SNIA DSI '14

DATA STORAGE INNOVATION CONFERENCE

APRIL 22-24, SANTA CLARA, CA

GUIDE

PLATINUM SPONSORS

IBM · Microsoft · NEC · riverbed

GOLD SPONSORS

commvault · NASUNI · SNIA Storage Management Initiative · ULTRIUM LTO

SILVER SPONSORS

COHO DATA · DataDirect Networks · EchoStreams Innovative Solutions · EVault A Seagate Company · LOAD DYNAMIX · nimble storage

ASSOCIATION PARTNER

FCIA Fibre Channel Industry Association · STA SCSI Trade Association · usenix The Advanced Computing Systems Association

CONTRIBUTING SPONSORS

intel · SAMSUNG · VEEAM IT JUST WORKS!

CO-LOCATED EVENT PARTNERS

execevent · Tech Field Day

MEDIA PARTNERS

cloudsecurity International CSI · cloudservices world CSW · datacentre solutions DCS Europe · storage networking solutions SNS

Sponsors as of 4.14.14

riverbed®

BUSINESS OBJECTIVES SHOULD DRIVE YOUR IT ARCHITECTURE, NOT TECHNICAL CONSTRAINTS.

Learn more. Visit us at **Booth P3**

WELCOME

April 22, 2014

Greetings DSI Attendees,

On behalf of SNIA's Board of Directors, Technical Council, and Staff, welcome to SNIA's inaugural Data Storage Innovation Conference (DSI).

Targeted at IT decision-makers, technology implementers, and those expected to recognize, influence, and support data storage innovation in production IT deployments, DSI will provide insights into new technology areas such as software defined storage, cloud, and big data, along with many other aspects of data management and network-connected storage.

GUIDE CONTENT

The agenda features five tracks of breakout sessions each day, as well as general sessions on both Wednesday and Thursday mornings. The breakout sessions cover deployment blueprints, technology innovation, IT case studies and best practices, along with other technical and professional development sessions. The presentations include vendor-neutral SNIA Tutorials, as well as vendor and analyst sessions delivered by industry leaders.

The DSI opening presentation "Enabling Data Infrastructure Return on Innovation – The Other ROI" delivered by Greg Schulz, Analyst and Founder of StorageIO, sets the stage for the conference. In addition, don't miss our other insightful general sessions presented by speakers from Coho Data, Riverbed, Battery Ventures, Microsoft Corporation, and Discover Financial Services.

We take this opportunity to thank you and your companies for the time you are committing to spend with us this week. We thank our sponsors for helping to cover the expense of producing and offering this conference. Please visit their booths in the Innovation Expo and introduce yourselves. We would also like to extend a special thanks to the many subject matter experts, analysts, and others for sharing their valuable experience and insights with us as speakers.

Please take a moment to complete the DSI evaluation surveys, which will be e-mailed to you at the end of each day. We take your input very seriously and rely on it as we plan for future events.

Enjoy the Conference.

David Dale
Chairman,
SNIA Board of Directors

Don Deel
Chairman,
SNIA Technical Council

Leo Leger
Executive Director,
SNIA

WIRELESS INTERNET ACCESS

During the conference complimentary wireless Internet access will be available.
Login Information:
SSID: DSIWireless
Password: DSI-2014

ONLINE ACCESS TO PRESENTATIONS

The presentations from DSI are available for download to attendees of DSI. These presentations will be made available to the general public 90 days after the conference. To access the presentations from DSI, go to:

Note: Username and Password are case sensitive.

DSI EVALUATIONS

As a DSI attendee, your feedback on our agenda and program is invaluable to us.

We will be sending daily evaluations via email each night for that day's events. Please take a moment to complete these brief evaluations. The information you provide will help us in the planning and development for future conferences.

As an incentive, we will be offering a $100 gift card to a randomly selected individual that completes the evaluations. Remember, each time you complete an evaluation, your chances of winning go up!

INNOVATION EXPO

The Innovation Expo is located in the Grand Ballroom Salons A&B in the convention center. To get there, walk across the hotel lobby towards convention center. Once you are in the convention center, the Innovation Expo will be located to the left.

MEDIA AND ANALYST BRIEFING ROOM

The Media and Analyst Briefing room is located in the Alameda room just off of the Mezzanine, and is available to registered press and analysts that will be involved in briefings during DSI.

SCHEDULE AT-A-GLANCE

Tuesday, April 22, 2014

Continental Breakfast .....7:30 am - 8:30 am
Breakout Sessions..... 8:30 am - 12:05 pm
Lunch in Innovation Expo .....12:05 pm - 2:00 pm
Breakout Sessions.....2:00 pm - 5:35 pm
Welcome Reception in Innovation Expo .. 5:45 pm - 6:45 pm

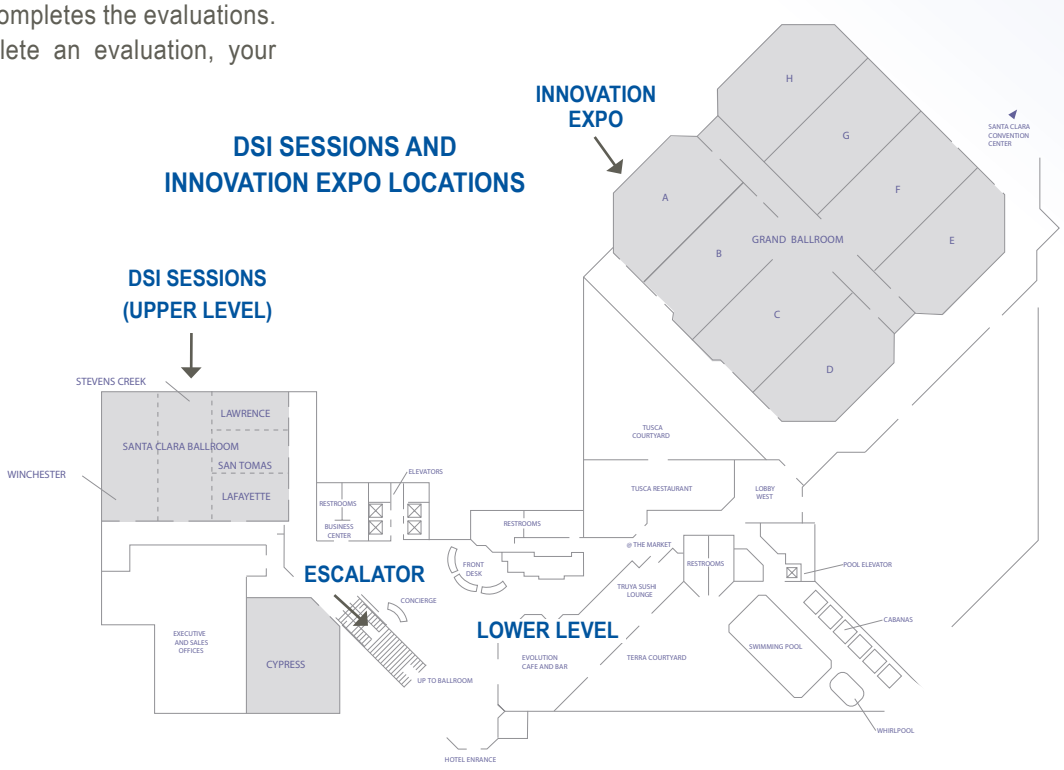
Wednesday, April 23, 2014

Continental Breakfast .....7:30 am - 8:45 am
Introduction to Day .....8:45 am - 9:00 am
General Sessions ..... 9:00 am - 12:00 pm
Lunch in Innovation Expo .....12:00 pm - 1:30 pm
Breakout Sessions.....1:30 pm - 5:05 pm
Networking Reception in Innovation Expo... 5:15 pm - 7:15 pm

Thursday, April 24, 2014

Continental Breakfast .....7:30 am - 8:45 am
Introduction to Day .....8:45 am - 9:00 am
General Sessions ..... 9:00 am - 12:00 pm
Lunch.....12:00 pm - 1:00 pm
Breakout Sessions.....1:10 pm - 4:45 pm
Sessions Conclude.....4:45 pm

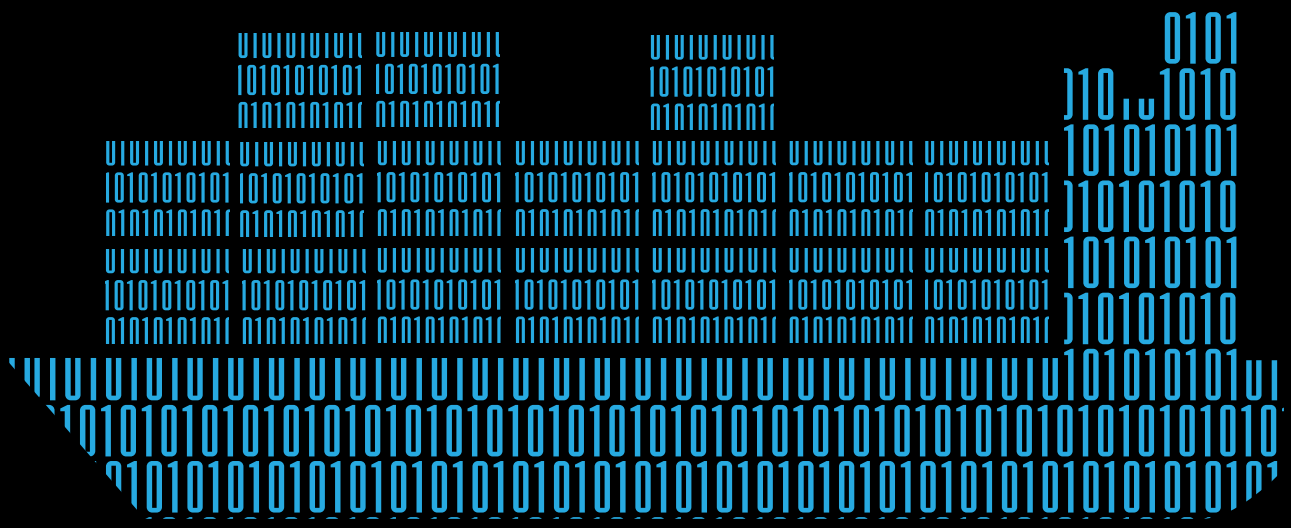
DSI SESSIONS AND INNOVATION EXPO LOCATIONS



ULTRIUM LTO 6™

STORAGE SOLUTIONS FOR DATA.

LTO-6 TECHNOLOGY



UP TO **6.25 TB**
STORAGE CAPACITY PER CARTRIDGE

UP TO **43%**
FASTER THAN LTO-5 TAPE

1.3¢
CARTRIDGE COST PER GB

Scalable. Dependable. Affordable. LTO-6 technology is the complete solution for data storage. Learn why storing data on tape is the right decision for you at TrustLTO.com.

VISIT BOOTH #7 FOR A DEMO AND RECEIVE A SPECIAL GIFT!

SPEAKING ENGAGEMENT
Tues., April 22, 10:25am

ENTER TO WIN DR. DRE BEATS EARBUDS!

