

Wednesday, April 9, 2003

1:30 pm – 3:00 pm – Reliability

Chair: Jean-Jacques Bedet

**Reliability Mechanisms for Very Large Storage Systems**

Qin Xin, Ethan L. Miller, Darrell D. E. Long,  
Scott A. Brandt (*UCSC*),  
Thomas Schwarz (*Santa Clara University*),  
Witold Litwin (*Université Paris 9 Dauphine*)

**Software-based Erasure Codes for Scalable Distributed Storage**

Joseph A. Cooley, Jeremy L. Mineweaser, Leslie D. Servi, Eushiuan T. Tsung (*MIT Lincoln Laboratory*)

**Towards an Object Store**

Alain Azagury, Vladimir Dreizin, Michael Factor, Ealan Henis, Dalit Naor, Noam Rinetzky, Ohad Rodeh, Julian Satran, Ami Tavory, Lena Yerushalmi (*IBM Haifa Research Laboratories*)

3:30 pm – 4:45 pm – Vendor Solutions

Chair: Ben Kobler

**Design and Implementation of a Storage Repository Using Commonality Factoring**

Eric Olsen, Jim Hamilton (*Avamar Technologies*)

**Design and Implementation of Block Storage Multi-Protocol Converter**

Irina Gerasimov, Alexey Zhuravlev, Mikhail Pershin, Dennis V. Gerasimov (*TechnoMages*)

**IP SAN – From iSCSI to IP-addressable Ethernet Disks**

Peter Wang, Robert Gilligan, Henry Green, Jeff Raubitschek (*Intransa*)

**Enabling Advanced Data Management with Sun StorEdge™ QFS**

Harriet Coverston (*Sun Microsystems*)

4:45 pm – 5:45 pm – Extemporaneous Talks

Chair: James Hughes



Thursday, April 10, 2003

8:00 am – 11:00 am – Continental Breakfast

8:00 am – 12:00 pm – Conference Registration

8:00 am – 2:00 pm – Vendor Expo

8:30 am – 10:00 am – Network-Attached Storage

Chair: Ethan Miller

**A Scalable Architecture for Clustered Network Attached Storage**

Jonathan Bright (*Bright Consulting Group*),  
John A. Chandy (*University of Connecticut*)

**zFS - A Scalable distributed File System using Object Disks**

O. Rodeh, U. Schonfeld, A. Teperman (*IBM*)

**The Concept and Evaluation of X-NAS: a Highly Scalable NAS System**

Yoshiko Yasuda, Shinichi Kawamoto, Atsushi Ebata, Jun Okitsu, Tatsuo Higuchi (*Hitachi*)

10:30 am – 12:00 pm – File Systems

Chair: Curtis Anderson

**Using Multiple Predictors to Improve the Accuracy of File Access Predictions**

Gary A. S. Whittle, Jehan-François Pâris (*University of Houston*), Ahmed Amer (*University of Pittsburgh*), Darrell D. E. Long (*UCSC*), Randal Burns (*Johns Hopkins University*)

**Peabody: The Time Traveling Disk**

Charles B. Morrey III, Dirk Grunwald (*University of Colorado*)

**SPIRAL: A Client-Transparent Third-Party Transfer Scheme for Network Attached Disks**

Xiaonan Ma (*IBM*)

12:00 pm – 1:30 pm – Lunch

1:30 pm – 3:00 pm – Storage Architectures

Chair: Merritt Jones

**Effective Management of Hierarchical Storage Using Two Levels of Data Clustering**

Ratko Orlandic (*Illinois Institute of Technology*)

**A Simple Mass Storage System for the SRB Data Grid**

Michael Wan, Arcot Rajasekar, Phil Andrews, Reagan Moore (*SDSC*)

**Efficient Metadata Management in Large Distributed Storage Systems**

Scott A. Brandt, Lan Xue, Ethan L. Miller, Darrell D. E. Long (*UCSC*)

3:00 pm – Conference Adjourns

IEEE / NASA MSST 2003

**Twentieth IEEE and Eleventh NASA Goddard Conference on Mass Storage Systems and Technologies**

**Paradise Point Resort  
San Diego, California, USA**



**Global Access to Distributed Storage**

**Monday, April 7, 2003**

**Tutorial**

Tutorial Chair: James Hughes

8:00 am - 12:30 pm – Tutorial Registration

8:30 am – 10:00 am – LAN, SAN, MAN, WAN - Making an Intelligent Choice for your Storage

Silvano Gai (*Adiamo*)

10:30 am – 12:00 pm – Management Interoperability and Extensibility in Storage Area Networks

Roger Reich (*VERITAS Software*)

12:00 pm – 1:30 pm – Lunch

1:30 pm – 3:00 pm – Encrypted Storage

James Hughes (*StorageTek*)

3:30 pm – 5:00 pm – Shared Storage Systems

Paul Rutherford (*ADIC*)

5:00 pm – 8:00 pm – Welcoming Reception and Conference Registration

## Tuesday, April 8, 2003

8:00 am – 11:00 am – *Continental Breakfast*  
8:00 am – 4:00 pm – *Conference Registration*  
12:00 pm – 8:00 pm – *Vendor Expo*

8:30 am – 10:00 am – **Welcome & Keynote**  
Chair: Ben Kobler

**The New (Old) Challenges for Technology Infrastructure Today**  
Greg Bishop (*America Online*)

10:30 am – 12:00 pm – **Grids**  
Chair: Jack Cole

**Data Grids, Collections, and Grid Bricks**  
Arcot Rajasekar, Michael Wan, Reagan W. Moore, George Kremenek, Tom Guptill (*SDSC*)

