**Eighteenth IEEE Symposium on
Mass Storage Systems and Technologies**

in cooperation with the Ninth NASA Goddard Conference
on Mass Storage Systems and Technologies

Large Scale Storage in the Web

April 17-20, 2001
Hyatt Regency Islandia, San Diego, USA

Sponsored by:
IEEE Computer Society

http://www.storageconference.org/2001

Symposium Overview

The IEEE Mass Storage Systems Technical Committee will hold its 18th Symposium in cooperation with the 9th NASA Goddard Symposium April 17-20 in San Diego, California. The symposium combines technical papers, posters and a vendor expo in a unique forum tailored for managers, designers, users and vendors of large scale storage systems and technologies. The Symposium reflects the trend toward globalization of storage management with a focus on data management, storage systems, media, long term retention and distribution of data.

Papers and presentations address requirements for databases and digital libraries, new architectures and hardware components, organization and description of data, and interfaces to data management systems. Issues surrounding the planning and operation of data repositories will be addressed. A *Tutorial on Emerging Standards Impacting Storage Systems Architectures* will be held, Tuesday April 17th.

John Riganati of Sarnoff Corporation will present the Keynote talk on *Memory, Communications and Computation* on Wednesday April 18th. An invited presentation at lunch on Wednesday will be given by Steven Bratt, IDC Coordinator for the CTBT Organization who will discuss, *Arms Control in the Information Age* and its unique requirements for rapid worldwide data access.

John Carlin, Archivist of the United States, will discuss long-term archival storage requirements in an invited talk on Thursday. *The Future from the Perspective of the California Institute for Telecommunications and Information Technology* will be presented in an invited talk by Larry Smarr, the Director of Cal-(IT)^2 on Thursday. *New Satellite Demands and the Globalization of Environmental Data Storage and Access* will be discussed in a luncheon presentation on Thursday by Gregory Withee, Assistant Administrator NOAA/NESDIS.

A *Round Table on Emerging Technologies*, a hallmark of these Symposia will be chaired by Dick Watson and includes a panel of experts discussing promising new technologies. All sessions are informal with audience participation encouraged. A Poster Session and Vendor Expo will be held throughout the meeting, offering additional opportunities for informal information exchange. Additional details can be obtained from the website, noted below. We look forward to seeing you in San Diego.

Ann Kerr Bache, Conference Chair
Reagan Moore, Program Chair
Ben Kobler, Vendor Chair
Kathy Sills, Administrative Chair

http://www.storageconference.org/2001

Symposium Agenda

Tuesday: April 17 Tutorial

Emerging Standards Impacting Storage System Architectures
Chair, Jack Cole

8:30–10:00 a.m.	Jack Cole	*Introduction and Overview of Emerging Storage Standards*
	Tom Ruwart	*The InfiniBand Specification*
	Curtis Anderson	*IEEE Storage System Standards*
	Bruce Haddon	*DMTF: CIM and WBEM*
10:00–10:30 a.m.	**Break**	
10:30–12:00 noon	Julie Schott	*SNIA Storage Networking Architecture*
	David Black, Elizabeth Rodriguez	
		IETF Storage Over IP (IPS)
	Fernando Podio, Betsy Fanning	
		AIIM Information Technology Standards: E-Commerce, Data Storage and Data Content
12:00–1:30 p.m.	**Lunch**	
1:30–5:00 p.m.	**Tutorial**	
	Richard Marciano	*XML eXtensible Markup Language and DTD Document Type Definitions*
		XML databases, ISO 13250 Topic Maps Standard
		Application to Collection-Based Archives and Digital Libraries
	Reception for Attendees	