TUESDAY AGENDA

	Cloud (Stevens Creek)	Storage Architecture (San Tomas / Lawrence)	Solid State Storage (Winchester)	Cover Your Assets (Cypress)	Storage Technologies (Lafayette)
7:30	Registration Opens (Mezzanine)				
7:30 - 8:30	Continental Breakfast (Mezzanine)				
8:30 - 9:15	**Private Cloud Storage for Different Enterprise Compute Clouds** John Dickinson Director of Technology, SwiftStack	**Storing 85 Petabytes of Cloud Data without Going Broke** Gleb Budman CEO, Backblaze	**SNIA Tutorial: Storage in the DIMM Socket** Adrian Proctor VP Marketing, Viking Technology	**Virtualization Drives New Approaches to Backup** Nikolay Yamakawa Analyst, 451 Research	**Emerging Storage and Memory Technologies** Thomas Coughlin President, Coughlin Associates Edward Grochowski Computer Storage Consultant
9:25 - 10:10	**The Cloud Hybrid "Homerun" – Life Beyond The Hype** Greg Schulz Senior Advisory Analyst, StorageIO	**Extending the Benefits of HDD: Breaking Down Walls All Storage Vendors Face** Keith Hageman Director of Technical Marketing, X-IO Technologies	**Storage Speed and Human Behavior** Eric Herzog CMO, Violin Memory	**SNIA Tutorial: Protecting Data in the "Big Data" World** Thomas Rivera Sr. Technical Associate, Hitachi Data Systems	**Storage Systems Can Now Get ENERGY STAR Labels and Why You Should Care** Dennis Martin President, Demartek
10:10 - 10:25			Break (Mezzanine)		
10:25 - 11:10	**SNIA Tutorial: Delivering a Cloud Architecture** Alex McDonald CTO Office, NetApp	**Project Fermi - A Highly Available NAS Gateway Built from Open Source Software** Dan Pollack Senior Operations Architect, Aol Inc.	**SSD Synthetic Enterprise Application Workloads** Eden Kim CEO, Calypso Testers	**New Challenges - New Solutions with LTO-6 Technology and LTFS** Shawn Brune Sc.D., Business Line Manager, Data Protection and Retention, IBM, the LTO Program	**The Internet of Things is a Huge Opportunity for Object Storage** Tom Leyden PMM WOS, DataDirect Networks
11:20 - 12:05	**Leveraging the Cloud for Scalable and Simplified Data Storage** Connor Fee Director of Marketing, Nasuni	**A New Strategy for Data Management in a Time of Hyper Change** Chris VanWagoner Chief Strategy Officer, CommVault	**SNIA Tutorial: Benefits of Flash in Enterprise Storage** David Dale Director, Industry Standards, NetApp	**SNIA Tutorial: Data Protection in Transition to the Cloud** David Chapa Chief Technology Evangelist, EVault	**Building Open Source Storage Products with Ceph** Neil Levine VP Product, Inktank
12:05 - 2:00	Lunch in Innovation Expo				

VISIT THE INNOVATION EXPO

The DSI Innovation Expo will showcase sponsors with featured state–of–the–art technology demos and subject matter experts to address your latest IT planning requirements. Be sure to stop by SNIA's Storage Management Initiative booth, G-5.

Innovation Expo Hours are:

Tuesday: 12:05 - 2:00 pm and 5:45 - 6:45

Wednesday: 12:00 - 1:10 and 5:15 - 7:15

SNIA TUTORIALS

When you see this: **SNIA Tutorial**, that means that you are attending a vendor-neutral presentation. These educational sessions are developed by vendors, training companies, analysts, consultants, and end-users. The SNIA Tutorials are selected through a proposal submission process, and then go through a peer review period which ensures that they are accurate and vendor-neutral.

TUESDAY AGENDA

	Cloud (Stevens Creek)	Storage Architecture (San Tomas / Lawrence)	Solid State Storage (Winchester)	Cover Your Assets (Cypress)	Storage Technologies (Lafayette)
2:00 - 2:45	**SNIA Tutorial: Reaching to the Cloud** Subo Guha VP, Product Management and Marketing, Unitrends	**SNIA Tutorial: Rightsizing Tiered Storage Systems** Octavian Paul Rotaru IT Project Manager and SAN/Storage/Backup Line Leader, Amdocs	**The New Flash Architecture ... Wait ... There's a New One Already?** Marco Coulter Vice President, 451 Research	**Reducing Backup and Increasing Performance When Data Reaches the Terabyte Range** Mark McKinnon Information Technology Architect, Grand River Conservation Authority	**The Curious Case of Database Deduplication** Gurmeet Goindi Principal Product Manager, Oracle Corporation
2:55 - 3:40	**Choosing a File Sync and Share Solution** Darryl Pace Storage Architect, Optimal Computer Solutions, Inc.	**The Root Cause of Unstructured Data Problem Is Not What You Think** Bruce Thompson CEO, Action Information Systems	**Paving the Way to the Non-Volatile Memory Frontier** Doug Voigt Distinguished Technologist, HP	**Vendor Neutral Archive, the How and Why** Gary Woodruff Enterprise Infrastructure Architect, Sutter Health	**SNIA Tutorial: Massively Scalable File Storage** Philippe Nicolas Director of Product Strategy, Scality
3:40 - 3:55	**Break (Mezzanine)**				
3:55 - 4:40	**SNIA Tutorial: Combining SNIA Cloud, Tape and Container Format Technologies for Long Term Retention** Sam Fineberg Distinguished Technologist, HP Simona Rabinovici-Cohen Researcher, IBM	**SNIA Tutorial: What is Old is New Again: Storage Tiering** Gideon Senderov Director, Advanced Storage Products, NEC	**Utilizing Ultra-Low Latency within Enterprise Architectures** Page Tagizad Senior Product Marketing Manager, SanDisk	**True Data Disaster Recovery** Matthew Kinderwater Director of IT Services, iCube Development (Calgary) Ltd.	**SNIA Tutorial: SMB Remote File Protocol (Including SMB 3.0)** John Reed Product Manager, NetApp
4:50 - 5:35	**Database-as-a-Service vs. Do-It-Yourself MySQL in the Cloud** Cashton Coleman CEO, ClearDB	**Who Says Data Center Storage Has to Be Inefficient?** Larry Chisvin VP, Strategic Initiatives, PLX Technology	**Changing the Economics of Flash Storage - Delivering Flash at the Price of Disk** Mike Davis Director of Marketing, File Storage Solutions, Dell	**Panel Discussion: Best Practices in the Management of Unstructured Data** See a list of panel participants on page 13.	**SNIA Tutorial: Practical Steps to Implementing pNFS and NFSv4.1** Alex McDonald Industry Evangelist, NetApp
5:45 - 6:45	**Welcome Reception in the Innovation Expo**				

BIRDS-OF-A-FEATHER MEETINGS:

New Cloud Storage Initiative Program - Wednesday, 7:15 - 8:15 - Cypress Room

The Cloud Storage Initiative will have an important announcement to discuss in this Birds of Feather session. Please put this session on your calendar and stay tuned for some very important news.

Introduction to SNIA's Solid State Storage Initiative Programs - Wednesday, 7:15 - 8:15 - Stevens Creek Room

Come hear about the SNIA SSSI and its solid state storage programs, including:

- Workload IO Capture Program - volunteer to download a collection program to help the SSSI characterize the IO activity on your PC. This unobtrusive and safe program only collects statistics on the type of data transfers that go to your boot drive. No personal data or data content is collected. Participants can earn a $10 awards card and qualify for a free SSD.
- SSSI Committee - hear about the Marketing, PCIe SSD, TechDev, Education and BusDev committee activities
- NVDIMM-SIG - hear about the new NVDIMM-SIG.

7:30 - 8:45	Registration Open - Continental Breakfast and Networking (Mezzanine)				
8:45 - 9:00	**Introduction to the Day and Housekeeping Announcements** David Dale, Chairman, SNIA Board of Directors				
9:00 - 9:45	**Enabling Data Infrastructure Return on Innovation – The Other ROI** Greg Schulz, Founder of StorageIO and Analyst, Consultant, Educator, and Author				
9:45 - 10:25	**Architecting with Flash for Web-Scale Enterprise Storage** Andy Warfield, CTO / Co-Founder, Coho Data, and CS Professor, University of British Columbia				
10:25 - 10:40	Break (Mezzanine)				
10:40 - 11:20	**Software Defined Storage @ Microsoft** Siddhartha Roy, Group Program Manager, File Server and Clustering, Cloud and Enterprise Division, Microsoft Corporation				
11:20 - 12:00	**Simplify Branch Office Recovery and Disaster Avoidance with Riverbed** Rob Whiteley, VP, Product Marketing, Riverbed				
12:00 - 1:30	Lunch in the Innovation Expo				
	Cloud Storage (Stevens Creek)	**Software Defined Storage (Cypress)**	**Storage Plumbing (San Tomas / Lawrence)**	**Analytics and Big Data (Winchester)**	**Storage Technologies (Lafayette)**
1:30 - 2:15	**Recover 2 Cloud - A Common Sense Approach to Disaster Recovery** Raj Krishnamurthy Senior Product Manager, SunGard Availability Services	**Bring Back the Flexibility of the Cloud with SDS and Open Source** Michael Letschin Director of Product Management, Solutions, Nexenta	**Next Generation Storage Networking for Next Generation Data Centers** Dennis Martin President, Demartek	**Can Enterprise Storage Fix Hadoop** John Webster Senior Partner, Evaluator Group	**Kinetic Open Storage Platform** Ali Fenn Senior Director of Advanced Storage, Seagate James Hughes Seagate
2:25 - 3:10	**Key Criterias when Building ExaScale Data Center** Philippe Nicolas Director of Product Strategy, Scality	**Software-Defined Storage in Windows Server 2012 R2 and System Center 2012 R2** SW Worth Senior Standards PM, Microsoft Corporation	**Gen 6 Fibre Channel is Coming: What You Need to Know** Manoj Wadekar Fellow and Chief Technologist, QLogic Corporation	**SNIA Tutorial: Introduction to Analytics & Big Data - Hadoop** Thomas Rivera Sr. Technical Associate, Hitachi Data Systems	**Performance (Lafayette)** **Benchmarking the New Storage Technologies** Bob Hansen Managing Director, Kitaro Consulting
3:10 - 3:25	Break (Mezzanine)				
3:25 - 4:10	**S3 API Deep Storage Extensions for Hadoop** Stacy Schwarz-Gardner Strategic Technical Architect, Spectra Logic	**Deploying Software Defined Storage for the Enterprise with Ceph** Paul Von Stamwitz Senior Storage Architect, Fujitsu	**SNIA Tutorial: Forming Storage Grids Using iSCSI** Felix Xavier Founder and CTO, CloudByte	**Transforming Cloud Infrastructure to Support Big Data Storage and Workflows** Jay Migliaccio Director of Cloud Solutions, Aspera	**Hot Topics (Lafayette)** **How To Get The Most Out of Flash Deployments** Eric Burgener Research Director, Storage, IDC
4:20 - 5:05	**OpenStack Cloud Storage** Sam Fineberg Distinguished Technologist, HP	**Software Defined Storage - Storage Management Analytics** Ramani Routray STSM and Manager, IBM Master Inventor, IBM Almaden Research	**SNIA Tutorial: Use Cases for iSCSI and FCoE: Where Each Makes Sense** Jeff Asher Principal Architect, NetApp	**Applied Storage Technologies for Performance Optimized Big Analytics** Hubbert Smith Office of CTO, Alliance Manager, LSI	**The Future Technology for NAND Flash** Sylvain Dubois Sr. Director, Strategic Marketing and Business Development, Crossbar, Inc.
5:15 - 7:15	Networking Reception in the Innovation Expo				
7:15 - 8:15	Birds-of-a-Feather Meeting: Announcing the SNIA CDMI Conformance Program - Cypress Room				
7:15 - 8:15	Birds-of-a-Feather Meeting: Introduction to SNIA's Solid State Storage Initiative Programs - Stevens Creek Room				

