



IBM System Storage and IBM System z Together

Information Infrastructure for the World's Most Demanding Customers



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DFSMS	IBM*	System z9	z/VSE
DS6000	IBM eServer	System z10	zSeries*
DS8000	IBM logo*	System z10 Business Class	z9
Enterprise Storage Server*	IMS	Tivoli	z10
ESCON*	MQSeries*	TotalStorage*	z10 BC
FICON*	OMEGAMON*	VSE/ESA	z10 EC

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Agenda

- § IBM Information Infrastructure
- § High-end and enterprise disk systems
 - DS6000
 - DS8000
- § Enterprise tape
 - Tape drives
 - Tape libraries
 - Virtualization engine
- § Storage virtualization
 - SAN Volume Controller
 - XIV
- § Summary



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Multiple Forces Driving Information Solutions Needs



Information Explosion

- § 57% CAGR thru 2010*
- § 80% unstructured*
- § Unpredictable workloads

Exploiting Business Opportunities

- § Customer profitability
- § Information quality
- § Content-based processes and products

Risk and Cost Management

- § Compliance / legal
- § Security / privacy
- § Capital Expense and Operation Expense Control

* Sources: Various external consultant reports

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IBM Information Infrastructure

Securely storing information and mitigating business risks





 <p>Information Availability <i>How to deliver continuous and reliable access to information?</i></p> <p>Downtime costs can amount up to 16% of revenue in some industries.</p>	 <p>Information Security <i>How to protect and enable secure sharing of information?</i></p> <p>84% of security breaches come from internal sources.</p>
 <p>Information Retention <i>How to support our information retention policies?</i></p> <p>Average legal discovery request can cost organizations from \$150k to \$250k.</p>	 <p>Information Compliance <i>How to reduce our reputation risks and audit deficiencies?</i></p> <p>63% IT executives rate compliance with regulations a top challenge.</p>

Sources: CIO Magazine survey 2007; IBM Tivoli® Market needs and profiling study 2005; The Costs of Enterprise Downtime: NA Vertical Markets 2005* Information Research; IBM Market Intelligence

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IBM Information Infrastructure for System z

Information infrastructure to satisfy the world's most demanding clients

<p>Enterprise Tape Systems</p>  <p>TS1130 Controller TS7700 TS7700 GRID</p> <p>Advanced tape automation and drives</p>  <p>TS3500 Library TS3400 Library TS1130 Drive</p>	<ul style="list-style-type: none"> ü Solutions support System z® as well as major open system platforms ü Advanced Management tools for automated data management ü Virtualization to help reduce TCO and improve operational efficiencies ü Designed to provide enterprise class reliability to help support continuous operations 	<p>Enterprise Disk Systems</p>  <p>DS8000™ SAN Volume Controller</p> <p>IBM SAN Offerings</p> <p>Fabric switches</p>  <p>Enterprise directors</p>
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IBM Enterprise Disk Positioning – Feature/Function Map

	Mainframe, System i	Open Systems	Heterogeneous	NAS
High-end	DS8000 Mainframe & Open Systems Zero or near zero downtime Advanced Disaster Recovery: 3-Way Mirroring Online Transaction Processing (OLTP) Encryption Dedicated rack-based storage	XIV SIMPLE management Thin provisioning Excellent TCO Dedicated rack-based storage	SVC Multi-vendor open storage Data migration Space Efficient Replication Thin Provisioning	Scale-Out File Services SoFS – massive scalability N series Combined file and block support in one system NAS/iSCSI storage
Mid-range	DS6000 Mainframe and System i Compatible copy services w/DS8K Modular drawer based storage	DS4700/DS5000 Modular, scalable disk storage (start small and grow incrementally) High Performance and Low Cost Per TB Basic snapshot and mirroring capabilities Typical configurations <50TB		

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Storage Classes in traditional IT Environments

Class of storage	Online	Near-line	Offline
Primary media	FC disk	FATA/SATA disk	Tape
Price	Highest	Low cost-per-GB	Lowest
IOPS performance	Highest	Minimal	NA
MBps performance	Highest	High	Lowest
Time to data	Immediate	~ Immediate	Mount time
Media reliability	Highest	Good	Good - Lower
Uptime	24/7	< 24/7	< 24/7
Typical applications	ERP/Oracle	Fixed content	Archive retrieval

