Eighth NASA Goddard Space Flight Center
Conference on Mass Storage Systems and Technologies
in cooperation with
Seventeenth IEEE Symposium on Mass Storage Systems

Preliminary Program Agenda

MONDAY, MARCH 27, 2000

8:00 AM - 12:30 PM *Tutorial Registration*

Morning Tutorials (Session Chair: *P C Hariharan, System Engineering and Security, Inc.)*

8:45 - 9:00 Announcements and Welcoming Remarks

9:00 - 10:00 Disk Subsystem Performance Evaluation: From Disk Drives to Storage Area Networks, *Thomas M. Ruwart* (University of Minnesota)

10:00 - 11:00 I/O and Storage Tuning: An Introduction to I/O and Storage Tuning Tips and Techniques, *Randy Kreiser (SGI)*

11:00 - 11:30 *BREAK*

11:30 - 12:30 Accelerated Aging Studies and the Prediction of the Archival Lifetime of Optical Disk Media, *David E. Nikles, John Wiest (University of Alabama)*

12:30 - 1:30 *LUNCH*

Afternoon Tutorials (Session Chair: *Matt O'Keefe, University of Minnesota)*

1:30 - 2:30 CXFS: a general purpose cluster file system, *Brian Gaffey (SGI)*

2:30 - 3:30 Functionality and Performance Evaluation of File Systems for Storage Area Networks (SAN), *Martha Bancroft, Nick Bear, Jim Finlayson, Robert Hill, Richard Isicoff, Hoot Thompson (Storage Technologies Knowledge Based Center, Department of Defense)*

3:30 - 4:00 *BREAK*

4:00 - 5:00 Open Storage Management Software for Linux, *Matthew O'Keefe (University of Minnesota)*

5:00 - 7:30 *Welcome Reception and Conference Registration*

8:00 AM - 11:00 AM *Continental Breakfast*

8:00 AM - 4:00 PM *Conference Registration*

12:30 PM - 8:30 PM *Vendor Expo*

Morning Session I - Announcements and Keynote (Session Chair: *Ben Kobler, NASA Goddard Space Flight Center)*

    9:00 - 9:15 Announcements and Welcoming Remarks

    9:15 - 10:30 What SANs can learn from LANs, *Jim Hughes (StorageTek)*

    10:30 - 11:00 *BREAK*

Morning Session II - Performance (Session Chair: *Theodore Johnson, AT&T Labs-Research)*

    11:00 - 11:30 APRIL: A Run-Time Library for Tape-Resident Data, *Gokhan Memik, Mahmut Taylan Kandemir, Alok Choudhary, Valeri E. Taylor (Northwestern University)*

    11:30 - 12:00 Performance of an MPI-IO implementation using third-party transfer, *Richard Hedges, Terry Jones, John May, R. Kim Yates (Lawrence Livermore National Laboratory)*

    12:00 - 12:30 Implementation of a Fault-Tolerant Real-Time Network-Attached Storage Device, *Ashish Raniwala, Srikant Sharma, Anindya Neogi, Tzi-cker Chiueh (State University of New York at Stony Brook)*

    12:30 - 1:30 *LUNCH*

Afternoon Session I - Data Management (Session Chair: *Reagan Moore, San Diego Supercomputing Center)*

    1:30 - 2:00 Access Coordination of Tertiary Storage for High Energy Physics Applications, *Luis M. Bernardo, Arie Shoshani, Alexander Sim, Henrik Nordberg, (Lawrence Berkeley National Laboratory)*

    2:00 - 2:30 DataCutter: Middleware for Filtering Very Large Scientific Datasets on Archival Storage Systems, *Michael Beynon, Renato Ferreira, Tahsin Kurc, Alan Sussman, (University of Maryland), Joel Saltz (Johns Hopkins Medical Institutions)*

    2:30 - 3:00 Towards Mass Storage Systems with Object Granularity, *Koen Holtman (CERN), Peter van der Stok (Eindhoven University of Technology), Ian Willers (CERN)*

3:00 - 3:30 ***BREAK***

Afternoon Session II - File Systems 1 (Session Chair: *Jim Finlayson, Department of Defense*)

3:30 - 4:00 The InTENsity PowerWall: A Case Study for a Shared File System Testing Framework, ***Alex W. Elder*** *(Tricord Systems), Thomas M. Ruwart, Benjamin D. Allen, Angela Bartow, Sarah E. Anderson, David H. Porter (University of Minnesota)*

4:00 - 4:30 Alternatives of implementing a Cluster File Systems, ***YoshitakeShinkai***,*Yoshihiro Tsuchiya, Takeo Murakami (Fujitsu Laboratorie LTD), Jim Williams (Amdahl Corporation)*