THURSDAY AGENDA

7:30 - 8:45	Registration Open - Continental Breakfast and Networking (Mezzanine)				
8:45 - 9:00	**Introduction to the Day and Housekeeping Announcements** Molly Rector, Vice-Chairman, SNIA Board of Directors				
9:00 - 9:45	**Disrupting the Storage Industry? - How Small Startups Can Change the Traditional, Stuffy Storage Landscape** Adrian Cockcroft, Technology Fellow, Battery Ventures				
9:45 - 10:25	**The Role of High Performance Storage in Accelerating Applications** Andy Walls, CTO and Chief Architect for Flash Systems, IBM				
10:25 - 10:40	Break (Mezzanine)				
10:40 - 11:20	**Customer Case Study: Multi-Terabyte Database Backup and Restores Over High Speed** Marty Stogsdill, Architect, Discover Financial Services				
11:20 - 12:00	**Scale-out Object Store for PB/hr Backups and Long Term Digital Archive** Gideon Senderov, Director, Advanced Storage, NEC				
12:00 - 1:00	Lunch (Terra Courtyard)				
	Security (Lafayette)	**Software Defined Storage (Cypress)**	**Storage Management and Performance (Stevens Creek)**	**Analytics and Big Data (San Tomas / Lawrence)**	**Storage Technologies (Winchester)**
1:10 - 1:55	**Interoperable Key Management for Storage** Subhash Sankuratripati Technical Director, NetApp	**The Meaning and Value of Software Defined Storage** Doug Voigt Distinguished Technologist, HP, and SNIA Technical Council	**Automated Methodology for Storage Consolidation & Optimization for Large Infrastructures** Alok Jain Founder and CEO, Interscape Technologies Inc. Ram Ayyakad COO and Biz Dev, Interscape Technologies Inc.	**Hadoop-based Open Source eDiscovery** Sujee Maniyam Co-Founder and Principal, Elephant Scale	**SNIA Tutorial: What's Your Shape? 5 Steps to Understanding Your Virtual Workload** Irfan Ahmad CTO and Co-Founder, CloudPhysics
2:05 - 2:50	**SNIA Tutorial: Practical Secure Storage: A Vendor Agnostic Overview** Walt Hubis Storage Standards Architect, Hubis Technical Associates	**Thinking Outside the Box with Software** Yoram Novick Founder, President and Chief Executive Officer, Maxta, Inc.	**SMI-S and Storage in Your Data Center** Chris Lionetti Reference Architect, NetApp	**Storage Plumbing (San Tomas / Lawrence)** **SNIA Tutorial: SAS: The Fabric for Storage Solutions** Marty Czekalski President, SCSI Trade Association Greg McSorley Vice President, STA	**Transforming IT into an Innovative Strategic** Augie Gonzalez Director of Product Marketing, DataCore Dustin Fennel Vice President and CIO, Mission Community Hospital
2:50 - 3:05	Break (Mezzanine)				
	Security (Lafayette)	**Software Defined Storage (Cypress)**	**Storage Management and Performance (Stevens Creek)**	**Professional Development (San Tomas / Lawrence)**	**Virtualization (Winchester)**
3:05 - 3:50	**SNIA Tutorial: Best Practices for Cloud Security and Privacy** Eric Hibbard Senior Director, Data Networking Technology, Hitachi Data Systems	**Building Multi-Purpose Storage Infrastructure Using a Software-Defined System** Paul Evans Principal Architect, Daystrom Technology Group	**Turning a High-Wire Juggling Act into a Walk in the Park** Lavan Jeeva IT Operations Manager, KIPP Foundation	**SNIA Tutorial: Consumerization of IT - What is Right for Your Organization?** Marty Foltyn President, BitSprings Systems	**How to Achieve Agility and Redundancy in the Hybrid Cloud** Bryan Bond Senior System Admin, eMeter Pat O'Day CTO, Bluelock
4:00 - 4:45	**SNIA Tutorial: Implementing Stored-Data Encryption** Michael Willett Storage Security Strategist, Samsung	**SNIA Tutorial: Software Defined Storage – The New Storage Platform** Anil Vasudeva President & Chief Analyst IMEX Research	**SNIA Tutorial: Performance and Innovation of Storage Advances through SCSI Express** Marty Czekalski President, SCSI Trade Association Greg McSorley Vice President, STA	**SNIA Tutorial: Reaction Management - Trend for All Technology Professionals** David Deming Chief Technologist, Solution Technology	**Flash Hypervisor: The Savior to Storage I/O Bottlenecks?** Bala Narasimhan Director of Products, PernixData
4:45	Sessions Conclude				

Hybrid DRAM Storage System

Jet Storage provides economical, fast, and efficient hybrid storage as it has storage of DRAM and capacity of disks with data persistence of flash SSD.

Jet Storage delivers enterprise hybrid DRAM storage system with industry leading IOPS per cost.

600,000 ~ 800,000 IOPS

JSM: 128GB ~ 512GB

Jet Storage's innovative DRAM based hybrid storage solution provides lightning performance of DRAM with efficiency of high capacity disk without any of the limitations of flash SSD. At the heart of our hybrid storage solution are our patented “Adaptive Cache Solution” and “Jet Storage Module (JSM)”. Our hybrid arrays are much faster than traditional disk arrays and flash based hybrid arrays. JSM also provides the lightning speed RAID over our patented persistent DRAM array.

Jet Storage is ideal for mission critical applications, real time analytics, and MS Exchange and SQL server. Featuring both NAS and SAN connectivity, Jet Storage does not exhibit flash based issues such as write amplification, performance degradation for ‘write’ intensive transactions, and high failure rates. Jet Storage supports block based protocols, file based protocol, large number of snapshots, de-duplication and replication.

With industry leading patented technology, Jet Storage provides high sequential and random IOPS, which puts it far ahead of global competitors. It is well suited for high performance cloud, VDI, bioinformatics, entertainment, and database transactional environment, where large amount of data is processed randomly.

Contact

Info@jetstorage.net
www.jetstorage.net
(Phone) 408-692-5579

WEDNESDAY

Enabling Data Infrastructure Return on Innovation – The Other ROI - Greg Schulz, Founder of StorageIO and Analyst, Consultant, Educator, and Author

There is no such thing as an information recession however there are economic realities that require smart investments and innovation to move, process, protect, preserve and serve data for longer periods. After all, both people and data are getting larger and living longer. Data Infrastructures consists of servers, storage I/O networking hardware software and services spanning physical, virtual and cloud along with associated techniques, best practices, polices and people skillsets. This session looks at current and emerging trends, technologies, tools as well as challenges along with what to do to bridge the gap between barriers and opportunities from an IT customer and vendor perspective. In addition we will address popular industry buzzword bingo themes, the unknown and known, doing things the old way vs. new ways, cutting costs vs. removing cost, return on investment vs. return on innovation and technolutionary, the meritage of technology revolution and evolution.

Architecting with Flash for Web-Scale Enterprise Storage - Andy Warfield, CTO / Co-Founder, Coho Data, and CS Professor, University of British Columbia

The cost of flash has dropped dramatically in the past couple years and many organizations are excited at how this high performance storage medium can be leveraged in their environments. In this session, University of British Columbia CS Professor and Founder of Coho Data, Andrew Warfield, will provide a primer on the challenges of architecting with flash in today's storage architectures and concepts that can be borrowed from web-scale IT. He will present test results from research his team has done on how performance can vary significantly depending on where flash is placed in a storage architecture and the amount of CPU and network bandwidth that is available, as well as explain what the key considerations IT organizations must keep in mind as they think about implementing different solutions available on the market or building their own solution from commodity hardware.

Software Defined Storage @ Microsoft - Siddhartha Roy, Group Program Manager, File Server and Clustering, Cloud and Enterprise Division, Microsoft Corporation

The storage industry is going through strategic tectonic shifts fostering renewed innovation! Hear about Storage @ Microsoft – Public Cloud, Private Cloud, and Hybrid Cloud storage. We will walk through Microsoft's Software Defined Storage journey – how we got started, what our customers are telling us, where we are now, and how cloud cost and scale inflection points are shaping the journey. We will delve into how Microsoft is channeling learnings, from hosting some of the largest data centers in the planet, towards private cloud storage solutions for service providers and enterprises.

Simplify Branch Office Recovery and Disaster Avoidance with Riverbed - Rob Whiteley, VP, Product Marketing, Riverbed

Riverbed delivers a new approach to branch storage consolidation enabling organizations to replace distributed branch backup processes with a datacenter-centric approach where advanced EMC storage, snapshots, and backup capabilities can be used. Riverbed enables instant recovery of servers and data from the datacenter, simplifying disaster avoidance processes and dramatically reducing disaster recovery times.

THURSDAY

Disrupting the Storage Industry? - How Small Startups Can Change the Traditional, Stuffy Storage Landscape

Adrian Cockcroft, Technology Fellow, Battery Ventures

Two trends are disrupting the storage industry. One is the expected march of technology, as commoditization turns high end features into basic needs, and turns exclusive custom hardware into open source software. The other is organizational, using DevOps to increase the speed of development silos are broken down, automation replaces manual operations, and the storage admin is replaced by an API call. Solid State Disk has moved from attached storage, to the IO bus, and is now about to appear directly on the memory bus. Highly available replication of that storage has moved out of the storage domain, using open source NoSQL data stores and distributed filesystems to create clouds based on Redundant Arrays of Independent Nodes (RAIN).

The Role of High Performance Storage in Accelerating Applications - Andy Walls, CTO and Chief Architect for Flash Systems, IBM

It is well known that storage bandwidth has not been able to keep up with the tremendous increase in CPU speed, Memory throughput and CPU IO throughput. That has been changing of late as such technologies as Flash have made dramatic increases in throughput and IOPS and have done so in smaller densities and with less power dissipated then HDDs. This talk will explore the state of the art of high performance storage including direct attach as well as SAN attached and how such storage is a powerful accelerator for many types of applications like analytics. The state of the art in endurance and performance with such technology will also be discussed.

Customer Case Study: Multi-Terabyte Database Backup and Restores Over High Speed - Marty Stogsdill, Architect, Discover Financial Services

A customer case study providing perspective on Discover Financial Services (DFS) OLTP database backup and restore evolution from a "traditional" enterprise tired storage model to leveraging dedicated low latency networks. DFS has evolved to an OLTP database backup and restore environment that went from days to hours and hours to minutes for 24x7x365 mission critical production environments. The increased resiliency has provided DFS with the ability to keep more data online in OLTP and decision support systems allowing for improved customer experiences and the ability to bring new products to market.

Scale-out Object Store for PB/hr Backups and Long Term Digital Archive - Gideon Senderov, Director, Advanced Storage, NEC

The primary challenge facing enterprise deployments is how to effectively scale a capacity optimized solution across massive amounts of long lived data for data protection and disaster recovery. Scale-out object store architectures enable massive modular scalability to support long-term data retention, while maintaining simple shared access and maximum utilization via standard front-end interfaces. Underlying object store architectures enable advanced features such as scalable efficient inline global data deduplication, dynamic provisioning and automatic data distribution across multi-generation grid, flexible data resiliency with erasure coding and multi-node data distribution, and distributed background task workload. This session will review how such as architecture is used within NEC's HYDRAstor scale-out storage system to enable extreme scale-out throughput and capacity for backup and archive for long-term data, while maintaining a simple management paradigm with a self healing distributed resilient system.

Breakout descriptions are listed chronologically.

TUESDAY SESSIONS

Cloud Storage Track

Tuesday, 8:30 - 9:15

PRIVATE CLOUD STORAGE FOR DIFFERENT ENTERPRISE COMPUTE CLOUDS

Enterprise users are building clouds with VMware and Citrix Cloud Platform, neither of which has a defacto storage platform. OpenStack is used to build clouds and does have an object storage at its core, but often the best answer to any cloud architecture is to use the best combination of technologies for the specific environment. This session will cover the process of selecting the right storage for different private compute clouds, focusing on OpenStack Object Storage and contrasting with other vendor specific offerings. Attendees will learn how object storage can be integrated with any compute cloud technology, as well as get more background on software defined storage, and leveraging open source software and standard hardware to build private cloud storage.

Tuesday, 9:25 - 10:10

THE CLOUD HYBRID "HOMERUN" – LIFE BEYOND THE HYPE

Do not be scared of clouds, be prepared, learning about options, identify concerns so that they can be addressed. Hybrid clouds provide an approach to bridge the gap, enable a phased transformation or deployment, or simply allowing you to have a cloud your way for your requirements. This conversations looks at hybrid clouds, technology, product, service as well as management paradigm are the homerun for adapting to and enabling organization needs. After all, technology should work for an organization vs. the organization working for the technology.

Tuesday, 10:25 - 11:10

SNIA TUTORIAL: DELIVERING A CLOUD ARCHITECTURE

The emphasis in the design and implementation of cloud architectures is often on the virtualization and network aspects, and storage is often not considered in the overall design until late (often too late) in the implementation. This session will be an overview on developing & delivering a cloud architecture with a focus on getting the storage aspects correctly specified and defined. A commercial implementation of such a system will be presented as a case study on the benefits of treating storage as an important part of the process of delivering a practical cloud architecture.

Tuesday, 11:20 - 12:05

LEVERAGING THE CLOUD FOR SCALABLE AND SIMPLIFIED DATA STORAGE

More and more organizations today are leveraging the public cloud for its infinite scale and economic benefits, but how can you leverage the key attributes of the cloud while still maintaining the control and performance traditional storage allows. The answer? A cloud gateway. Whether you call it a cloud gateway or cloud-integrated storage, if your organization is looking to reduce storage costs, simplify management, or improve service levels to end users, join us as we discuss the growing trend among enterprises today.

Tuesday, 2:00 - 2:45

SNIA TUTORIAL: REACHING TO THE CLOUD

To do more with less in today's increasingly demanding IT environment, administrators need to reach higher rather than broader. It's time to reach to the cloud. A growing cloud infrastructure now gives organizations the power to back up, store and secure an ever-expanding volume of data and applications within tightly-constrained IT resources and budgets.

In this session, Subo Guha, Unitrends, will discuss why a hybrid cloud model is the best option for organizations working with a cloud-based environment. Using the hybrid cloud approach, IT administrators get the best of both worlds – the speed, reliability and security of onsite backup and the intelligent replication capabilities of the cloud – ensuring their ability to consistently meet even the most rigorous SLAs, RPOs and RTOs.

