

Calendar/Meetings

November

16-18, [World Summit on the Information Society](#), Tunis

30-December 3, [HPC Asia 2005: The 8th International Conference on High Performance Computing in Asia Pacific Region](#), Beijing, China

December 2005

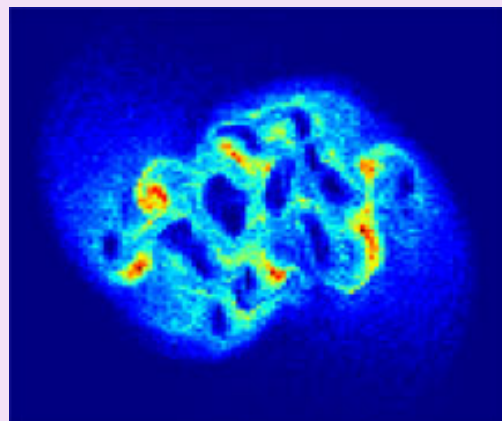
5-8, [International Conference on e-Science and Grid Technologies](#), Melbourne, Australia

6-8, [SURA Cyberinfrastructure Workshop Series: Grid Application Planning & Implementation](#), Austin, Texas

6, [Israeli Association of Grid Technologies Annual Conference](#), Hertzelia Arts Center, Israel

[Full Calendar](#)

Image of the Week

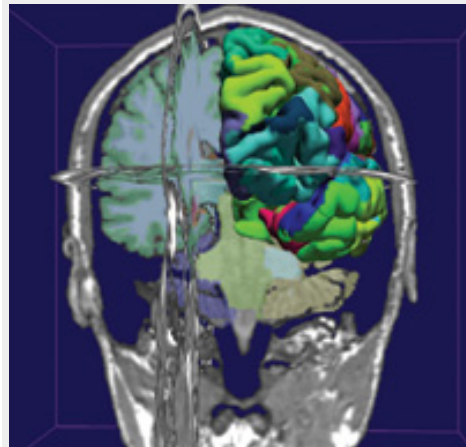


Accelerator physics simulation.
(Click on image for larger version.)

Image courtesy of James Amundson

Feature Story

Sciences On The Grid



3D Slicer visualization of a brain, obtained from an MRI scan. Colored areas show brain structures automatically detected by FreeSurfer.
Image: Morphometry BIRN

All fields of science benefit from more resources and better collaboration, so it's no surprise that scientific researchers are among the first to explore the potential of grid computing to connect people, tools, and technology. Physics and biology were among the earliest adopters, but chemistry, astronomy, the geosciences, medicine, engineering, and even social and environmental sciences are now kick-starting their own efforts. Here is a small sampling of some of the projects now pushing the limits of grid computing.

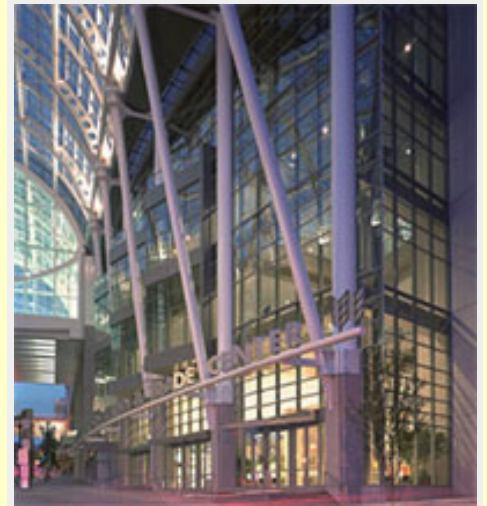
Identifying Alzheimer's disease before a person exhibits symptoms; learning the function of all the genes in the human genome; finding drugs to cure and prevent malaria: From large dedicated biomedical infrastructures to small individual applications, grid computing aids scientists in their quest to solve these and other biological, medical, and health science problems.

One of the first, and largest, of the dedicated cyberinfrastructures is the Biomedical Informatics Research Network (BIRN). Launched in 2001, the National Institutes of Health-

From the Editor

Due to the Thanksgiving holiday, Science Grid This Week will not be published next Wednesday, November 23. SGTW will return Wednesday, November 30.

Grids, Grids Everywhere at SC|05



The Washington State Convention and Trade Center, the venue for SC|05.

Grid computing has come a long way since the first "grid," called I-WAY for Information Wide Area Year, debuted at the 1995 Supercomputing conference. I-WAY linked a dozen high-performance computing centers and advanced visualization environments at speeds of up to 155 megabits per second, and was the only grid around. This week at the Supercomputing 2005 (SC|05) conference, SCinet is providing almost one-half of a terabit per second of network connectivity to the show floor, research grids from the Americas, Europe and Asia are on display everywhere you turn, and the Grid Workshop has grown so large that it will soon become a full-fledged conference separate from Supercomputing.

