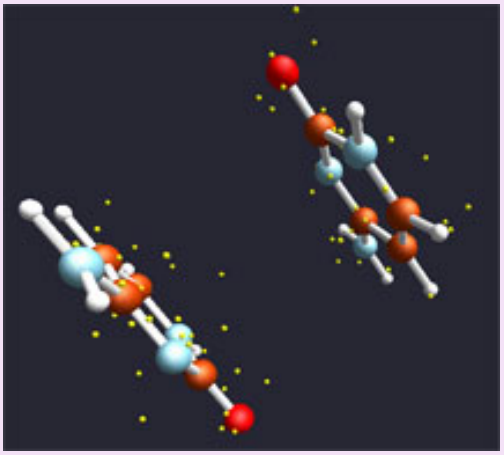
11-14, GridWorld 2006, GlobusWORLD 2006, GGF18, Washington, D.C.

11-15, GridKa School 2006, Forschungszentrum Karlsruhe, Germany

13-15, HPCC-06, Munich, Germany

Full Calendar

Image of the Week



Screensaver for the QMC@HOME volunteer computing project.

Feature Story

Students Pioneer Grid Analysis for Particle Physics Experiment

LHCb magnet and iron yoke.
Image Copyright CERN

Five undergraduate students at the University of Cambridge were among the first to use grid computing tools to analyze data for the LHCb particle physics experiment. In research projects completed as part of the MSci degree, the students used simulated data to study the decays of B mesons, paving the way for physicists to solve the mystery of missing antimatter.

"So far the LHCb grid system has mainly been used for the production of simulated data," says Cristina Lazzeroni from the University of Cambridge, one of the students' supervisors on the project. "If they were to use the local computer batch queues for the analysis the students would have been competing with one another for scarce resources. To avoid this, it was essential to use the grid."

When the Large Hadron Collider, currently being built in Geneva, Switzerland, begins operating in 2008, scientists from the LHCb experiment will study the decays of the B mesons produced when two very-high-energy protons collide. By examining one set of decays physicists can study the origin of CP violation, in an attempt to explain why the universe is made mostly of matter and very little antimatter. B decays can also be used to search for evidence of new physics, such as exotic particles like squarks and gluinos.

From the Editor

Science Grid This Week will take a two-week break, returning with an all-new issue on September 20.

Profile

Engineering Grids that Work Together

Laurence Field

The vision of one worldwide Grid that makes computing resources, scientific data, tools and instruments easily accessible to any scientist anywhere in the world is still years from being realized. But the efforts of researchers like Laurence Field to get grids to work together, or interoperate, brings that vision into clearer focus, even in a world of ever-increasing diversity and number of grid projects.

"Grid computing is about interoperability," says CERN's Field, who works on the Enabling Grids for E-sciencE project. "The early vision was for groups of users to access resources located at different sites using common methods. What we have today are virtual organizations and sites affiliated to different grid projects, each of which uses slightly different methods."

Field's first role in the EGEE grid environment was to maintain and enhance the information system, the means by which grid users discover what resources are available and select the best one for their needs. This work led naturally into interoperability, since getting information systems from different grids to talk to each other is a key part of making grids work together.

(Click on image for larger version.)
Image Credit QMC@HOME

Predicting the structure of and reactions between molecules is important for many aspects of chemistry and the life sciences. The structure and reactivity of molecules can be predicted by quantum theory, but solving the vastly complex equations requires huge amounts of computing power. The QMC@HOME project allows volunteers to donate their computer's idle processing power to help solve these complex equations using the Quantum Monte Carlo method.

Statistic of the Week

10

Globus is celebrating its tenth anniversary. On August 21, 1996, Globus received its first funding from what was then the Advanced Research Projects Agency (and is now DARPA). Globus will celebrate its anniversary at 7:00 p.m. on September 11, 2006 with a party at GlobusWORLD in Washington, D.C.
Source: Ian Foster

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Grids in the News

Game Consoles To Power Cancer, Alzheimer's Research
TechWeb, August 28, 2006
By K.C. Jones

Researchers at Stanford University have a new use for the Sony Playstation: cancer, Alzheimer's Disease and other illnesses.

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Team simulates events to be produced by collider using NCSA and TeraGrid systems
NCSA Press Release, August 22, 2006

A team of physicists at the California Institute of Technology and the University of California at San Diego is on the hunt for the Higgs boson, the subatomic particle thought to be responsible for mass.

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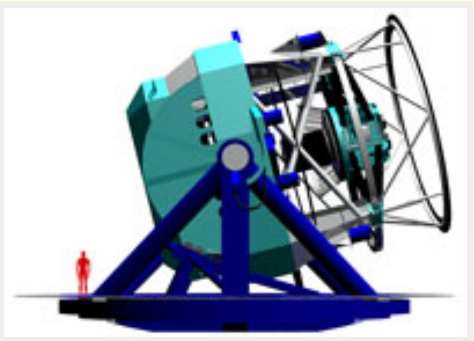
Developing Data Solutions



Design of the LSST Telescope.
Image Courtesy LSST Corporation

Sensors and instruments are the foot soldiers of science. They gather and generate the data that fuels investigation of phenomena ranging from the chemical reactions in rippling coastal waters to the energy rippling from quasars in deep space.

While the data provided by sensors and instruments are a boon, managing, processing, and storing the flood of data presents a challenge. NCSA is collaborating with the National Optical Astronomy Observatory (NOAO) to develop solutions for managing the tens to hundreds of gigabytes of data generated each night by its observatories. Using these solutions as first steps, the ultimate goal is to meet the needs of the Large Synoptic Survey Telescope (LSST); when LSST begins operation in 2013 it will generate an estimated 15 terabytes of raw data and more than 100 terabytes of processed data every night, 365 days a year.

Full article

This article by Trish Barker originally appeared in Access Online, published by the National Center for Supercomputing Applications.