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Buffalo Scientists Lead New York Grid Research

The University at Buffalo's Center for Computational Research is a hub of grid activity in New York State. Three years ago CCR researchers and staff members started the regional Advanced Computational Data Center Grid, a project that now provides the driving force behind the NSF-funded Western New York Grid for Science and Engineering. The ACDC Grid also leads a grass roots effort to create a New York State grid linking the state's Centers of Excellence and State University of New York campuses.

"The ACDC Grid coordinates resources from UB, the NYS Center of Excellence in Bioinformatics, the Buffalo-Niagara Medical Campus and several other universities in the Buffalo area," said Mark L. Green, grid computational scientist at the CCR. "We hope that the Western New York Grid, which brings together UB, the Hauptman-Woodward Medical Research Institute, SUNY Geneseo and Niagara University, will further promote our efforts to form a state-wide grid."

A dozen applications in bioinformatics, biomedicine, earthquake engineering, chemistry and earth science use the ACDC Grid. Scientists model groundwater flow, study hydrodynamic circulation in the Great Lakes, design earthquake resilient structures, determine molecular structure and research quantum chemistry. At the heart of the ACDC Grid is the grid portal, which allows a scientist to port an application to the grid once and have it run on many different resources from several grids.

"The ACDC Grid Dashboard and Operations Dashboard, which feed into the ACDC Grid Portal, were built so that we can federate and interoperate with many grids," explained Green. "Users see only the portal interface, and the back end deals with the differences between grid-enabled resources."

Resources from the ACDC Grid, Open Science Grid and TeraGrid are connected to the portal. The portal provides grid administrators with very fine-grained control over grid users and their applications; some users may be able to run on any of the grids connected to the portal, while other local users may only run on UB resources. The portal Web pages can also be customized for different users, who may be restricted to certain applications.

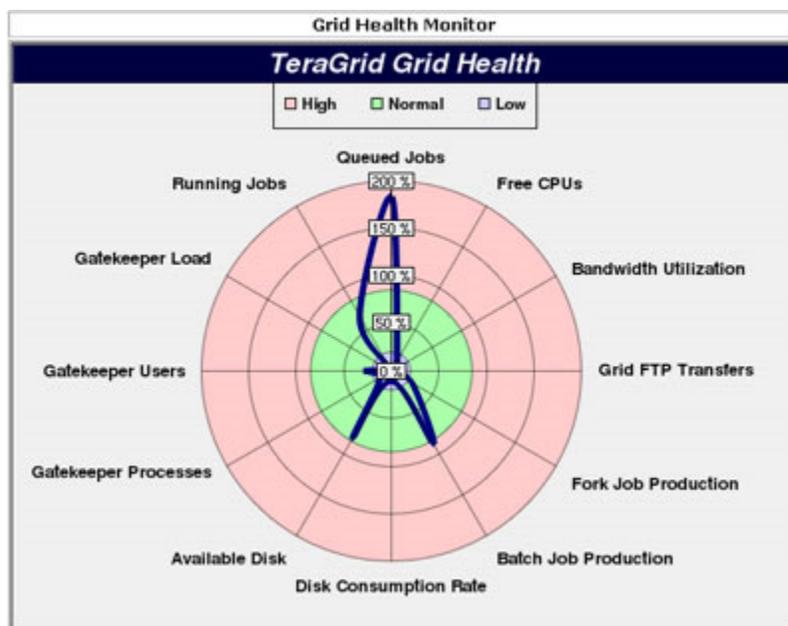
In the future, UB researchers hope to incorporate instruments and equipment, as well as computational hardware, into the portal. Green is also working with several other grids, such as the Canadian SHARCNET and the LHC Computing Grid Project, to interface more resources to the dashboards.

"We were accumulating compute resources, and now we're accumulating grids," said Green. "We're building a solid computational and data grid base to facilitate thousands of researchers running scientific applications."

View the [ACDC Grid Dashboard](#) or learn more at the [CCR Grid Computing Web](#) page.

—Katie Yurkewicz

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The Grid Health Monitor is one of the many tools available on the ACDC Grid Dashboard.