SC|05, the international conference on high performance computing, networking and storage, has taken over downtown Seattle. SC|05 posts some impressive statistics: Over 9,250 registered attendees, requiring

Synergia simulation of the bunching phase in the Fermilab Booster Accelerator, in which 100 trillion protons are simulated using 5 million macroparticles. Macroparticles—in this case protons with a charge of 20 million instead of one—are used to reduce the simulation time by 100 million times, to approximately one day. The Synergia framework can be used to submit jobs either locally or on the grid.

Statistic of the Week

167,400

The new Internet2 Land Speed Record in both the IPv6 single-stream and multi-stream categories is 167,400 terabit-meters per second, set by a team from the University of Tokyo, the WIDE Project and Chelsio Communications. The team, which surpassed the previous record by 131 percent, successfully transferred data at a rate of 5.58 Gbps over a distance of over 30,000 kilometers traversing the WIDE, IEEAF and JGN2 networks. The Internet2 LSR represents the rate at which data is transferred multiplied by the distance traveled.

Source: Internet2

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Office of Science/
U.S. DOE

funded project encourages collaboration among scientists who traditionally conducted independent investigations. BIRN provides a framework in which researchers pool data, patient populations, visualization tools, as well as analysis and modeling software.

In one of BIRN's three test beds, magnetic-resonance images from small groups across the country are pooled to form a large population for the study of depression, Alzheimer's disease, and cognitive impairment. A large group of subjects makes for a very comprehensive study, but comparing MRI scans taken at different institutions is a challenge worthy of grid computing.

[Read the full article in *symmetry Magazine*](#)

UK Engineering Task Force Evaluates GT4



The UK Engineering Task Force recently evaluated the state of the GT4 tool kit as part of the UK e-Science Engineering Task Force activities reviewing grid and Web service middleware for production grid deployment within the UK e-Science community. The evaluation considered the strengths and weaknesses of the GT4 package and identified issues that will be important if production deployment is recommended.

The evaluation, which tracked and evaluated the development releases of GT4, began in late November 2004 and was suspended when the last development release was made in March 2005. The evaluation was reactivated in May 2005 to evaluate the first full release of GT4, create a number of large-scale GT4 applications and consider interoperability of GT2 software and the pre-WS components in the GT4 release.

The evaluation reviewed the state of GT4 by installing the software,

1,300 gallons of coffee and 20,000 beverages; thousands of exhibitors from research and industry; over 30% of the 165 research exhibits showcase grid computing; 100,000s of hours of research have gone into the technical papers being presented; 418 people attending the Grid Workshop; and over 140 high school and undergraduate teachers are attending this year's education program.

Grid computing at SC|05 was kicked off Sunday afternoon by the Grid 2005 Workshop keynote address. Dennis Gannon from Indiana University spoke about lessons he's learned while building a series of grids and reviewed the many challenges still to come in grid research. After discussing early projects such as the I-WAY and NASA's Information Power Grid, Gannon described the new Linked Environments for Atmospheric Discovery project.

"LEAD is a grid designed to change the paradigm for mesoscale weather prediction," said Gannon.

[Full article](#)

Grids in the News

A Look at SC|05 with Ian Foster

GRIDtoday, November 14, 2005

Ian Foster speaks with GRIDtoday's Derrick Harris about this week's SC'05 conference.

[Read More...](#)

Grid Standards Groups Weigh Merger

Grid Computing Planet, November 14, 2005
By Paul Shread

The Global Grid Forum (GGF) and Enterprise Grid Alliance (EGA) are in discussions that could lead to a merger of the two organizations, GGF Chair Mark Linesch said in an announcement late last week.

[Read More...](#)

reviewing available documentation, creating sample GT4 grid services and testing inter-operation between GT2 and pre-WS GT4 components, and thus evaluating service capabilities, documentation and the capabilities of the software. The emphasis was on considering GT4 for large-scale production use.

The ETF evaluation found that the GT4 toolkit release is significantly more stable and demonstrates significantly better performance than previous GT releases. The GT4 documentation is more comprehensive and significantly better structured than documentation for previous GT releases.

The Pre-WS components of GT4 provide some interoperability with GT2.4 and thus a possible migration route for GT2 code. However, the systematic migration of the large-scale GT2 legacy investment remains a concern to wider early adoption and deployment of GT4.

[Read the full evaluation](#)

—T.J. Harmer, Belfast eScience Centre

TACC Announces Latest Release of GridPort Toolkit

TACC Press Release, November 8, 2005

AUSTIN, TX, November 8, 2005 — The Texas Advanced Computing Center (TACC) is pleased to announce the latest release of the GridPort Toolkit (GridPort).

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How to Build an International Grid: Infrastructure, Applications and Community

CTWatch Quarterly, November 2005
By Fabrizio Gagliardi, Bob Jones and Owen Appleton

The Enabling Grid for E-science project (EGEE) is Europe's flagship Research Infrastructures Grid project¹ and the world's largest Grid infrastructure of its kind.

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