Afternoon Session III - 2 Minute (Poster) Madness (Session Chairs*: Bob Chadduck, National Archives and Records Administration, Bill Callicott, Consultant*)

4:30 - 5:00

StorHouse/Relational Manager (RM) - Active Storage Hierarchy Database System and Applications, ***Felipe Carino Jr.,*** *John Burgess (FileTek. Inc.)*

Fault Tolerant Design in the Earth Orbiting Systems Archive, ***Alla Lake****, Jonathan Crawford, Raymond Simanowith, Bradley Koenig (Lockheed Martin)*

Connection of a Climate Model Database and Mass Storage Archive(s), *Michael Lautenschlager,* ***Hannes Thiemann*** *(DKRZ)*

New Prospects for Electrostatic Data Storage Systems, *Alexander N. Korotkov,* ***Konstantin K. Likharev*** *(State University of New York at Stony Brook)*

Tertiary Storage Organization for Large Multidimensional Datasets, *Sachin More, Alok Choudhary,* ***Gokhan Memik*** *(Northwestern University)*

Ferroelectric Molecular Optical Storage Nanotechnology**,** ***Michael Thomas, Phil Krenenberg,*** *(Colossal Storage)*

A Stack Model Based Replacement Policy for a NonVolatile Write Cache, *Jehan-François Pâris (University of Houston),* ***Theodore R. Haining****, Darrell D. E. Long (University of California, Santa Cruz)*

Switched FC-AL: An Arbitrated Loop Attachment for Fibre Channel Switches, *Vishal Sinha, David H.C. Du,* ***Hyeran Lim*** *(University of Minnesota)*

Evaluating Backup Algorithms, ***Zachary Kurmas*** *(Georgia Tech), Ann L. Chervenak (USC Information Sciences Institute)*

An Overview of Version 0.9.5 Proposed SCSI Device Locks, *Andrew Barry, Mike Tilstra, Matthew O'Keefe (University of Minnesota), Kenneth Preslan (Sistina Software), Gerry Houlder, Jim Coomes (Seagate Technology),* ***James Wayda*** *(Dot Hill Systems Corp)*

A Scalable Architecture for Maximizing Concurrency, **Jonathan Crawford** *(Lockheed Martin Space Operations)*

5:00 PM - 8:30 PM *Evening Reception, Poster Session*

WEDNESDAY, MARCH 29, 2000

8:00 AM - 11:00 AM *Continental Breakfast*

8:00 AM - 4:00 PM *Conference Registration*

8:00 AM - 3:30 PM *Vendor Expo*

Morning Session I - Emerging Technologies (Session Chair: *Gene Harano, NCAR)*

9:00 - 9:30 Using Track-Following Servo Technology on LTO Tape Drives**, *Randy Glissman* *(Fujitsu Computer Products of America)*

9:30 - 10:00 Optical Head Design for 1 TB Capacity Optical Tape Drive, **Mahdad Manavi**, *Aaron Wegner, Qi-Ze Shu, Yeou-Yen Cheng (LOTS Technology, Inc.)*

10:00 - 10:30 A Portable Tape Driver Architecture, **Curtis Anderson** *(TurboLinux)*

10:30 - 11:00 **BREAK**

Morning Session II - Invited Panel: The Future of Current Mass Storage Devices (Session Chair: *P C Hariharan, System Engineering and Security, Inc.)*

11:00 - 12:30 Panel Chair: **Mark C. Ferelli** *(Vice President and Editor-in-Chief, West World Productions, Computer Technology Review/Storage Management Solutions)*

Magnetic Tape: **Ted Schwarz** *(Peregrine Technology Systems)*

Magnetic Disk: **Ed Grochowski** *(IBM Almaden Research Center)*

Optical Devices: **Koichi Sadashige** *(Sadashige Associates)*

12:30 - 1:30 **LUNCH**

Afternoon Session I - Site Reports (Session Chair: *John Berbert, NASA Goddard Space Flight Center)*

1:30 - 2:00 EOSDIS Archive and Distribution Systems in the Year 2000, **Jeanne Behnke** *(NASA Goddard Space Flight Center), Alla Lake (Lockheed Martin)*

2:00 - 2:30 Mass Storage System Upgrades at the NASA Center for Computational Sciences, **Adina Tarshish, Ellen Salmon,** *Medora Macie (NASA Goddard Space Flight Center), Marty Saletta (Raytheon)*

2:30 - 3:00 Data Volume Proliferation in the 21st Century - The Challenges Faced by the NOAA National Data Centers (NNDC), **John Jensen,** *(NCDC), John Kinsfather, (NGDC), Parmesh Dwivedi, (NODC), National Oceanic and Atmospheric Administration (NOAA), National Environmental Satellite and Information Services (NESDIS)*