Wednesday: April 18

8:30–10:00 a.m.	**Welcome & Keynote:** Chair, Ann Kerr Bache	
	John Riganati, Sarnoff Corporation **"Memory, Communication, Computation: Three Facets of an Underlying Reality"**	
10:30–12:00 noon	**Grid Session** Chair, Ethan Miller	
	Heinz Stockinger	*Distributed Database Management Systems and the Data Grid*
	Bill Allcock, Joe Bester, John Bresnahan, Ann L. Chervenak, Ian Foster, Carl Kesselman, Sam Meder, Veronika Nefedova, Darcy Quesnel, Steven Tuecke	
		Secure, Efficient Data Transport and Replica Management for High-Performance Data-Intensive Computing
	Reagan Moore	*Knowledge-based Grids*
12:00–1:30 p.m.	**Lunch presentation:**	
	Steven R. Bratt, IDC Coordinator, CTBT Oganization **"Arms Control in the Information Age: World-Wide Data Acquisition, Analysis, Storage and Access in Near-Real-Time"**	
1:30–3:00 p.m.	**Storage Applications, Session A** Chair, Tom Ruwart	
	Nathan T.B. Stone, J. Ray Scott, John Kochmar, Jason Sommerfield, Ravi Subramanya, R. Reddy, Katie Vargo	
		Mass Storage on the Terascale Computing System
	Michael Lautenschlager, Hannes Thiemann	
		Semantic oriented data access and storage at MPIM/DKRZ
3:30–5:00 p.m.	**File Systems** Chair, Rodney van Meter	
	Arun Iyengar, Shudong Jin, Jim Challenger	
		Efficient Algorithms for Persistent Storage Allocation
	Hyeran Lim	*Active Disk File System*
	Thomas M. Ruwart	*File System Performance Benchmarks, Then, Now, and Tomorrow*
6:00–7:30 p.m.	**Reception at the Birch Aquarium at Scripps**	

Thursday: April 19

8:30–10:00 a.m. **Invited Papers:**
Chair, Reagan Moore

John Carlin, Archivist of the United States
"Building the Archives of the Future"

Larry Smarr, Director, Cal-(IT)[2]
"The future from the perspective of the California Institute for Telecommunications and Information Technology"

10:30–12:00 noon **Benchmarks**
Chair, John Berbert

Phil Andrews, Tom Sherwin, Victor Hazlewood
High-Speed Data Transfer via HPSS using Striped Gigabit Ethernet Communications

Emin Gabrielyan, Roger D. Hersch
SFIO a striped file I/O library for MPI

Marti Bancroft   *Two Case Studies of the Application of Dynamic Modeling Techniques in Performance Assessment and Prediction of Complex Shared Storage Architectures*

12:00–1:30 p.m. **Lunch presentation:**
Gregory W. Withee, Assistant Administrator, NOAA/NESDIS
"New Century Satellite Demands and the Globalization of Environmental Storage and Access"

1:30–3:00 p.m. **Storage Applications, Session B**
Chair, Gene Harano

Ian Bird, Bryan Hess, Andy Kowalski
Building the Mass Storage System at Jefferson Lab

Robyn Allsman   *Simplifying the Web User's Interface to Massive Data Sets*

Sterling Warren   *A Massive Repository for the National Medical Knowledge Bank*

3:00–3:30 p.m. **Break**

3:30–4:00 p.m. **2-minute Poster Madness (11 posters)**
Chair, Robert Chadduck

Architecture of the Secure File System
James P. Hughes, Christopher J. Feist, Storage Technology Corporation

Large-Scale Flexible Storage with SAN Technology
Phil Andrews, Tom Sherwin, and Bryan Banister, SDSC

Retrieving Multimedia Objects from Hierarchical Storage Systems
Philip K. C. Tse, Macquarie University, Clement H. C. Leung, Victoria University

Video Server with Tertiary Storage
Hojung Cha, Jongmin Lee, Jaehak Oh, Rhan Ha, Kwangwoon University

Characterizing Long Term Usage of a Mass Storage System at a Super Computer Site
Josh Neil, LANL

Software RAID Technology for Cluster Environment
Yoshitake Shinkai, Tetsutaro Maruyama, Naomi Yoshizawa, Fujitsu Laboratories Ltd.

WARP: Warp Around Data Placement Technique for Serpentine Tapes
Ali Dashti, Kuwait University

The US Geostationary Satellite Data Rescue
Denise Laitsch, University of Wisconsin

Jiro™ Management Applications
Gary Mueller, Storage Technology Corporation

Archive—Where it Started, and the Problems of Perpetuity
Bill Callicott, Parmesh Dwivedi, Steve Evans, John Kinsfather, NOAA

Security in Storage Management: The Standards Question
Bruce K. Haddon, Sun Microsystems Inc.