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Agenda

§ IBM Information Infrastructure

§ High-end and enterprise disk systems

- DS6000
- DS8000

§ Enterprise tape

- Tape drives
- Tape libraries
- Virtualization engine

§ Storage virtualization

- SAN Volume Controller
- XIV

§ Summary



Enterprise Disk Systems



	DS6800	DS8100	DS8300
Product	<i>IBM System Storage DS6000</i>	<i>IBM System Storage DS8000 Turbo</i>	
Machine/model	1750/522	2421, 2422, 2423, 2424/931	2421, 2422, 2423, 2424/932/9B2
Host connectivity	Fibre Channel, FICON	Fibre Channel, FICON, ESCON	
Host ports	8	4 to 64	4 to 128
Copy services	FlashCopy, Metro mirror, Global mirror, Global copy, target for z/OS Global mirror	FlashCopy, FlashCopy SE, Metro mirror, Global mirror, Global copy, z/OS Global mirror, Metro/Global mirror	
Availability features	Fault tolerant, dual redundant and hot-swappable RAID controller cards, battery backup, non-disruptive hardware and software code load updates, multipathing device drivers		
Controller	Dual active-active		
LPAR	-	-	Yes
Cache (min, max)	4 GB	16/128 GB	32/256 GB
RAID support	5, 10	5, 6, 10	
Capacity – raw	292 GB – 57.6 TB (up to 7.2 GB per enclosure)	1.1 TB – 192 TB	1.1 TB – 512 TB
Drive interface	FC-AL		
Drive support	73, 146, 300, 450 GB (15,000 rpm)	73, 146 GB solid-state drives; 73, 146, 300, 450 GB (15,000 rpm); 1 TB (7,200 rpm)	

IBM System Storage DS6000



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DS6800 Highlights

- § Designed to lower total cost of ownership
- § Highly available, resilient and robust storage solution for medium and large enterprises
- § High performance
 - Over 1600 MB/sec throughput
 - Over 330,000 IOPS
- § High storage density footprint – 7.2TB's in 3U
 - 16 drives per 3U package, including controller
 - Up to 57 TB's of storage
- § Differentiators
 - Enterprise-class functionality with open systems and mainframe host attachment
 - Enterprise-class warranty
 - Includes IBM installation
 - 24x7, IBM on-site, same business day warranty covering both hardware and software
 - Advanced functions interoperable with DS8000 and Enterprise Storage Server



Enterprise-class storage in a small, modular package at an affordable prices

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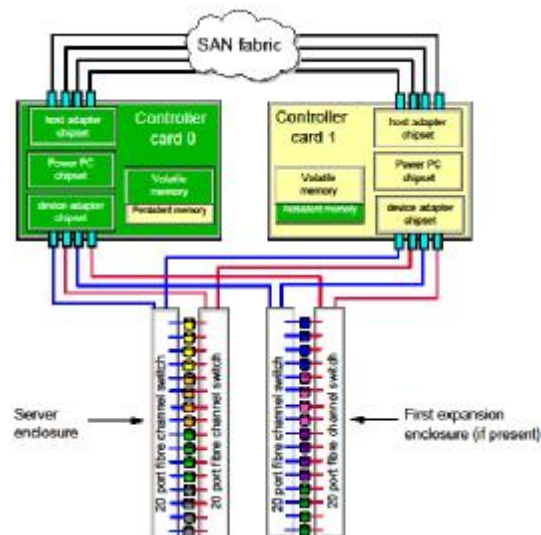
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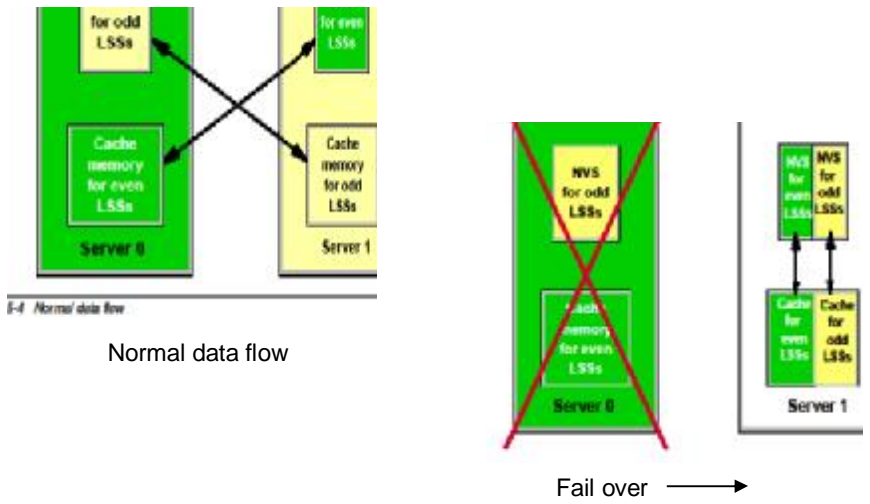
DS6800 Specifications