Tuesday, 2:55 - 3:40

CHOOSING A FILE SYNC AND SHARE SOLUTION

Today, consumers have many choices for electronic file sharing, file synchronization, and collaboration. The ease of use and availability of these products have made their adoption for personal use nearly ubiquitous. However, while file synchronization and sharing products can facilitate efficiency and productivity in the workplace, the use of consumer grade and/or unauthorized versions of these products at work may introduce business challenges in the areas of data security, regulatory compliance, data governance, and e-discovery (legal).

The goal of this presentation is to show why and how one company selected a file synchronization and sharing solution, so that other companies can use the information from this example in their own selection of a file sync & share product.

Tuesday, 3:55 - 4:40

SNIA TUTORIAL: COMBINING SNIA CLOUD, TAPE AND CONTAINER FORMAT TECHNOLOGIES FOR LONG TERM RETENTION

Both cloud and tape technologies are viable alternatives for storage of big data and SNIA supports their standardization. The SNIA Cloud Data Management Interface (CDMI) provides a standardized interface to create, retrieve, update, and delete objects in a cloud. The SNIA Linear Tape File System (LTFS) takes advantage of a new generation of tape hardware to provide efficient access to tape using standard, familiar system tools and interfaces. In addition, the SNIA Self-contained Information Retention Format (SIRF) defines a storage container for long term retention that will enable future applications to interpret stored data regardless of the application that originally produced it. We'll present advantages and challenges in long term retention of big data, as well as initial work on how to combine SIRF with LTFS and SIRF with CDMI to address some of those challenges. SIRF for the cloud will also be examined in the European Union integrated research project ForgetIT

Tuesday, 4:50 - 5:35

DATABASE-AS-A-SERVICE VS. DO-IT-YOURSELF MYSQL IN THE CLOUD

When you're looking to move your website, app, or your whole business from your traditional hosting provider, one of the first challenges that you're faced with is whether or not to run your own MySQL database and MySQL-powered infrastructure (the DYI approach) vs. using a cloud database service to run it for you. The ability to run 80-100% of your app using readily available services to reduce time, resources, and cost vs. trying to conquer the world by yourself and "roll your own" components, including your database, is certainly very appealing. This session will look at the pros and cons of working with a cloud database-as-a-service.

Storage Architecture Track

Tuesday, 8:30 AM – 9:15 AM

STORING 85 PETABYTES OF CLOUD DATA WITHOUT GOING BROKE

One way to store data, especially bulk data, is to outsource the storage to some else. For 85 Petabytes, that would cost at least a couple of million dollars a month with a service such as Amazon S3. On the other end of the spectrum you can build your storage, deploy it to a co-location facility and then staff the operation and management of everything. In this session we'll compare these two alternatives by covering the challenges and benefits of rolling your own data storage versus outsourcing the entire effort. The insights presented are based on real world observations and decisions made in the process growing a data center from 40 Terabytes to 85 Petabytes over a five year period.

Tuesday, 9:25 - 10:10

EXTENDING THE BENEFITS OF HDD: BREAKING DOWN WALLS ALL STORAGE VENDORS FACE

This is a presentation that describes extending the benefits of HDD and breaking the walls that every storage vendor struggles with in the areas of disk replacements, RAID rebuilds, and performance drop-off at greater than 40% used capacity.

Tuesday, 10:25 - 11:10

PROJECT FERMI - A HIGHLY AVAILABLE NAS GATEWAY BUILT FROM OPEN SOURCE SOFTWARE

The presentation describes the components and implementation of a highly available NAS gateway built from open source software. Using industry standard hardware and open source OS and HA clustering tools AOL has built a replacement for high cost commercial NAS systems. The performance and availability characteristics approach the capabilities of high cost commercial systems for a fraction of the cost.

Tuesday, 11:20 - 12:05

A NEW STRATEGY FOR DATA MANAGEMENT IN A TIME OF HYPER CHANGE

Major changes in data management strategy and implementation are needed in order to keep pace with exploding data volumes and to optimize storage economics. The same old way of managing data will not allow organizations to leverage the innovation, diversity and intelligence in the next generation storage infrastructure and data itself. Find out what the next generation data management strategy and implementation can be to significantly lower costs, improve availability and extract greater value even in the face of exponential increases

Tuesday, 2:00 - 2:45

SNIA TUTORIAL: RIGHTSIZING TIERED STORAGE SYSTEMS

A multi-tiered storage system with automated data movement provides the best solution for managing the data explosion IT is experiencing. While tiered storage strategies can cut enterprise data storage costs and address storage capacity issues, rightsizing the storage tiers is a difficult exercise in many environments.

The purpose of this lecture is to go over the commonly used tiering estimating algorithms and methods (usually based on IO skew calculation) and explain their shortcomings in different workload contexts (cyclical data workloads specific to telecom industry, high performance workloads, etc.), as well as propose a new storage tiering estimation methods which attempts to solve these issues and provide more accurate estimates.

Tuesday, 2:55 - 3:40

THE ROOT CAUSE OF UNSTRUCTURED DATA PROBLEM IS NOT WHAT YOU THINK

AIS, through its Expedite product, will show the root cause of the unstructured data problems lie with its very definition. What business users think of as unstructured data is not a "pile-of-files" but information assets, an asset being a set of files, metadata, logs, emails, people, and rules that collectively, constitute an entity meaningful to the business. Users work with contracts, quotes, invoices, engineering reports, etc., not strings of bytes.

By layering information asset management over the existing storage infrastructure, this new-found knowledge dramatically changes the way storage functions are funded, implemented, configured, triggered, integrated, and valued. Currently impossible functions turn out to be relatively straightforward with this new view of unstructured data.

Tuesday, 3:55 - 4:40

SNIA TUTORIAL: WHAT IS OLD IS NEW AGAIN: STORAGE TIERING

Although physical tiering of storage has been a common practice for decades, new interest in automated tiering has arisen due to increased availability of techniques that automatically promote "hot" data to high performance storage tiers – and demote "stale" data or compliance data to low-cost tiers.

Tuesday, 4:50 - 5:35

WHO SAYS DATA CENTER STORAGE HAS TO BE INEFFICIENT?

Data center storage is evolving in ways no one could have imagined just a few years back. The storage subsystems are faster and larger, the interconnections are more sophisticated and flexible, and expectations of cloud capability are reaching near-mythic levels. Trouble is, this has been accomplished with a largely brute-force approach – exacting a penalty in terms of cost, space, power distribution, and cooling. Fortunately, new developments in data center architectures are paving the way for far more efficient storage.

This session will put the spotlight on several important industry trends that allow the data center to provide high performance and advanced storage at substantially lower costs and power than what had been the status quo. mented with a high-speed fabric built from PCI Express switching, which can eliminate most of the intermediate bridging devices and additional switch fabrics that contribute to the unnecessary cost and power.

Solid State Storage Track

Tuesday, 8:30 - 9:15

SNIA TUTORIAL: SHINING LIGHT ON THE DIMM SLOT

As data sets continuing to grow, IT managers have begun seeking out new ways for flash to be deployed in the data center in order to take greater advantage of the performance and latency benefits. With traditional interfaces such as SAS, SATA and PCIe already taking advantage of flash and deployed, the focus has shifted to non-traditional interfaces in order to further penetrate current infrastructure. This has led to the emergence of new solutions that leverage the DDR3 interface, utilizing existing DIMM slots in server hardware.

Tuesday, 9:25 - 10:10

STORAGE SPEED AND HUMAN BEHAVIOR

People want instant gratification. From news on Twitter, Google searches and McDonald's cheeseburgers, humans are becoming conditioned to the speed of now. But how important is it for business? When considering your datacenter how much performance really has an impact? What are you willing to pay for in terms of performance? What kinds of behaviors change when things go from fast, to really fast? And is fast ever going to be fast enough? Eric Herzog of Violin Memory will discuss the questions above.

Tuesday, 10:25 - 11:10

SSD SYNTHETIC ENTERPRISE APPLICATION WORKLOADS

Presentation of Enterprise class synthetic workloads used in SSD performance analysis and product qualification. Examination of a wide range of workloads typically seen in a variety of common Enterprise applications including, but not limited to, OLTP, SQL server, database, VOD, digital imaging, VDI and more. Survey of advanced tests, analysis of response time distributions and operating demand intensity and performance relative to application response time ceilings.

Tuesday, 11:20 - 12:05

SNIA TUTORIAL: BENEFITS OF FLASH IN ENTERPRISE STORAGE

Targeted primarily at an IT audience, this presentation, an update to a populate SNIA Tutorial, provides an overview of the impact of NAND Flash on Enterprise storage systems. After describing the architectural impact, the session goes on to describe where Flash fits in today's Enterprise Storage solutions, with descriptions of specific use cases. Finally the presentation speculates on what the future will bring.

Tuesday, 2:00 - 2:45

THE NEW FLASH ARCHITECTURE ... WAIT ... THERE'S A NEW ONE ALREADY?

When flash (solid state) arrived for storage there was a lot of talk and VC investment around the All Flash Array or AFA. But flash offers many choices and not all are popular. Beginning with the current deployments based on hundreds of interviews with storage professionals, this session will show how deployments start slowly at first for specific purposes, such as improvement of specific application performance. As the magic line is passed of cost vs. benefit we may see the replacement of disk capacity with solid state. Each of the solid state options, including hybrid arrays, solid state in servers, and all-flash array, has different benefits and costs associated with it. Is 2014 the time to begin? Where and how are storage professionals applying this technology to justify the investments?

Tuesday, 2:55 - 3:40

PAVING THE WAY TO THE NON-VOLATILE MEMORY FRONTIER

Flash technology has fueled an explosion of new storage solutions and is now opening up new non-volatile memory frontiers. The convergence of storage and memory has profound implications for systems and applications that will drive change for years to come. This session describes how new technologies will impact storage and memory solutions and what is being done to pave the way. We will establish the context for, and the significance of ongoing work by SNIA's NVM Programming Technical Working Group.

Tuesday, 3:55 - 4:40

UTILIZING ULTRA-LOW LATENCY WITHIN ENTERPRISE ARCHITECTURES

Gathering real-time information has become more important now than ever for enterprises if they are to compete. To provide real-time data access today's applications are forced to overcome a new bottleneck – storage – leading data center managers to seek better response times. However, the question remains, how can storage be re-imagined to deliver even lower latency and higher performance?

Tuesday, 4:50 - 5:35

FLASH AT THE PRICE OF DISK

Virtualization and the explosion of I/O-intensive applications for big data analytics and database transactions increase the demand for higher levels of storage performance while the growth of unstructured data drives the need for capacity-optimized storage. This session will explore how to balance fast performance, capacity and cost with a scale-out architecture approach to enable organizations to adjust their infrastructure cost-effectively with new technology, like flash and tiering to address growing workload and capacity needs, rather than taking a rip-and-replace approach. We will discuss how to achieve flash performance at the price of an all-disk solution and the benefits of tiering across SLC, MLC and HDDs while increasing capacity with hybrid arrays that offer a lower price point per/GB than all-flash arrays.

Cover Your Assets (CYA) Track

Tuesday, 8:30 - 9:15

VIRTUALIZATION DRIVES NEW APPROACHES TO BACKUP

Backup redesign was cited as the number two storage project two years in a row in 451 Research Storage studies, signaling changing enterprise needs in backup requirements. Traditional backup software is a dominating force in data protection, but as the rate of data growth accelerates and virtualization streamlines operations, stakeholders, whether enterprises or vendors, have to support the latest hypervisor features to stay competitive. Based on hundreds of interviews with storage professionals, I will report where enterprises are successfully redesigning backup.

Tuesday, 9:25 - 10:10

SNIA TUTORIAL: PROTECTING DATA IN THE "BIG DATA" WORLD

Data growth is in an explosive state, and these "Big Data" repositories need to be protected. In addition, new regulations are mandating longer data retention, and the job of protecting these ever-growing data repositories is becoming even more daunting. This presentation will outline the challenges, methodologies, and best practices to protect the massive scale "Big Data" repositories.

Tuesday, 10:25 - 11:10

NEW CHALLENGES - NEW SOLUTIONS WITH LTO-6 TECHNOLOGY AND LTFS

The changing dynamics of data availability to end users is creating new challenges for data center and IT managers. End users are demanding that data of any type of any age be available through a standard file systems interface. A challenge for Data managers is to balance the file systems availability with the cost of storing the data of which up to 90% could be unaccessed or 'cold' data. Studies have found that up to 95% of data not accessed in 90 days will never be accessed again. Learn best practices for managing file system access to data while lowering total costs of ownership, maintaining data security with tape drive encryption, how to utilize disk and tape to address objectives, and LTO-6 technology with Linear Tape File System.