4:00–4:45 p.m. **Extemporaneous talks**
Chair, P. C. Hariharan

5:00–7:00 p.m. **Reception and Poster Session; Vendor sponsored Hospitality Suites**

Friday: April 20

8:30–10:00 a.m. **Emerging Technologies**
Chair, Merritt Jones

Tara Madhyastha, Katherine Pu Yang
Physical Modeling of Probe-Based Storage

Haichuan Zhang, Edwin P. Walker, Wenyi Feng, Yi Zhang, Joannes M. Costa, Alexander S. Dvornikov, Sadik Esener, Peter Rentzepis
Multi-layer Optical Data Storage Based on Two-photon Recordable Fluorescent Disk Media

Tien-Hsin Chao, Hanying Zhou, George Reyes
Compact Holographic Data Storage System

10:30–12:00 noon **Roundtable: Emerging Technologies**

Tape
Optical Tape   Bill Oakley, LOTS Technology

Magnetic Tape   Ted Schwarz, Peregrin Technology

Disk
HDD, MEMS and OBDs   Dave Anderson, Seagate

Hard Disk Drive System Architectures   Dave Hughes, Exadrive

Holographic Storage   Hans Coufal, IBM Almaden Research

Multilayer Optical Drives   To Be Announced

12:00–12:30 p.m. **Vendor Presentations**
Chair, Ben Kobler

Bruce Naegel, VERITAS
Software Challenges and Solutions in Allocating Data in a SAN Environment

Felipe Cariño Jr., John Burgess, FileTek, Inc.
StorHouse.com—The Data Management Service Provider

Vendor Summaries to be provided

Steven Toole   *Mission Critical: Managing and Controlling Server Content Through Quotas, Filtering and Storage Reporting*

Brian Giese   *SwapDrive*

Gary Mueller   *Policy Based Management*

Donna Mentlick   *SmartStor InfiNet: Storage Virtualization for the E-economy*

Steve Berens   *The ePocolypse has come! eBusiness Needs eStorage*

1:00 p.m. **Sea World Tour**

Program Committee

Nabil Adam	Rutgers/State University of New Jersey
Jean-Jacques Bedet	Raytheon ITSS
John Berbert, Session Chair	NASA Goddard Space Flight Center
Robert Chadduck, Poster Chair	National Archives and Records Administration
Jack Cole, Tutorial Chair	Army Research Laboratory
Bob Coyne	IBM
William E. Farrell	Science Applications International Corporation
Gene Harano, Session Chair	National Center for Atmospheric Research
P C Hariharan, Session Chair	Systems Engineering and Security, Inc.
John Jensen	National Oceanic and Atmospheric Administration
Matthew O'Keefe	University of Minnesota
Ann Kerr Bache, Conference Chair	IGPP/Scripps Institution of Oceanography
Ben Kobler, Vendor Chair	NASA Goddard Space Flight Center
Merritt Jones, Sponsor Chair	MITRE,
Ethan Miller, Session Chair	University of California, Santa Cruz
Reagan Moore, Program Chair	SDSC
Bernard T. O'Lear	National Center for Atmospheric Research
Thomas M. Ruwart, Session Chair	University of Minnesota,
Paul Rutherford	ADIC
Don Sawyer	NASA Goddard Space Flight Center
Jamie Shears	CERN
Kathy Sills, Administrative Chair	Chaparral Network Storage, Inc.
Rodney Van Meter, Session Chair	Network Alchemy
Dick Watson, Session Chair	LLNL
Chris Wood	SUN

Hotel and Logistics Information

Hyatt Regency Islandia, San Diego
April 17-20, 2001

Symposium/lodging location

The Eighteenth IEEE Symposium on Mass Storage Systems will be held at the Hyatt Regency Islandia in San Diego, California, April 17-20, 2001. Although the Hyatt Regency Islandia is offered as the primary lodging provider, there are many alternate hotels in the area, although somewhat less convenient to the Symposium.

