

## IU and Dresden team up to win Supercomputing Bandwidth Competition

FOR IMMEDIATE RELEASE

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Dresden, Germany - A team led by Indiana University, with partners from the Technische Universitaet Dresden, Rochester Institute of Technology, Oak Ridge National Laboratory and the Pittsburgh Supercomputing Center, was awarded first place in an international competition for leading-edge, high-bandwidth computing applications. The award was presented Thursday at SC07, the world's largest international conference for high performance computing, networking, storage and analysis, being held this week in Reno, Nevada.

The Bandwidth Challenge competition invites teams of technologists from the nation's most elite supercomputing facilities to push the limits of modern computer networks. The competition this year was based on the theme "serving as a model." Competitors were challenged to create methods for fully utilizing a high-speed network path to support end-to-end network applications running across a grid that included the conference's exhibit floor and the participant's home institutions using production networks.

Using the IU Data Capacitor, a system designed to store and manipulate massive data sets, the team achieved a peak transfer rate of 18.21 Gigabits/second out of a possible maximum of 20 Gigabits/second. The team achieved an overall sustained rate of 16.2 Gigabits/second (roughly equivalent to sending 170 CDs of data per minute) using a transatlantic network path that included the Internet2, GÉANT, and DFN research networks.

The Bandwidth Challenge demonstration included several cutting edge computer applications, all of which depend upon the Data Capacitor's ability to read and write data at extreme speeds:

\* Performance analysis of a computational fluid dynamics application by the Technische Universitaet Dresden using its Vampir/VampirTrace software package, led by Matthias Mueller of the Center for Information Services and High Performance Computing.

\* Modeling and analysis of the amyloid peptide, which is thought to be the cause of Alzheimer's disease, using IU's Big Red Supercomputer, led by Mookie Baik of the IU School of Informatics and IU Bloomington Department of Chemistry.

\* Live acquisition of x-ray crystallography data, led by D.F. "Rick" McMullen, of Pervasive Technology Labs at Indiana University.

\* Digital preservation of ancient Sanskrit manuscripts, led by P.R. Mukund of the Rochester Institute of Technology.

\* Simulations of a high energy physics reaction between the basic particles of matter, led by Scott Teige of Indiana University Information Technology Services.

Matthias Mueller, Chief Technical Officer of the Center for Information Services and High Performance Computing (ZIH) at the Technische Universitaet Dresden, said "We were very pleased that Vampir and VampirTrace were used both in the demonstration and in the tuning of applications in advance of the competition." Associate Dean Craig Stewart of IU said "quite simply the use of Vampir and the partnership with Technische Universitaet Dresden was essential to our accomplishments at SC07."

In addition to participating in the winning Bandwidth Challenge entry, the Technische Universitaet Dresden had a display at SC07 that demonstrated the many capabilities of Vampir and the science applications the Dresden group supports. Life sciences computing, including partnerships with the Biotechnik Institute of Dresden, featured prominently in the well-attended Dresden display.

For further information on Vampir and VampirTrace, see  
<http://www.vampir-ng.de/>