USENIX FAST 2004

3rd USENIX Conference on File and Storage Technologies

MAR. 31-APR. 2 / 2004 / GRAND HYATT HOTEL / SAN FRANCISCO / CA /USA

REGISTER BY MARCH 8, 2004, AND SAVE!

The 3rd USENIX Conference on File and Storage Technologies (FAST '04) brings together storage system researchers and practitioners to explore new directions in the design, implementation, evaluation, and deployment of storage systems.

Meet with premier storage systems researchers and practitioners for 2.5 days of ground-breaking file and storage information! This year's innovative program includes over 15 papers on topics such as:

- Reliability and Availability
- Policy and Configuration
- File Systems
- Optimizing Block Access
- Caching and Scheduling
- Mobile Storage
- Tracing and Measurement

Don't miss the keynote address "Scaling File Service Up and Out" by Garth Gibson, Carnegie Mellon University and Co-founder of Panasas. Professor Gibson has made significant contributions to storage and file system research, including Redundant Arrays of Inexpensive Disks (RAID), Informed Prefetching and Caching (TIP) and Network-Attached Secure Disks (NASD).

CONFERENCE ORGANIZERS

Program Chair

Chandu Thekkath, *Microsoft Research*

Program Committee

Guillermo Alvarez, *IBM Almaden*
Fay Chang, *Google*
Jeff Chase, *Duke University*
Greg Ganger, *CMU*
Richard Golding, *IBM Almaden*
Dirk Grunwald, *University of Colorado*
Chet Juszczak, *Sun Microsystems*
Christos Karamanolis, *HP Labs*
Ed Lee, *Data Domain*
David Patterson, *UC Berkeley*
Randy Wang, *Princeton University*
Yuanyuan Zhou, *UIUC*

Steering Committee

Jeff Chase, *Duke University*
Jack Cole, *US Army*
Greg Ganger, *Carnegie Mellon University*
Garth Gibson, *Panasas and Carnegie Mellon University*
Peter Honeyman, *CITI, University of Michigan*
John Howard, *Sun Microsystems*
Merritt Jones, *MITRE Corporation*
Darrell Long, *University of California, Santa Cruz*
Jai Menon, *IBM Research*
Margo Seltzer, *Harvard University*
John Wilkes, *Hewlett-Packard Labs*
Ellie Young, *USENIX*

Sponsored by

USENIX The Advanced Computing Systems Association, in cooperation with ACM SIGOPS, IEEE Mass Storage Systems Technical Committee (MSSTC), and IEEE TCOS

Thanks to our sponsor: SNIA

HOTEL & REGISTRATION

Hotel Information

Hotel Reservation Discount Deadline: March 8, 2004
Grand Hyatt
345 Stockton Street
San Francisco, CA 94108
Phone: 415.398.1234 / 1.800.633.7313
Web site: http://grandsanfrancisco.hyatt.com/
Rates: $160 single/double, $190 triple, $215 quad
All requests for reservations received after the deadline

Technical Session Registration Fees

Online Early Bird Rates (Register online by March 8, 2004)
Member: $645
Nonmember: $755
Full-time Student Member: $260
Full-time Student Nonmember: $300
The Nonmember rates include a one-year USENIX membership.

Online Rates After March 8, 2004
Member: $795
Nonmember: $905
Full-time Student Member: $260
Full-time Student Nonmember: $300
The Nonmember rates include a one-year USENIX membership

Register Online:
http://www.usenix.org/fast04

Questions?
Telephone: + 1.510.528.8649
Fax: + 1.510.548.5738
Email: conference@usenix.org

http://www.usenix.org/fast04/

See reverse for full program →

FAST '04 TECHNICAL SESSIONS

WEDNESDAY, MARCH 31 – FRIDAY, APRIL 2, 2004

WEDNESDAY, MARCH 31

2:00 p.m. – 2:30 p.m.

OPENING REMARKS
Session Chair: Chandu Thekkath, *Microsoft Research*

2:30 p.m. – 3:30 p.m.

RELIABILITY & AVAILABILITY
Session Chair: Chandu Thekkath, *Microsoft Research*

Row-Diagonal Parity for Double Disk Failure Correction
Peter Corbett, Bob English, Atul Goel, Tomislav Grcanac, Steven Kleiman, James Leong, and Sunitha Sankar, *Network Appliance*

Improving Storage System Availability with D-GRAID
Muthian Sivathanu, Vijayan Prabhakaran, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau, *University of Wisconsin*

3:30 p.m. – 4:00 p.m. Break

4:00 p.m. – 5:30 p.m.

MEASUREMENT, MODELING, AND MANAGEMENT
Session Chair: Richard Golding, *IBM Almaden*

Polus: Growing Storage QoS Management beyond a "4-Year Old Kid"
Sandeep Uttamchandani and Kaladhar Voruganti, *IBM Almaden Research Center*; Sudarshan Srinivasan, *University of Illinios at Urbana-Champaign*; John Palmer and David Pease, *IBM Almaden Research Center*

Buttress: A Toolkit for Flexible and High Fidelity I/O Benchmarking
Eric Anderson, Mahesh Kallahalla, Mustafa Uysal, and Ram Swaminathan, *Hewlett-Packard Labs*

Designing for Disasters
Kimberley Keeton, Cipriano Santos, and Dirk Beyer, *Hewlett-Packard Labs*; Jeff Chase, *Duke University*; John Wilkes, *Hewlett-Packard Labs*

THURSDAY, APRIL 1

9:00 a.m. – 10:00 a.m.