Rates/Reservations for the Hyatt Regency Islandia

The group rate is $134.00 single/double excluding the 10.5% tax. Please make your reservations directly with the hotel by calling 1 (619) 224-1234 and giving the group name of "IEEE Computer Society" to ensure you receive the Symposium rate. You will be required to provide a deposit to guarantee your reservation that can be arranged when you contact the hotel. Should you need to cancel your reservation and not be charged the first night's deposit, you must contact the hotel directly 24 hours prior to your arrival date. There is no charge for early departure. Reservations must be made by Friday, March 23, 2001, at 5:00 pm Pacific Standard Time. Reservations received after this date will be accepted on a space-available basis only. The rates will apply at least three days prior to and three days after the Symposium meeting dates, based on availability.

Hyatt Regency Islandia Check-in/Check-out

The hotel's check-in time is 4:00 pm; check-out is 12:00 pm.

Transportation

The Hyatt Islandia is located approximately six miles from the San Diego Airport (identifier "SAN"). Shuttle service from the airport to the Hyatt Islandia is offered by Cloud Nine shuttle service. The price is $8.50 per person one way. The shuttle departs every 15 minutes, 24 hours a day, from outside the Baggage Claim area. No reservations are required from the airport but are required for a return pickup from the hotel to the airport. Contact the bellman at the hotel the for hotel pickup. The shuttle allows for 1 hour, 20 minutes pickup prior to your return flight.

Taxicab fare from the airport to the Hyatt Islandia can range from $13.00-$20.00. There is a taxicab stand outside the Baggage Claim area, near the Cloud Nine shuttle stand.

Hyatt Regency Islandia Parking

Complimentary parking is available to hotel guests. Valet parking is also available for $4.00 per day for daytime parking and $9.00 for overnight parking.

Registration Form

http://storageconference.org/2001

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Please complete this form and return it before April 1, 2001 to the address below for pre-registration. Only on-site registration will be offered in April. To register more than one person, please duplicate this form or request additional forms. **Please type or print.**

Mr. Ms. Dr. Prof. (Circle one)

_____
(Last Name) (First Name)

Affiliation _____

Address _____

City _____ State/Province _____

Zip _____ Country _____

Phone Number _____

Telex or Fax Number _____

E-Mail Address _____

REGISTRATION FEES

Early fees paid before March 16, 2001.

		Early	Late	
Tutorial	IEEE Member	$150	$200	$ _____
	Non-Member	$200	$250	$ _____
Symposium	IEEE Member	$350	$450	$ _____
	Non-Member	$450	$575	$ _____
	Student (full-time only)	$125	$175	$ _____

RECEPTIONS

I will attend the Wednesday Reception
(Circle One)   YES   NO

I/my guests will need transportation to the Wednesday reception
(Circle One)   YES   NO
(Aquarium Reception 14mi/ 22km away)

Number of Guests at each reception:
Tuesday _____, Wednesday _____, Thursday _____

Additional Cost per Guest is $25 Tuesday (Tutorial), $35 Wednesday (Aquarium), $25 Thursday

Total Guest Cost $ _____

TOTAL ENCLOSED $ _____

METHOD OF PAYMENT

____ Enclosed is a check, money order in US funds payable to "18th IEEE-CS MSS Symposium"

____ Enclosed are traveler's checks in US funds payable to "18th IEEE-CS MSS Symposium"

____ Enclosed is my Credit Card Information:

_____
Name of Card Holder

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Credit Card Number

Card Type   (Circle One)
VISA   MASTERCARD   AMEX   DINERS

Expiration Date _____/_____

_____
Signature
(Credit card billing will show "IEEE Comptr Registrati Washington DC")

FAX/Mail for delivery before April 1, 2001 to:

18th IEEE-CS MSS Symposium
6525 Gunpark Drive, Suite 370-401
Boulder, CO 80301
FAX +1 (303) 527-3004

_____
GUEST NAME(S)

_____
YOUR BADGE NAME
(if different from registration)

IEEE MEMBER # _____
(if claiming member rates)

CANCELLATION POLICY

Refund of registration fees may be granted if cancellations are received in writing at the 18th IEEE-CS MSS Symposium address above before April 1, 2001.

CONTACT

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