**Correct Modeling of Cache Replacement Policies in a Data-Grid**  
Ekow Otoo, Arie Shoshani (*LBNL*)

**A Centralized Data Access Model for Grid Computing**  
Phil Andrews, Tom Sherwin, Bryan Bannister (*SDSC*)

12:00 pm – 1:30 pm – **Lunch**

1:30 pm – 3:00 pm – **Site Reports**  
Chair: Gene Harano

**Building Cost-Effective Remote Data Storage Capabilities for NASA's EOSDIS**  
Stephen Marley (*Raytheon*), Mike Moore (*NASA GSFC*), Bruce Clark (*EDS*)

**Archive Management: The Missing Component**  
Howard J. Diamond, John J. Bates, David M. Clark, Robert L. Mairs (*NOAA*)

**An overview of a large-scale data migration**  
M. Lübeck, A. Valassi (*CERN*)

3:30 pm – 4:30 pm – **Short Papers**  
Chair: Robert Chaddock

**Towards Optimal I/O Scheduling for MEMS-based Storage**  
Hailing Yu, Divy Agrawal, Amr El Abbadi (*UCSB*)

## Tuesday, April 8, 2003

**A Case for the Global Access to Large Distributed Data Sets using Data Webs Employing Photonic Data Services**  
Robert L. Grossman, Yunlong Gu, Dave Hanley, Xinwei Hong, Jorge Levera, Marco Mazzucco (*University of Illinois at Chicago*)

**Design and Implementation of Multiple Addresses Parallel Transmission Architecture for Storage Area Network**  
Bin Meng, Patrick B. T. Khoo, T. C. Chong (*Data Storage Institute, National University of Singapore*)

**Storage Devices, Local File System and Crossbar Network File System Characteristics, and 1 Terabyte File IO Benchmark on "Numerical Simulator III"**  
Naoyuki Fujita, Hirofumi Ookawa (*National Aerospace Laboratory of Japan*)

**Views, Objects, and Persistence for accessing a High Volume Global Data Set**  
Richard T. Baldwin (*NOAA*)

**NAS Switch: A Novel CIFS Server Virtualization**  
Wataru Katsurashima, Satoshi Yamakawa, Takashi Torii, Jun Ishikawa, Yoshihide Kikuchi (*NEC*)

**NSM: A Distributed Storage Architecture for Data-Intensive Applications**  
Zeyad Ali, Qutaibah Malluhi (*Jackson State University*)

**Implementing and Evaluating Jukebox Schedulers Using JukeTools**  
Maria Eva Lijding, Sape Mullender, Pierre Jansen (*University of Twente*)

**Media Stability and Life Expectancies of Magnetic Tape for Use with IBM 3590 and Digital Linear Tape Systems**  
J. S. Judge, R. G. Schmidt, R. D. Weiss (*Arkival Technology*), G. Miller (*University of New Hampshire*)

**The Fermilab Data Storage Infrastructure**  
Jon Bakken, Eileen Berman, Chih-Hao Huang, Alexander Moibenko, Donald Petravick, Michael Zalokar (*Fermi National Accelerator Laboratory*)

**High Bandwidth Scientific Data Management using Storage Area Networking: Lessons Learned at the Starfire Optical Range**  
Terry S. Duncan (*Kirtland Air Force Base*)

**NCDC the "One Stop Shop" for all NEXRAD WSR-88D Level II Data Services**  
Stephen A. Del Greco, (*NOAA*)

5:00 pm – 8:00 pm – **Reception and Poster Session**

## Wednesday, April 9, 2003

8:00 am – 11:00 am – *Continental Breakfast*  
8:00 am – 4:00 pm – *Conference Registration*  
8:00 am – 5:00 pm – *Vendor Expo*

8:30 am – 10:00 am – **iSCSI and SAN**  
Chair: P. C. Hariharan

**Design of the iSCSI Protocol**  
Kalman Z. Meth, Julian Satran (*IBM Haifa Research Lab*)

**A Performance Analysis of the iSCSI Protocol**  
Stephen Aiken, Dirk Grunwald, Andy Pleszkun (*University of Colorado*)

**Architectural Considerations and Performance Evaluations Of Shared Storage Area Networks at NASA Goddard Space Flight Center**  
Hoot Thompson (*Patuxent Technology Partners*), Curt Tilmes, Robert Cavey, Bill Fink, Paul Lang, Ben Kobler (*NASA GSFC*)

10:30 am – 12:00 pm – **Panel**  
Co-Chairs: Richard Watson, Paul Rutherford

### Emerging Object / Active-Storage Technologies

Representatives from user, vendor, and research organizations will discuss the many critical challenges in achieving location-transparent, secure, and high-performance access to distributed storage resources.

Reagan Moore (*SDSC*) - GRID Perspective  
Gary Grider (*LANL*) - ASCI user Perspective  
Garth Gibson (*Panassas*) - Academic and Panasas Perspectives  
Ethan Miller (*UCSC*) - Academic Perspective  
Julian Satran (*IBM*) - IBM and Standards Perspectives  
David Black (*EMC*) - EMC Perspective  
Dave Anderson (*Seagate*) - Seagate/Standards Perspectives

12:00 pm – 1:30 pm – **Lunch**