Tuesday, 11:20 - 12:05

SNIA TUTORIAL: DATA PROTECTION IN TRANSITION TO THE CLOUD

Organizations of all types and sizes are moving many, but usually not all, applications and data to public and private clouds, and the hybrid environments thus created are an increasing challenge for those responsible for data protection. There are many new services available in the cloud for backup and disaster recovery that can help, but IT managers want to avoid setting up separate data protection procedures for each of the parts of their hybrid environments.

Tuesday, 2:00 - 2:45

REDUCING BACKUP AND INCREASING PERFORMANCE WHEN DATA REACHES THE TERABYTE RANGE

Grand River Conservation Authority [GRCA] is one of the largest watershed management agencies in Canada, managing water and natural resources for nearly 40 municipalities and close to a million residents. When databases reached the terabyte range, the organization experienced difficulty meeting required 24-hour backup windows. GRCA had been through four purchasing cycles, including a disk-to-tape backup and a disk-to-disk-to-tape solution and still couldn't meet designated backup windows. After calculating a deficit of over $400,000 in productivity if one month's data was lost, they knew it was time to solve their backup and recovery problems, leading them to deploy a flash-optimized storage solution which allowed GRCA to reduce RPO from 1 day to 1 hour, but also reduce backup windows, eliminate tapes and store 6+ years of file shares.

Tuesday, 2:55 - 3:40

VENDOR NEUTRAL ARCHIVE, THE HOW AND WHY

The expansion of the VNA (Vendor-Neutral-Archive) into the Medical Storage field is expanding way beyond the need of PACS Storage Infrastructure. Clinical Medical storage is a very fast growing need that has several long term problems which involve the depth of the solution, but also have a horizontal need which is spanning way beyond the needs of an Imaging Department (Radiology and Cardiology). This presentation will dig into the other "ologies" which will be confronting the I.T. infrastructure and how the use of a VNA can resolve or provide the glue that enables

Tuesday, 3:55 - 4:40

TRUE DATA DISASTER RECOVERY

In this session, you will learn about:

- The top 5 mistakes that IT professionals do which destroys data are rebuilding an array in a degraded state.
- Designing a data storage infrastructure which if fails provides third party data recovery companies the ability to quickly recover data.
- How to deploy redundancy systems at a core level with the assurance data replication is safe when a disaster strikes (specifically what read and write operations should stop when a storage medium fails).
- How IT professionals should deal with a true data disaster recovery situation.

Tuesday, 4:50 - 5:35

PANEL: BEST PRACTICES IN THE MANAGEMENT OF UNSTRUCTURED DATA

In order to thrive in the new world of data storage, organizations must look beyond traditional storage solutions. Big Data, cloud, back-up, data preservation, compliance, data center environments and the fast-paced growth of unstructured data are all driving the need for more advanced storage capabilities. This session, consisting of Molly Rector, DataDirect Networks (moderator); and David Cerf, Crossroads; Philippe Nicolas, Scality; and Simon Watkins, HP (panelists), will showcase end user case studies of active archive implementations and strategies. An active archive solution delivers a new level of capability that allows companies to store and easily retrieve data in ways that were not previously possible outside of HPC and Broadcast environments. Panel members will openly discuss how active archives enable straight-from-the- desktop access to files stored at any tier for rapid data access. These best practices in storage management will certainly deliver significant efficiency and cost savings.

Storage Technologies Track

Tuesday, 8:30 - 9:15

EMERGING STORAGE AND MEMORY TECHNOLOGIES

While Flash and DRAM devices based on silicon as well as magnetic hard disk drives will continue to be the dominant storage and memory technologies in 2014, this trend is expected to be impacted through 2016 and beyond by new and emerging device structures. These advanced technologies are based on new mechanisms in combination with existing silicon cells to create high density, lower cost products which have an additional property of non volatility. These structures include MRAM, RRAM, FRAM, PRAM and others manufactured by new techniques and equipment. The promise of terabyte devices appearing in the near future to replace existing memory and storage products is based on a on a continued improvement in processing techniques which drive a competitive price per GB for large server units as well as PC's and consumer based products.

Tuesday, 9:25 - 10:10

STORAGE SYSTEMS CAN NOW GET ENERGY STAR LABELS AND WHY YOU SHOULD CARE

We all know about ENERGY STAR labels on refrigerators and other household appliances. In an effort to drive energy efficiency in data centers, the EPA announced its ENERGY STAR Data Center Storage program in December 2013 that allows storage systems to get ENERGY STAR labels. This program uses the taxonomies and test methods described in the SNIA Emerald Power Efficiency Measurement specification which is part of the SNIA Green Storage Initiative. In this session, Dennis Martin will discuss the similarities and differences in power supplies used in computers you build yourself and in data center storage equipment, 80PLUS ratings, and why it is more efficient to run your storage systems at 230v or 240v rather than 115v or 120v. Dennis will share his experiences running the EPA ENERGY STAR Data Center Storage tests for storage systems and why vendors want to get approved.

Tuesday, 10:25 - 11:10

THE INTERNET OF THINGS IS A HUGE OPPORTUNITY FOR OBJECT STORAGE

The storage industry is going through a big paradigm shift that is caused by drastic changes in how we generate and how we consume data. This shift is also referred to as The Internet of Things, a concept that was first predicted over a decade ago, but which is happening now more than ever. As a result, we also have to drastically change how we store and access data: the market needs simple, massive, online storage pools that can be accessed from anywhere and anytime. Object Storage meets these needs and is currently a hot topic as it creates opportunities for new revenue streams.

Tuesday, 11:20 - 12:05

BUILDING OPEN SOURCE STORAGE PRODUCTS WITH CEPH

Ceph is an open-source, massively scalable, software-defined storage system which provides object, block and file system storage in a single platform. As well as providing a snapshot of the current Ceph project - its roadmap, community and ecosystem, Neil will explore both the challenges of bringing open source storage technology to the enterprise and the options for using Ceph as a foundation for product innovation.

Tuesday, 2:00 - 2:45

THE CURIOUS CASE OF DATABASE DEDUPLICATION

In the recent years, deduplication technologies have become increasingly popular in the modern datacenter. Whether it be purpose built backup appliances that use deduplication to reduce the footprint of backups, or be the all flash arrays that utilize deduplication to get better storage efficiency out of flash storage. Though all deduplication technologies are not created equal but they do promise significant reduction in footprint of the data actually stored on media. The amount of data reduction not only depends on the deduplication technology but also the type of data that is being duplicated. While majority of the storage appliances advertise huge storage savings when it comes file system data, the duplication ratios for data stored in relational databases is significantly lower. This session makes an attempt is analyzing the reasons behind low deduplication ratios for relational databases and also contrast and compares various deduplication techniques in the context of relational databases.

Tuesday, 2:55 - 3:40

SNIA TUTORIAL: MASSIVELY SCALABLE FILE STORAGE

Internet changed the world and continues to revolutionize how people are connected, exchange data and do business. This radical change is one of the cause of the rapid explosion of data volume that required a new data storage approach and design. One of the common element is that unstructured data rules the IT world. How famous Internet services we all use everyday can support and scale with thousands of new users and hundreds of TB added daily and continue to deliver an enterprise-class SLA ? What are various technologies behind a Cloud Storage service to support hundreds of millions users ? This tutorial covers technologies introduced by famous papers about Google File System and BigTable, Amazon Dynamo or Apache Hadoop. In addition, Parallel, Scale-out, Distributed and P2P approaches with open source and proprietary ones are illustrated as well. This tutorial adds also some key features essential at large scale to help understand and differentiate industry vendors and open source offerings.

Tuesday, 3:55 - 4:40

SNIA TUTORIAL: SMB REMOTE FILE PROTOCOL (INCLUDING SMB 3.0)

The SMB protocol has evolved over time from CIFS to SMB1 to SMB2, with implementations by dozens of vendors including most major Operating Systems and NAS solutions. The SMB 3.0 protocol, announced at the SNIA SDC Conference in September 2011, is expected to have its first commercial implementations by Microsoft, NetApp and EMC by the end of 2012 (and potentially more later). This SNIA Tutorial describes the basic architecture of the SMB protocol and basic operations, including connecting to a share, negotiating a dialect, executing operations and disconnecting from a share. The second part of the talk will cover improvements in the version 2.0 of the protocol, including a reduced command set, support for asynchronous operations, compounding of operations, durable and resilient file handles, file leasing and large MTU support. The final part of the talk covers the latest changes in the SMB 3.0 version, including persistent handles (SMB Transparent Failover), active/active clusters (SMB Scale-Out), multiple connections per sessions (SMB Multichannel), support for RDMA protocols (SMB Direct), snapshot-based backups (VSS for Remote File Shares) opportunistic locking of folders (SMB Directory Leasing), and SMB encryption.

Tuesday, 4:50 - 5:35

SNIA TUTORIAL: PRACTICAL STEPS TO IMPLEMENTING PNFS AND NFSV4.1

Much has been written about pNFS (parallelized NFS) and NFSv41, the latest NFS protocol. But practical examples of how to implement NFSv4.1 and pNFS are fragmentary and incomplete. This presentation will take a step-by-step guide to implementation, with a focus on file systems. From client and server selection and preparation, the tutorial will cover key auxiliary protocols like DNS, LDAP and Kerberos.

WEDNESDAY SESSIONS

Cloud Storage Track

Wednesday, 1:30 - 2:15

RECOVER 2 CLOUD - A COMMON SENSE APPROACH TO DISASTER RECOVERY

Cloud ushers a common sense financial and operational model, through increased scale and scope. However, this significantly increases the risk for IT enterprises. SunGard Availability Services addresses these risks with a clear focus on Disaster Recovery and Business Continuity, that expands beyond x86 virtualizaiton capabilities.

Wednesday, 2:25 - 3:10

KEY CRITERIAS WHEN BUILDING EXASCALE DATA CENTER

With the rapid data growth associated with big data requirements, data centers touch a dead-end and must consider some radical new approaches. In a nutshell, these IT infrastructure must be highly scalable, both in performance and capacity, provide high level of data durability, be geographically deployed with multiple points of presence, able to offer multiple and flexible access methods and finally consider a comprehensive ecosystem. This session presents some modern approaches and illustrate how distributed storage tackles these challenges with several key technologies.

Wednesday, 3:25 - 4:10

S3 API DEEP STORAGE EXTENSIONS FOR HADOOP

A data revolution is occurring as more and more organizations discover new ways to extract value from their data. The desire to collect and analyze information for the sake of improving everything from business decisions to overall life experiences has driven data repositories to grow to sizes that were once inconceivable – driving new requirements for long-term mass storage aimed at increasing efficiency, lowering costs and improving access. Deep Simple Storage Service (DS3) is an open Restful API that extends the Amazon S3 API specification by optimizing data transport and long-term data storage options for large datasets. Existing DS3 clients allow Hadoop clusters to take advantage of low-cost, highly scalable deep storage tiers for long-term data storage purposes. Hadoop clusters can focus on active datasets while being able to readily access data stored within the deep storage environment when necessary. For the first time, Hadoop users can leverage DS3 capabilities to manage growth of massive data analytic projects while keeping costs contained. This session will provide an introduction to DS3, and its integration with Hadoop and different storage mediums to provide cost-effective, long-term data retention.

Wednesday, 4:20 - 5:05

OPENSTACK CLOUD STORAGE

OpenStack is an open source cloud operating system that controls pools of compute, storage, and networking. It is currently being developed by thousands of developers from hundreds of companies across the globe, and is the basis of multiple public and private cloud offerings. In this presentation I will outline the storage aspects of OpenStack including the core projects for block storage (Cinder) and object storage (Swift), as well as the emerging shared file service. It will cover some common configurations and use cases for these technologies, and how they interact with the other parts of OpenStack. The talk will also cover new developments in Cinder and Swift that enable advanced array features, new storage fabrics, new types of drives, and searchable metadata.

Software Defined Storage Track

Wednesday, 1:30 - 2:15

BRING BACK THE FLEXIBILITY OF THE CLOUD WITH SDS AND OPEN SOURCE

The cloud today is a combination of service providers or corporations and the solution stacks they provide. Open Source stacks dominate this space but deploying in a cost effective way is limited with traditional storage arrays. Software defined storage is the solution to the excessive TCO that these providers face. Utilizing the latest unified storage systems for block, file and even object storage, SDS gives providers and corporations the flexibility that is promised in the Cloud of Today.

