Cyberinfrastructure Technology Watch

Cyberinfrastructure Technology Watch (CTWatch) is an initiative of the NSF funded Cyberinfrastructure Partnership (CIP) between the San Diego Supercomputing Center (SDSC) and the National Center for Supercomputing Applications (NCSA) which is intended to serve as a forum for ideas, opinions, information and analysis concerning issues of importance to the cyberinfrastructure community. Carried out in collaboration with the Innovative Computing Laboratory at the University of Tennessee, led by Jack Dongarra, CTWatch aims to create the kind of productive mix of news, analysis, vision and dialogue that rapid progress in shared cyberinfrastructure today requires.

To achieve this goal, CTWatch is being developed along two complementary paths, one based on a more traditional publishing paradigm and the other including new types of non-traditional, Internet-based communication and publishing. We have created *CTWatch Quarterly* as an on-line, serial publication modeled on a more traditional academic journal and designed for on-demand printing with high production values.

Each issue of the *Quarterly* focuses on some aspect or subdomain of cyberinfrastructure, with articles recruited and organized by one or more guest editors renown for their leadership in that area. During the inaugural first year (2005), a group of outstanding guest editors helped the *Quarterly* cover a range of critical areas in cyberinfrastructure technology:

FEBRUARY 2005	MAY 2005	AUGUST 2005	NOVEMBER 2005
Trends in High	The Cyberinfrastructure	The Coming Era of Low Power,	e-Infrastructure: Europe Meets
Performance Computing	Backplane: The Jump to Light Speed	High-Performance Computing	the e-Science Challenge
Guest Editor: Jack Dongarra	Guest Editors:	Trends, Promises, and Challenges	Guest Editors: Anne Trefethen and Tony Hey
	Philip Papadopoulos and Larry Smarr	Guest Editor: Satoshi Matsuoka	

In 2006 the *Quarterly* will include issues on Cyberinfrastructure on Four Continents – Asia, Africa, South America, and Australia, and State of the Art Cyberinfrastructure for Computational Biology.







The CTWatch Web site (http://www.ctwatch.org/), which has received more than 70,000 visitors (more than 31,000 unique) since its inception in early 2005, hosts both the *CTWatch Quarterly* and the CTWatch Blog. The Blog, which was started on an experimental basis in the spring of 2005, was opened up for broader participation in the fall to community members that want to post current news, information, and commentary. In 2006, we not only plan to accelerate activity on the Blog, but also to explore new modes of publication, such as Wikis, podcasts, and screencasts. We believe that CTWatch has the opportunity to become an open and frequently accessed channel to aggregate much of the information and media rich content now being created in different corners and subcultures of the broader cyberinfrastructure community worldwide.









CTWatch QUARTERLY

ALL ISSUES AVAILABLE AT

http://www.ctwatch.org/quarterly/

VOLUME 1



THE CYBERINFRASTRUCTURE BACKPLANE:
THE JUMP TO LIGHT SPEED

2. Introduction
Philip Papadopoulos and Larry Smarr

5. Does 10G Ethernet Measure Up?
Linda Winkler

10. TransLight, a Major US Component of the GLIF
An Optical Web Connecting Research Networks in North America, Europe and the Pacific Rim
Tom Defanti, Maxine Brown, Joe Mambretti, John Silvester, and Ron Johnson

14. The National LambdaRail
Cyberinfrastructure for Tomorrow's Research and Education
David Farber and Tom West

MAY 2005



THE COMING ERA OF LOW POWER, HIGH-PERFORMANCE COMPUTING TRENDS, PROMISES, AND CHALLENGES

Guest Editor: Satoshi Matsuoka, Tokyo Institute of Technology

FEATURE ARTICLES

Low Power Computing for Fleas, Mice, and Mammoth — Do They Speak
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Satoshi Matsuoka, Tokyo Institute of Technology

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Wu-chun Feng, Los Alamos National Laboratory

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31 On Perfect Storms, Competitiveness, and the "Gretzky Rule"
Fran Berman, SDSC

AVAILABLE ON-LINE AT





AUGUST 2005 NOVEMBER 2005