3:00 - 3:30 **BREAK**

Afternoon Session II - File Systems 2 (Session Chair: *Jim Finlayson, Department of Defense*)

3:30 - 4:00 Implementing Journaling in a Linux Shared Disk File System, **Kenneth W. Preslan** *(Sistina Software, Inc.), Andrew Barry, Jonathan Brassow, Russell Cattelan, Adam Manthei, Erling Nygaard, Seth Van Oort, David Teigland, Mike Tilstra, Matthew O'Keefe (University of Minnesota), Grant Erickson (Brocade Communications), Manish Agarwal (VERITAS Software)*

4:00 - 4:30 Design for a Decentralized Security System For Network Attached Storage, **William Freeman**, *Ethan Miller (University of Maryland, Baltimore County)*

Afternoon Session III - Random Access (Session Chair: *Ethan Miller, University of Maryland, Baltimore County)*

4:30 - 5:30 Extemporaneous talks on topics pertinent to the conference theme *(Speakers should sign up by 4:00 PM, Tuesday, March 28, 2000*)

Evening Reception and Dinner

5:30 - 6:30 Cocktail reception

6:30 - 7:30 Dinner

7:30 - 8:30 It's now the 21st Century, so where's my hovercar?, **Philip Page**, *Executive Director, Informix Media Business Unit*

THURSDAY, MARCH 30, 2000

8:00 AM - 11:00 AM *Continental Breakfast*

8:00 AM - 12:00 Noon*Conference Registration*

8:00 AM - 1:30 PM *Vendor Expo*

Morning Session I - Standards (Session Chair: *Merritt Jones, MITRE*)

8:30 - 9:00 Jiro Storage Management, **Bruce K. Haddon**, *(The Java Centers, Sun Microsystems, Inc), William H. Connor, (Network Storage, Sun Microsystems, Inc.)*

9:00 - 9:30 A blueprint for Representation Information in the OAIS model, **David Holdsworth**, *Derek. M. Sergeant (The University of Leeds)*

9:30 - 10:00 Project 1244: IEEE Storage System Standards, **John L. Cole** *(United States Army Research Laboratory)*

10:00 - 10:30 **BREAK**

Morning Session II - Nascent Promises: Holographic Storage (Session Chair: *Eric N Hockert, Imation Corporation*)

10:30 - 11:00 Compact Holographic Read/Write Memory, *Wenhai Liu*, **Demetri Psaltis** *(California Institute of Technology)*

11:00 — 11:30 Holographic Data Storage: Dream and Reality — The potential of holographic data storage in comparison to other mainstream storage technologies exemplified with results from IBM's research effort in data storage, **Hans Coufal** *(IBM Almaden Research Center)*

11:30 — 12:00 High Density Holographic Data Storage, *Lisa Dhar*, **Kevin Curtis**, *Arturo Hale, Melinda Schnoes, William Wilson, Michael Tackitt, Adrian Hill, Marcia Schilling, Howard Katz (Bell Laboratories, Lucent Technologies)*

12:00 — 12:30 Advantages of the CROP Technology in Aprilis Photopolymer Recording Media for High Performance Holographic Storage Systems, **David Waldman**, *R. Ingwall, E. Cetin, M. Horner, R. Minns, P. Panchu (Aprilis Inc.)*

12:30 - 1:30 **LUNCH**

Afternoon Session I - Vendor Solutions (Session Chair: *Bruce Rosen, National Institute of Standards and Technology)*

1:30 - 1:45 Are you ready for yottabytes?, **Felipe Carino**, *Art Kaufmann, Pekka Kostamaa (FileTek, Inc.)*

1:45 - 2:00 Security in a globally accessible SAN, **Jim Hughes**, *Jack Christenson (StorageTek)*

2:00 - 2:15 Quadratec Products, **FredericPierre** *(Quadratec SA)*

2:15 - 2:30 ALL THE DATA ALL THE TIME; Network Attached Storage (NAS) and Storage Area Network (SAN) interoperability, **Phil Cooke** *(Auspex Systems)*

2:30 - 2:45 Meeting The Demand For High Data Throughput Requirements With Today's Technology, **Mark Saake** *(Unitree Software, Inc.)*

2:45 - 3:00 Intelligent Storage Networks, **_Lieghton C. Wood Jr._** _(Sun Microsystems)_

3:00 - 3:15 MetaStor Storage Solutions Open SAN (Storage Area Network), **_Mitch Seigle_** _(LSI Logic Storage Systems, Inc.)_

3:15 - 3:30 The Road to Centralized Management: Realizing the Promise of SANs, **_Bill North_** _(VERITAS Software)_

3:30 **Conference Adjourns**