Wednesday, 2:25 - 3:10

SOFTWARE-DEFINED STORAGE IN WINDOWS SERVER 2012 R2 AND SYSTEM CENTER 2012 R2

Microsoft is enabling strategic shifts to reducing storage costs with Windows Server 2012 R2 software-defined storage. The server operating system and hypervisor (Hyper-V) are “cloud-optimized” for private clouds, hybrid clouds, and public clouds from Hosters and Cloud Service Providers (CSPs), using industry standard servers, networking, and JBOD storage. This allows reduction of capital and operational expenses for storage and availability features. This presentation will focus on the use of SMB3 for file-based storage for server applications, and ‘Storage Spaces’ for cost-effective business critical storage using JBOD. We’ll also touch on other storage-related aspects of the operating system, such as iSCSI Target, deduplication, ODX (offloaded data transfer), Trim/Unmap, file system advances (ReFS), and even NFSv4.1. Finally, System Center Virtual Machine Manager manages all aspects of traditional and software-defined storage based on standards such as SMI-S.

Wednesday, 3:25 - 4:10

DEPLOYING SOFTWARE DEFINED STORAGE FOR THE ENTERPRISE WITH CEPH

Ceph is a fully open source distributed object store, network block device, and file system designed for reliability, performance, and scalability. These services are unified into a single system through Ceph's underlying distributed object store, RADOS. Not only does RADOS abstract the physical storage hardware, its unique software-defined architecture allows it to control the appropriate level of reliability and performance for various storage services. This talk will discuss some approaches that can be used with Ceph to address enterprise storage requirements.

Wednesday, 4:20 - 5:05

SOFTWARE DEFINED STORAGE - STORAGE MANAGEMENT ANALYTICS

The recent emergence of cloud technologies has provided an interesting business model for both customers and cloud providers. However, from a management standpoint, an unsolved solved problem in modern data centers is the workload optimization between storage, network and compute. Future storage management would require provisioning efficiency, cost-effective, secure, easy to use interoperability across different products that have different demands. From a Software-Defined Storage perspective, integrated approach to extend storage services from the storage systems would bring storage performance and costs in lockstep with the scaling of virtual infrastructure. The Software-Defined Data Center will provide automation, agility, flexibility, and efficiency to transform the delivery of IT. This talk provides highlights of OpenStack based IaaS with building blocks for these next generation data centers in an evolutionary way that are software controlled, high performing, highly available, flexible and scalable. Advanced storage management analytics such as i)performance aware storage placement with device models ii) storage resiliency for disaster protection iii) storage tiering are some of the key features highlighted.

Storage Plumbing Track

Wednesday, 1:30 - 2:15

NEXT GENERATION STORAGE NETWORKING FOR NEXT GENERATION DATA CENTERS

With 10GigE gaining popularity in data centers and storage technologies such as 16Gb Fibre Channel beginning to appear, it's time to rethink your storage and network infrastructures. Learn about futures for Ethernet such as 40GbE and 100GbE, 32Gb Fibre Channel, 12Gb SAS and other storage networking technologies. We will touch on some technologies such as USB 3.1 and Thunderbolt 2 that may find their way into datacenters later in 2014. We will also discuss cabling and connectors and which cables NOT to buy for your next datacenter build out.

Wednesday, 2:25 - 3:10

GEN 6 FIBRE CHANNEL IS COMING: WHAT YOU NEED TO KNOW

Beyond doubling throughput to 32Gb, how will Gen 6 Fibre Channel meet future data center requirements for hyper-scale virtualization, solid-state storage technologies and new architectures? The FCIA Speedmap, the technology roadmap that accompanies each new Fibre Channel specification, pinpoints highly attractive market propositions balanced with sound engineering feasibility. Vendors will craft their Gen 6 Fibre Channel solutions confidently using the FCIA Speedmap and deliver a bevy of new security, scalability, reliability and economic benefits. This session provides unique insights into what storage industry users need to know in preparation for Gen 6 Fibre Channel solutions.

Wednesday, 3:25 - 4:10

SNIA TUTORIAL: FORMING STORAGE GRIDS USING ISCSI

So far, storage nodes talk to each other only for the DR or backup/archival purposes. In the case of scale-out NAS, there were some proprietary protocols being used along with the dedicated or distributed metadata server. However, the advent of cloud brought a new requirement on the storage where each of the storage nodes need to talk to each other and bring the hot data near the application across datacenters. The communication between the storage nodes should be standard-based to form a global cloud. This topic covers how storage nodes can communicate with each other on the iSCSI standard protocol to form a storage grid and serve the same set of data across multiple datacenters to application instances.

Wednesday 4:20 - 5:05

SNIA TUTORIAL: USE CASES FOR iSCSI AND FCoE: WHERE EACH MAKES SENSE

For many years, Fibre Channel was the protocol of choice for Storage Area Networks (SANs), but iSCSI and more recently Fibre Channel over Ethernet (FCoE) have challenged Fibre Channel's dominance. Datacenter Ethernet (DCE) is a series of enhancements to the common Ethernet implementation that allow the performance and resiliency required for storage networks. However, all of the improvements to Ethernet to allow FCoE to function provide those same benefits to iSCSI. Since, the hardware for DCE using FCoE and iSCSI is often identical, it comes down to a matter of choosing which protocol to run on the network. This tutorial will delve into these topics and help answer when each protocol may be appropriate to a particular set of requirements.

Analytics and Big Data Track

Wednesday, 1:30 - 2:15

CAN ENTERPRISE STORAGE FIX HADOOP

Survey data shows that at least half if not more of all enterprise data center Hadoop projects are stalled and that only 20% actually get into production. This presentation looks at the problems with Hadoop that enterprise data center administrators encounter and how the storage environment can be used to fix at least some of these problems including up-time, data integrity, long term data retention, and data governance.

Wednesday, 2:25 - 3:10

SNIA TUTORIAL: INTRODUCTION TO ANALYTICS & BIG DATA - HADOOP

This tutorial serves as a foundation for the field of analytics and Big Data, with an emphasis on Hadoop. An overview of current data analysis techniques, the emerging science around Big Data and an overview of Hadoop will be presented. Storage techniques and file system design for the Hadoop File System (HDFS) and implementation tradeoffs will be discussed in detail. This tutorial is a blend of non-technical and introductory-level technical detail, ideal for the novice.

It will give the attendees enough depth on how Hadoop storage works to make more informed decisions as they consider deploying Hadoop infrastructures.

Wednesday, 3:25 - 4:10

TRANSFORMING CLOUD INFRASTRUCTURE TO SUPPORT BIG DATA STORAGE AND WORKFLOWS

As companies have turned to cloud-based services to store, manage and access big data, it has become clear that the cloud's promise of virtually unlimited, on-demand increases in storage, computing, and bandwidth is hindered by a series of technical bottlenecks. This session will discuss the principles of cloud object stores, using the examples of Amazon S3, Microsoft Azure, Akamai NetStorage and OpenStack Swift, and performance benchmarks of their native HTTP I/O. It will share best practices in orchestrating complex, large-scale big data workflows, examine the requirements and challenges of such IT infrastructure designs, and explore how organizations across different industries are using big data in the cloud for ever-greater efficiencies and innovation, including those in the media and entertainment industry and in the field of life sciences.

Wednesday, 4:20 - 5:05

APPLIED STORAGE TECHNOLOGIES FOR PERFORMANCE OPTIMIZED BIG ANALYTICS

Big Analytics is quickly evolving away from batch toward real-time to address high value and time sensitive analytics problems. This is reviews the intersection of big data and applied storage technologies and systems.

Storage Technologies Track

Wednesday, 1:30 - 2:15

SEAGATE KINETIC OPEN STORAGE PLATFORM

As the creation of unstructured data continues to double every two years, the traditional paradigm of a hardware-centric, file-based storage infrastructure becomes increasingly inefficient and costly to manage and maintain for web-scale data centers. What if we could restructure the storage stack from the bottom up and deliver up to a 50% TCO benefit? What if object storage applications could bypass layers of storage hardware and software, connect directly to a drive, and speak to that drive in the application's native language? What if information was an IP address away? It's here. Learn how the Seagate Kinetic Open Storage Platform increases storage performance and density while significantly reducing the costs to deploy and manage a web-scale storage infrastructure.

Performance Track

Wednesday, 2:25 - 3:10

BENCHMARKING THE NEW STORAGE TECHNOLOGIES

Given the frantic pace of storage technology innovation today it is more important than ever to sort out real customer value from marketing hype. "1 million IOPs!" makes a great headline but may have no correlation to the performance that can be achieved under a production workload. This presentation will discuss Storage Performance Council benchmarks and their application to new storage technologies. Subjects will include the value of using complex workloads, solution and component applications, the SPC benchmark disclosure as well as benchmark applications for end users, product architects, planners, development, marketing and sales. Current benchmark results will be used to demonstrate how SPC benchmarks are applied to the latest storage technologies including flash and hybrid configurations. The presentation will conclude with a discussion of future directions for storage benchmarking.

Hot Topics Track

Wednesday, 3:25 - 4:10

HOW TO GET THE MOST OUT OF FLASH DEPLOYMENTS

There are big differences in efficiencies and costs associated with flash deployments, depending on the location and architectures selected. This presentation will review why and how enterprises are deploying flash, which application environments are a good fit and why, and then discuss the storage functionality enterprises should consider when looking to deploy flash. Features will be discussed in general and not with respect to specific vendor implementations

Wednesday, 4:20 - 5:05

THE FUTURE TECHNOLOGY FOR NAND FLASH

The NAND Flash technology has been fueling various data storage systems for the last three decades by advancing the technology and lowering the cost per bit. However, due to down-scaling, the continuous reliability and performance degradation of raw NAND Flash storage is causing major overhead and performance issues at the data storage system-level. Complex algorithms and advanced architectures of memory controllers will not be sufficient to work around the inherent limitations of NAND Flash. In this presentation, we will review NAND and Crossbar ReRAM technology differentiating characteristics and product features, and demonstrates Data Storage system performance calculations utilizing NAND and Crossbar ReRAM.

THURSDAY SESSIONS

Security Track

Thursday, 1:10 - 1:55

INTEROPERABLE KEY MANAGEMENT FOR STORAGE

A standard for interoperable key management exists but how do you ensure interoperability? Practical experience from implementing the OASIS Key Management Interoperability Protocol (KMIP) and from deploying and interoperability testing multiple vendor implementations of KMIP form the basis of this presentation. Also covered is an in-depth analysis of the SNIA SSIF KMIP conformance testing program and its importance in delivering on the interoperable key management product promise for storage products.

Thursday, 2:05 - 2:50

SNIA TUTORIAL: PRACTICAL SECURE STORAGE: A VENDOR AGNOSTIC OVERVIEW

This presentation will explore the fundamental concepts of implementing secure enterprise storage using current technologies. This tutorial will focus on the implementation of a practical secure storage system, independent of any specific vendor implementation or methodology. The high level requirements that drive the implementation of secure storage for the enterprise, including legal issues, key management, current technologies available to the end user, and fiscal considerations will be explored in detail. In addition, actual implementation examples will be provided that illustrate how these requirements are applied to actual systems implementations.

Thursday, 3:05 - 3:50

SNIA TUTORIAL: BEST PRACTICES FOR CLOUD SECURITY AND PRIVACY

As organizations embrace various cloud computing offerings it is important to address security and privacy as part of good governance, risk management and due diligence. Failure to adequately handle these requirements can place the organization at significant risk for not meeting compliance obligations and exposing sensitive data to possible data breaches. Fortunately, ISO/IEC, ITU-T and the Cloud Security Alliance (CSA) have been busy developing standards and guidance in these areas for cloud computing, and these materials can be used as a starting point for what some believe is a make-or-break aspect of cloud computing.

This session provides an introduction to cloud computing security concepts and issues as well as identifying key guidance and emerging standards. Specific CSA materials are identified and discussed to help address common issues. The session concludes by providing a security review of the emerging ISO/IEC and ITU-T standards in the cloud space.

Thursday, 4:00 - 4:45

SNIA TUTORIAL: IMPLEMENTING STORED-DATA ENCRYPTION

Data security: top priority re:security breaches, punitive costs. Combined with litigation risks and compliance issues, companies face many products claiming to protect data-at-rest. The storage industry has standardized/deployed technologies to secure stored-data. This tutorial will highlight drive-level self-encryption technology that provides secure foundation and compare with other methods: host-based to controller-based. Self-encryption will be compared to software-based encryption.