KEYNOTE ADDRESS

Scaling File Service Up and Out
Garth Gibson, *Panasas and Carnegie Mellon University*

10:00 a.m. – 10:30 a.m. Break

10:30 a.m. – 12:00 noon

GRABBAG
Session Chair: Jeff Chase, *Duke University*

Diamond: A Storage Architecture for Early Discard in Interactive Search
Larry Huston, *Intel Research Pittsburgh*; Rahul Sukthankar, *Intel Research Pittsburgh and Carnegie Mellon University*; Rajiv Wickremesinghe, *Duke University*; M. Satyanarayanan, *Intel Research Pittsburgh and Carnegie Mellon Univeristy*; Gregory Ganger, *Carnegie Mellon Univeristy*; Erik Riedel, *Seagate Research*; Anastassia Ailamaki, *Carnegie Mellon University*

MEMS-based Storage Devices and Standard Disk Interfaces: A Square Peg in a Round Hole?
Steven W. Schlosser and Gregory R. Ganger, *Carnegie Mellon University*

An Experimental Comparison of File- and Block-Access Protocols for IP-Networked Storage
Peter Radkov, *University of Massachusetts*; Li Yin, *University of California, Berkeley*; Pawan Goyal and Prasenjit Sarkar, *IBM Almaden Research Center*; Prashant Shenoy, *University of Massachusetts*

12:00 noon – 1:30 p.m. Conference Luncheon

THURSDAY, APRIL 1 (continued)

1:30 p.m. – 3:00 p.m.

FILE SYSTEMS
Session Chair: Greg Ganger, *Carnegie Mellon University*

A Versatile and User-Oriented Versioning File System
Kiran-Kumar Muniswamy-Reddy, Charles P. Wright, Andrew P. Himmer, and Erez Zadok, *Stony Brook University*

Tracefs: A File System to Trace Them All
Akshat Aranya, Charles P. Wright, and Erez Zadok, *Stony Brook University*

HyLog: A High Performance Approach to Managing Disk Layout
Wenguang Wang, Yanping Zhao, and Rick Bunt, *University of Saskatchewan*

3:00 p.m. – 3:30 p.m. Break

3:30 p.m. – 4:30 p.m.

OPTIMIZING BLOCK ACCESS
Session Chair: Guillermo Alvarez, *IBM Almaden*

Atropos: A Disk Array Volume Manager for Orchestrated Use of Disks
Jiri Schindler, Steven W. Schlosser, Minglong Shao, Anastassia Ailamaki, and Gregory R. Ganger, *Carnegie Mellon University*

Mining Block Correlations in Storage Systems
Zhenmin Li, Zhifeng Chen, Sudarshan M. Srinivasan, and Yuanyuan Zhou, *University of Illinois at Urbana-Champaign*

4:30 p.m. – 6:00 p.m.

WORK-IN-PROGRESS REPORTS
Session Chairs: Christos Karamanolis, *Hewlett-Packard Labs*; Yuanyuan Zhou, *University of Illinois at Urbana-Champaign*

6:00 p.m. – 7:00 p.m. Reception and Poster Session

FRIDAY, APRIL 2

8:30 a.m. – 10:00 a.m.

CACHING & SCHEDULING
Session Chair: Randy Wang, *Princeton University*

CAR: Clock with Adaptive Replacement
Sorav Bansal, *Stanford University*; Dharmendra S. Modha, *IBM Almaden Research Center*

Circus: Opportunistic Block Reordering for Scalable Content Servers
Stergios V. Anastasiadis, Rajiv G. Wickremesinghe, and Jeffrey S. Chase, *Duke University*

A Framework for Building Unobtrusive Disk Maintenance Applications
Eno Thereska, Jiri Schindler, John Bucy, Brandon Salmon, Christopher R. Lumb, and Gregory R. Ganger, *Carnegie Mellon University*

10:00 a.m. – 10:30 a.m. Break

10:30 a.m. – 11:30 a.m.

MOBILE STORAGE
Session Chair: Dirk Grunwald, *University of Colorado*

Integrating Portable and Distributed Storage
Niraj Tolia, *Carnegie Mellon University and Intel Research Pittsburgh*; Jan Harkes, *Carnegie Mellon University*; Michael Kozuch, *Intel Research Pittsburgh*; M. Satyanarayanan, *Carnegie Mellon University and Intel Research Pittsburgh*

Segank: A Distributed Mobile Storage System
Sumeet Sobti, Nitin Garg, Fengzhou Zheng, Junwen Lai, Yilei Shao, Chi Zhang, and Elisha Ziskind, *Princeton University*; Arvind Krishnamurthy, *Yale University*; Randolph Wang, *Princeton University*

11:30 a.m. – 11:45 a.m. Closing Remarks