Software Defined Storage Track

Thursday, 1:10 - 1:55

THE MEANING AND VALUE OF SOFTWARE DEFINED STORAGE

Software defined storage has emerged as an important concept in storage solutions and management. However, the essential characteristics of software defined storage have been subject to interpretation. This session defines the elements that differentiate software defined storage solutions in a way that enables the industry to rally around their core value. A model of software defined storage infrastructure is described in a way that highlights the roles of virtualization and management in software defined storage solutions.

Thursday, 2:05 - 2:50

THINKING OUTSIDE THE BOX WITH SOFTWARE

What if a user could re-architect his storage infrastructure to eliminate storage management and storage arrays altogether? Maxta would like to present ideas on how implementing a storage-defined software platform that integrates and delivers compute and storage power on the same pool of commodity, off-the-shelf hardware is the solution. Storage looks like layered software, running in virtual machines on pools of industry-standard servers. Pooling and sharing all resources – CPU, memory, capacity – delivers resource and operational efficiency, since there is only one abstracted system to manage versus isolated physical systems. The savings and simplification of this new model, plus OPEX and CAPEX is compelling.

Thursday, 3:05 - 3:50

BUILDING MULTI-PURPOSE STORAGE INFRASTRUCTURE USING A SOFTWARE-DEFINED SYSTEM

Multiple technologies are converging to make the automated deployment of infrastructure faster, easier, and more reliable, but gaps in communication remain between Applications, the Data Sets, and the Infrastructure itself that prevent the formation of an optimal System. The Software-Defined Systems model seeks to bridge those gaps, and new advances in SDSys allow for the visual design and deployment of a variety of advanced storage infrastructure. This paper will discuss the SDSys model, the communications, and some sample deployments that include a Reliable Archive, 4K Content Review, and Scientific Analytics - all using the same infrastructure building blocks.

Thursday, 4:00 - 4:55

SNIA TUTORIAL: SOFTWARE DEFINED STORAGE – THE NEW STORAGE PLATFORM

The runaway success of Virtualization lay in software driven provisioning the pooled resources to optimally meet the workload requirements for an efficient data center. Software defined Datacenter takes the next step of driving storage services of data protection and storage efficiencies techniques such as encryption, Compression, Snaphots, Deduplication, Auto-tiering etc. to become an efficiently integrated and dynamically active system and not merely a passive keeper of data.

Storage Management and Performance Track

Thursday, 1:10 - 1:55

AUTOMATED METHODOLOGY FOR STORAGE CONSOLIDATION & OPTIMIZATION FOR LARGE INFRASTRUCTURES

The presentation will provide a strategy and a automated methodology for Data Center Storage Optimization and Consolidation from Performance, Capacity & Cost perspective for a large multi-vendor multi-tier infrastructure. This methodology shows how to leverage existing OEM tools in a highly efficient and automated manner to extract the data, summarize & aggregate data and then model for a desired target storage configuration. This multi-step automated process has already been implemented successfully in a commercially available tool. This strategy has been used multiple times for up to 30 PetaByte environments.

Thursday, 2:05 - 2:50

SMI-S AND STORAGE IN YOUR DATA CENTER

SMI-S is the standards-based way to Expose and modify Storage directly to clients; Discover and control RAID groups and Primordial disks; Configure Thin Provisioning, Initiator Groups and Mappings and File Shares. Best of all, all of these activities are cross-vendor and incorporated end to end from the host through the switching infrastructure to the controllers and down to the storage devices

Thursday, 3:05 - 3:50

TURNING A HIGH-WIRE JUGGLING ACT INTO A WALK IN THE PARK

Best Practices for Simple, Effective Storage Management. When your responsibilities as a hands-on IT professional span multiple layers of data center infrastructure and critical applications, the last thing you need is to be constantly tied up in the often precarious act of manual storage performance, capacity and data protection management. Storage is undoubtedly the most critical layer of infrastructure for today's data center workloads,

such as VDI environments, and with the right storage solution, sizing, deployment, management, scaling and disaster recovery should be easily handled.

Thursday, 4:00 - 4:45

SNIA TUTORIAL: PERFORMANCE AND INNOVATION OF STORAGE ADVANCES THROUGH SCSI EXPRESS

The SCSI Trade Association (STA) is spearheading the SCSI Express initiative. SCSI Express represents the natural evolution of enterprise storage technology building upon decades of customer and industry experience. SCSI Express is based on two of the highest volume and widely deployed, interoperable technologies in the world – SCSI and PCI Express. These two technologies enable unprecedented performance gains while maintaining the enterprise storage experience. STA will present an in-depth overview of SCSI Express, including what it is, potential markets, where it is being developed, why it is important to the enterprise computing platform, how it is implemented, and the current status and timeline.

Analytics and Big Data Track

Thursday, 1:10 - 1:55

HADOOP-BASED OPEN SOURCE EDISCOVERY

The task of E-discovery is to preserve, analyze, and review the business documents (such as emails and Word documents) that may have legal ramifications. As such, E-discovery is uniquely positioned to be both a reasonably generic search application, and to provide specific benefits to the legal departments of corporations and to law firms.

Storage Plumbing Track

Thursday, 2:05 - 2:50

SNIA TUTORIAL: SAS: THE FABRIC FOR STORAGE SOLUTIONS

SAS is the backbone of nearly every enterprise storage deployment. It is rapidly evolving, adding new features, enhancing capabilities and offering "no compromise" system performance. SAS not only excels as a device level interface, its versatility, reliability and scalability have made it the connectivity standard of choice for creating new storage architectures. This presentation covers the advantages of using SAS as a storage device interface, and how its capabilities as a connectivity solution are changing the way data centers are being deployed. 12Gb/s SAS transfer rates, bandwidth aggregation, SAS Fabrics (including switches) active connections, and multi-function connectors (connectors that support SAS as well as PCIe attached storage devices) allows data center architects to create sustainable storage solutions that scale well into the future.

Professional Development Track

Thursday, 3:05 - 3:50

SNIA TUTORIAL: CONSUMERIZATION OF IT - WHAT IS RIGHT FOR YOUR ORGANIZATION?

Consumerization is a reality in enterprises today. Is your staff weighing the pros and cons of integrating social media, and how to propose an implementation strategy – if at all? How will consumer practices and issues like BYOD (bring-your-own-device) affect the workplace? Do you have the knowledge you need to advise, recommend and approve? In this interactive session, we'll discuss how consumerization is affecting your IT operations, strengths and shortcomings of approaches, and best practices for moving forward in with a strategy that works for your organization. Examine how companies have attempted to implement a strategy and policy in their organizations and better understand their successes, common pitfalls, and roadblocks. Learn how to define a strategy, and gain tips and techniques to get started.

Thursday, 4:00 - 4:45

SNIA TUTORIAL: REACTION MANAGEMENT - TREND FOR ALL TECHNOLOGY PROFESSIONALS

Every experience and choice we make starts in our brain. What we're aware of , how we think, feel, and how we respond (or react) to life and work situations depends on the combination of brainwave patterns and our ability to process information.

Understanding how our brains function and learning how to manage our brain patterns gives us the freedom to make responsible verses reactionary choices.

This experiential session will introduce you to "reaction management" techniques, basic technology of the brain, brainwave pattern characteristics and how you can access deep levels of creativity to solve complicated issues and relieve stress.

Virtualization Track

Thursday, 1:10 - 1:55

SNIA TUTORIAL: WHAT'S YOUR SHAPE? 5 STEPS TO UNDERSTANDING YOUR VIRTUAL WORKLOAD

Is your VM is rightsized? Is your VM is on the right datastore? Is your VM I/O bound? These are the kinds of questions that come up frequently when you're doing capacity management, solving performance problems, and making procurement decisions. The root of the answer to all of them is the shape of your workload. Irfan Ahmad, the tech lead of VMware's own Swap-to-SSD, Storage DRS and Storage I/O Control features will teach you the five steps to discovering the shape of your workload and applying that knowledge to capacity and performance decisions.

Thursday, 2:05 - 2:50

TRANSFORMING IT INTO AN INNOVATIVE STRATEGIC

Demanding business applications like databases, ERP and mail systems create bottlenecks in any storage architecture due to their rapid activity and intensive I/O and transactional requirements. To offset this, many companies buy high-end storage systems while leaving terabytes of storage unused – a large and costly mistake. Augie Gonzalez, Director of Product Marketing, DataCore, the leader in software-defined storage, will discuss the benefits of storage virtualization on tier-one applications – improved application response times and higher availability – and steps companies must take when virtualizing tier one applications. In a joint presentation, Augie and Dustin Fennel, Vice President and CIO, Mission Community Hospital, will discuss how his organization achieved their performance and uptime objectives, as well as how DataCore helped the hospital achieve a high-performance, Tier-1 storage solution at a fraction of the cost when comparing it to traditional storage strategies. The discussion will encompass the excellent results the hospital has seen from its PACS

system after implementing DataCore; how a software-based storage virtualization architecture made high availability both easy and affordable; and how DataCore enables the healthcare provider to be storage agnostic, to have different tiers of storage from different vendors, and to manage everything from a single interface.

Thursday, 3:05 - 3:50

HOW TO ACHIEVE AGILITY AND REDUNDANCY IN THE HYBRID CLOUD

In this session, Bryan Bond of eMeter talks about his real world use case on how he's using a VMware based cloud to host and protect some of his most important systems and applications. He will describe how a hybrid cloud approach has enabled his organization to achieve dramatic speed and agility as well as cost efficient and highly reliable disaster recovery protection.

Thursday, 4:00 - 4:45

FLASH HYPERVISOR: THE SAVIOR TO STORAGE I/O BOTTLENECKS?

The combination of hypervisors and server flash is an important but inconvenient marriage. Server flash has profound technology and programming implications on hypervisors. Conversely, various hypervisor functions make it challenging for server flash to be adopted in virtualized environments. This talk will present specific hypervisor areas that are challenged by the physics of server flash, and possible solutions. We will discuss the motivation and use cases around a Flash Hypervisor to virtualize server flash and make it compatible with clustered hypervisor features, such as VM mobility, high availability and distributed VM scheduling. Finally, results will be presented from an example of a flash hypervisor (PernixData FVP), and its impact on data center storage design due to decoupling storage performance from capacity.

Back-up Presentations

CASE FOR FLASH STORAGE - HOW IT CAN BENEFIT YOUR ENTERPRISE

Flash storage is becoming important factor for both consumers and in the enterprises. Benefits of flash storage are many, but much higher cost of flash storage as compared to traditional storage is making it hard to justify financially buying of the flash storage. Many enterprise consumers of storage keep buying more and more hard drives, not to satisfy capacity requirement, but to satisfy performance requirement, but when total cost of ownership is taken into consideration, flash storage becomes very competitive with much smaller footprint, cooling and power requirements. There are also certain workloads, which can benefit tremendously from using flash storage and those will be discussed in this presentation.

OBJECT STORAGE BEST PRACTICES

The industry has come to understand that an alternative storage methodology is required to efficiently and securely store the exabytes of unstructured information we generate every day. Most Object Storage platforms aim primarily at archive applications as those are designed for large volumes of data, with relatively low performance requirements. But data archives are just the tip of the unstructured data iceberg. To solve the unstructured data challenge we need flexible object storage platforms that support the entire data life cycle and integrate with a wider range of applications. In this presentation we will investigate what the requirements are to deploy object storage on a bigger scale and illustrate how customers should be enabled to build storage infrastructures that can be tuned to meet the requirements of any data set, any application, any storage architecture.

NPIV - OPTIMIZING THE STORAGE VIRTUALIZATION IN SERVERS

N_Port ID Virtualization (NPIV) is an ANSI T11 standard that allows virtualization of a physical HBA port. Using NPIV a single physical HBA port can register with multiple WWPNs and acquire multiple N_Port IDs in the SAN fabric. In a virtualized environment each Virtual machine(VM) can be assigned one N_Port ID to access the SAN, so that VMs can have direct visibility to the SAN and can be managed independently from zoning and lun masking perspectives. The presentation will discuss the NPIV standard, implications and various benefits of using NPIV in a SAN data center.

SNIA TUTORIAL: STORAGE INDUSTY FORGING ACADEMIC ALLIANCES

The majority of our computer science and Information Engineering programs in the North America are lacking the studies of these topics; hence, the graduating bodies will miss out on so many job opportunities offered by many companies in these areas. Many Storage companies have to provide extensive training for their new hires on data storage & virtualization, and few companies have successfully forged academic alliances with colleges to fill the gap for much needed data storage and virtualization savvy new-hire engineers and IT staff.

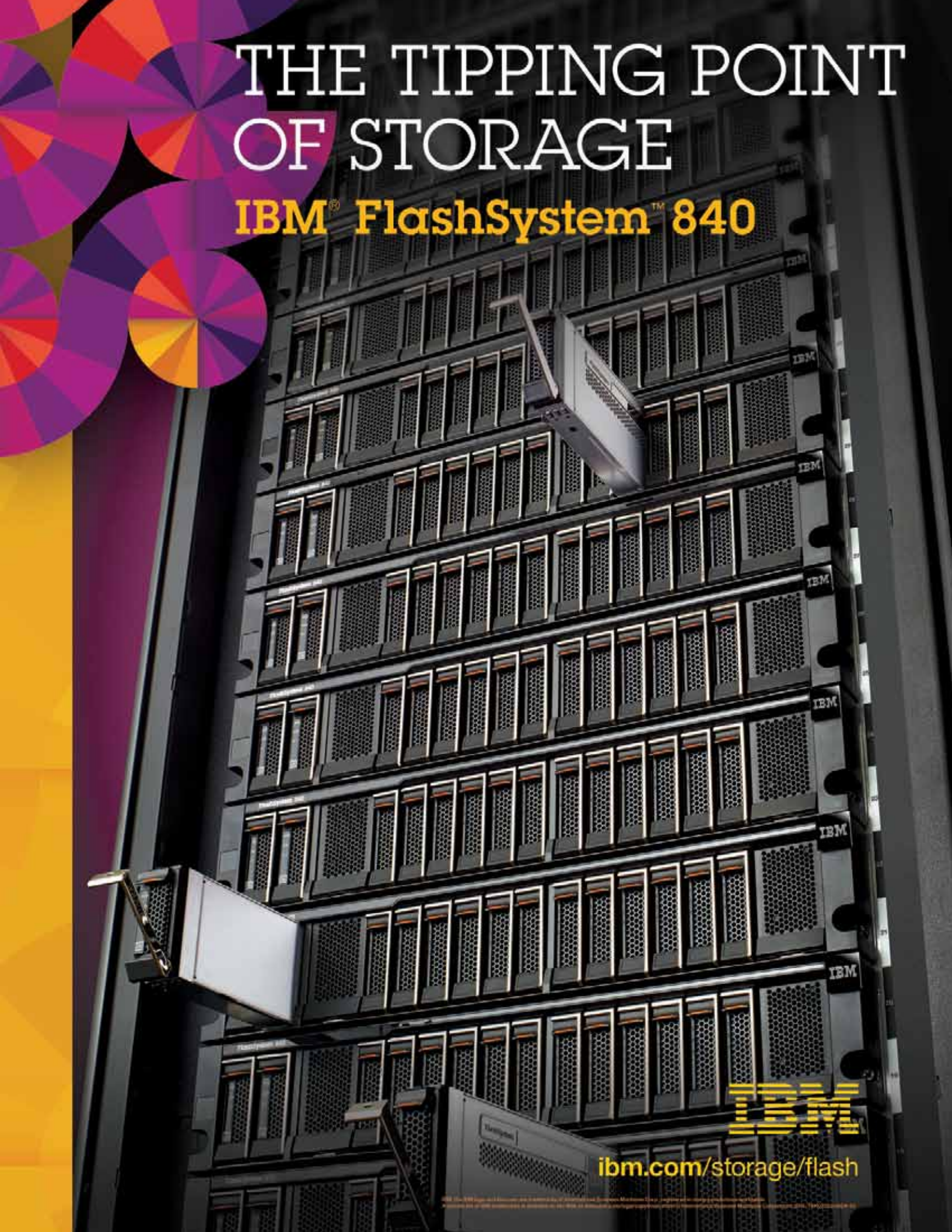
SNIA TUTORIAL: OBJECT STORAGE - KEY TO BIG DATA INFRASTRUCTURE

In the era of Big Data managing disparate storage solutions for structured data (databases, log files, text, value based data) and unstructured data (audio, documents, emails, images, video) has become challenging for IT Organizations. A key feature of managing big data is through using Object Storage's rich metadata system, which allows you to store unstructured, semi-structured, and structured data on any combination of standard x86 server hardware and is scalable to petabytes and billions of files at the lowest ongoing TCO of ownership storage system and yet is instantly and easily query-able with full search functionality, to meet with your online business demands.

Leveraging open source platform, Object Storage allows users to easily store, search and retrieve data across the Internet. Object-based storage's real strength lies in automating and streamlining data storage in cloud environments while storing unstructured, semi-structured, and structured data while incorporating fast-searchable metadata indexing and never-fail availability technology and features demanded by exploding demand for real-time access to data.

SNIA TUTORIAL: STORAGE SECURITY BEST PRACTICES

Many organizations face the challenge of implementing protection and data security measures to meet a wide range of requirements, including statutory and regulatory compliance. Both SNIA and ISO/IEC are combating this situation by providing materials that can be used to address storage security issues. In the case of ISO/IEC, the materials are contained in a new International Standard that seeks to provide detailed technical guidance on the protection (security) of information where it is stored and to the security of the information being transferred across the communication links. This session introduces the major storage security issues, outlines the guidance, and introduces the new draft standard.


THE TIPPING POINT
OF STORAGE
IBM® FlashSystem™ 840
IBM
ibm.com/storage/flash

PLATINUM

IBM System Storage helps you maximize return on your investments, reduce complexity and drive innovation with storage hardware, software and services. For more information, visit us on the web at: ibm.com/storage or www.storagecommunity.org.

Founded in 1975, Microsoft (Nasdaq "MSFT") is the worldwide leader in software, services and solutions that help people and businesses realize their full potential.

NEC Corporation of America (NEC) is a leading provider of innovative IT, network, communications and biometric products and solutions. NEC delivers one of the industry's strongest portfolios of technology solutions and professional services, including servers and storage infrastructure, unified communications, managed services, Cloud solutions, and biometric security.

At DSI Conference, NEC will highlight its advanced storage solutions: HYDRAstor Scale-out Deduplication Storage and M-series SAN Disk Array Family. Visit NEC Booth #P4 for a live demo, or visit www.necam.com/storage.

NEC's HYDRAstor Scale-out Deduplication Storage delivers high performance, capacity-optimized, and highly available backup, archive and DR solution for long-term data.

- Seamless scalability from 1 to 165 Nodes
- 1PB/hr performance & > 100PB capacity
- Erasure-coded data resiliency
- Adaptive multi-generation grid
- WAN-optimized replication for disaster recovery

The NEC M-series SAN Disk Array Family delivers the perfect balance of performance, affordability and functionality.

- 40% to 60% fewer HDD failures
- Robust storage management software
- MAID technology for reducing energy consumption
- Seamless scalability
- Advanced software: thin provisioning, replication, and more

Riverbed at more than $1 billion in annual revenue is the leader in Application Performance Infrastructure, delivering the most complete platform for Location-Independent Computing. Location-Independent Computing turns location and distance into a competitive advantage by allowing IT to have the flexibility to host applications and data in the most optimal locations while ensuring applications perform as expected, data is always available when needed, and performance issues are detected and fixed before end users notice. Riverbed's 25,000+ customers include 97% of the Fortune 100 and 95% of the Forbes Global 100. Learn more at www.riverbed.com.

GOLD

A singular vision – a belief in a better way to address current and future data and information management needs – guides CommVault in the development of Singular Information Management® solutions for high-performance data protection, universal availability and simplified management of data on complex storage networks. CommVault's exclusive single-platform architecture gives companies unprecedented control over data growth, costs and risk. CommVault's Simpana® software modules were designed to work together seamlessly from the ground up, sharing a single code and common function set, to deliver superlative Data Backup, Archive, Replication, Search and Resource Management capabilities. More companies every day join those who have discovered the unparalleled efficiency, performance, reliability, and control only CommVault can offer.

GOLD

Nasuni offers Cloud-integrated Storage, replacing traditional hardware-centric storage by combining cloud storage with on-premises storage controllers to deliver storage as a service designed to eliminate backups, improve performance and increase collaboration.

The SNIA's Storage Management Initiative (SMI) unifies the storage industry to develop and standardize interoperable storage management technologies and aggressively promote them to the storage, networking, and end user communities. SMI gathers and prioritizes industry requirements that help guide SNIA Technial Work Groups to cooperatively develop the Storage Management Inititiative Specification - SMI-S - the international storage management standard implemented in over 500 products.

The LTO Program, formed by technology provider companies HP, IBM and Quantum, develops a powerful, scalable, adaptable open tape format created to address data protection and archive in the midrange to enterprise-class server environments. The LTO technology with the innovative Linear Tape File System makes tape easier to use than ever before. With low energy consumption, tape technology can also provide organizations with a green alternative for the data center, delivering substantial TCO benefits, energy savings and ease of use with LTFS. Learn more at http://www.lto.org/

SILVER

Led by a team of XenSource/Citrix virtualization and storage industry veterans, Coho Data is enabling businesses of all sizes to build their own high performance web-scale storage for their private cloud. Inspired by the highly scalable, commodity-hardware based approaches of public clouds, the company is developing the first flash-tuned scale-out storage architecture designed for private clouds.

DDN is a leader in massively scalable storage solutions for big data in the cloud. Our unique storage solutions make the ideal Internet infrastructure for high performance, geo-distributed content origins; low-TCO managed services; and secure private clouds. Visit us for the most scalable, intelligent, integrated web and cloud storage solutions.

EchoStreams is an OEM/ODM solutions provider focused specifically on Server and Storage technologies for the fastest growing verticals in today's digital era, such as Cloud/Datacenter, Video, Telecommunication, just to name a few. What EchoStreams brings to OEM/ODMs is extensive background in Server, Storage, and System-Packaging technologies from the founding members.

EVault®, A Seagate Company, gives you full-service backup and recovery delivered by a team of experts, leveraging the very best cloud-connected technology and infrastructure so you know that—no matter what—you can always get your data back. We take pride in being an ultra-reliable, proactive partner to our 43,000+ customers.

Load DynamiX solutions are used to test networked storage performance. The company empowers IT organizations and technology vendors with critical insight to maximize storage system performance by validating real-world application work-loads before production deployment. Organizations reduce risk and save money when using Load DynamiX.

Nimble Storage thinks enterprises shouldn't compromise on performance, capacity, ease of use, or price. So they developed the first storage architecture designed from the ground up to seamlessly integrate SSDs with high-capacity disks, all to give you unparalleled performance and capacity efficiency, easier backups and DR, and stress-free operations.

CONTRIBUTING

Intel is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world's computing devices. Additional information about Intel is available at www.intel.com.

For over 70 years, Samsung has been dedicated to making a better world through diverse businesses that today span advanced technology, semiconductors, skyscraper and plant construction, petrochemicals, fashion, medicine, finance, hotels, and more. Our flagship company, Samsung Electronics, leads the global market in high-tech electronics manufacturing and digital media.

Veeam recognizes the challenges in keeping a business up and running at all times and addressees them with solutions that provide high speed recovery, verified protection, risk mitigation, complete visibility and data loss avoidance. Founded in 2006, Veeam currently has 23,000 ProPartners and more than 91,500 customers worldwide. To learn more, visit http://www.veeam.com.

Transform the datacenter

Some of the best options for simplifying the datacenter exist in storage. Microsoft's flexible, low-cost datacenter configuration lets you use industry standard hardware that can easily integrate with your existing on-premises resources and cloud storage options.

Cost-effective, high-performance enterprise storage solutions

Deliver reliable, high-performance storage infrastructure based on Microsoft technologies. Build solutions with industry standard hardware and Windows Server, take advantage of smart hybrid models to grow storage elastically as your needs increase, or begin to tier data into the cloud with Microsoft StorSimple.

Microsoft

NEC

HYDRAstor

Scale-out Deduplication Storage

High Performance for Backup, Archive and Long Term Data

- Seamless Scalability from 1 to 165 Nodes
- 1PB/hr Performance & >100PB Capacity
- Erasure-coded Data Resiliency
- Adaptive Multi-generation Grid
- WAN-optimized Replication for DR

Visit NEC Booth #P4 for a Live Demo!

www.necam.com/HYDRAstor