Model	1750-522
Controllers	Dual Active
Processor	IBM Power PC® 750GX 1 GHz
Max Cache	4 GB (2GB per controller)
Max Host Ports	8-Ports; 2Gb Fibre Channel/FICON
Max Storage / Disks	Up to 57 TB / 128 drives 16 disk drives per enclosure, including controller
Disk Drives	FC 15,000 rpm: 73, 146, 300, 450 GB
Max Expansion Mod	7
Max Disk Loops	4 (2 dual redundant)
RAID Levels	5, 10
RAID Array Sizes	4 or 8 drives
Operating Systems	z/OS, z/VM, z/VSE, i5/OS, OS/400, AIX, SUN Solaris, HP UX, VMWare, UNIX, Microsoft Windows, Linux
Packaging	3U – Controller & Expansion Drawers <i>Height: 5½ inches, Width: 18.8 inches, Depth: 24 inches</i>
Power consumption	Controller: 0.69 kVA Expansion drawer: 0.48 kVA

DS6800 Architecture



RAS – Data Flow



I-4 Normal data flow

Normal data flow

Fail over →

IBM System Storage DS8000



Enterprise Disk Systems for Business Critical Applications

Collaborative development with IBM System z offers advanced and often unique storage capabilities for mainframe systems

System Storage DS8000 Turbo

Double throughput of System z implementations with High Performance FICON

§ Client value

- Support for both distributed platforms and System z
- Highest availability for System z workloads
- Highest performance for System z workloads
- Highest scalability for System z workloads

§ Rich functionality includes

- High Performance FICON for System z
- 450 GB fibre channel drives
- 1 TB SATA drives – up to 1 Petabytes total capacity
- Solid-state drives for highest speed
- FlashCopy and FlashCopy SE
- Advanced mirroring functions
- Full disk encryption



Information Availability

DS8000 Turbo Specifications

Models	DS8100 (931)	DS8300 (932, 9B2)
Controllers	Dual Active	Dual Active
Processor	POWER5+ 2-way	POWER5+ 4-way
LPAR capability	Not available	Optional
Cache (min/max)	16 GB/128GB	32 GB/256 GB
Host adapters (min/max)	2/16	2/32
Host adapter interface	2 or 4 Gbps FC/FICON or ESCON	
Device adapters	Up to 8 (4-port FC-AL)	Up to 16 (4-port FC-AL)
Max phys. storage capacity	384 TB	1024 TB
Min/max disk drives	16/384	16/1024
Disk Drives	FC 15,000 rpm: 73, 146, 300, 450 GB Solid-state: 73, 146 SATA 7,200 rpm: 1 TB	
Max Expansion Frames	1	5
RAID Levels	5, 6, 10	
Power consumption	Controller: 3.9/5.8 kVA	Controller: 5.1/7.0 kVA
Min/max	Expansion frame: 2.2/6.5 kVA	Expansion drawer: 2.2/6.5 kVA

DS8000 Solid-State Drive Option

- § Semiconductor (NAND flash) storage
 - No mechanical read/write interface
 - No rotating parts
 - Electronically erasable medium
- § Increased performance for transactional applications
 - Online Banking / ATM / Currency Trading
 - Point-of-Sale Transactions / Settlement
 - Real-time data mining
- § Faster data replication and recovery from outages



Lightning fast access to data, energy efficiency, and higher system availability

Full Disk Encryption on DS8000

- § **Encrypted data on DS8000 series storage controller**
 - Capability to install encrypted 146 GB, 300 GB, and 450 GB 15,000 rpm Fibre Channel drives
 - Full Disk Encryption drive sets are optional to DS8000 series
 - Available only as plant order
 - Transparent to applications
 - Can be used by z/VSE V3.1 or later
- § **Helps to mitigate the threat of**
 - Theft
 - Mis-management
 - Loss of critical data



Copy Functions

§ Metro Mirror (Synchronous Peer-to-Peer Remote Copy – PPRC)

- Synchronous
- Up to 300 km (HA functionality might require less distance)

§ Global Copy (PPRC-XD)

- Non-synchronous
- Extended distance

§ Global Mirror (Asynchronous PPRC)

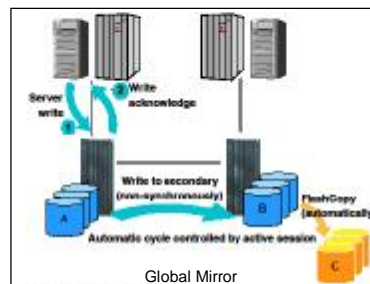
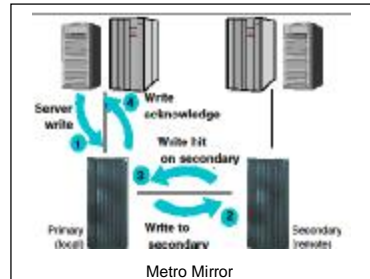
- Asynchronous
- Unlimited distance

§ Metro/Global Mirror

- Three side/multi-purpose replication
- Mix of synchronous and asynchronous

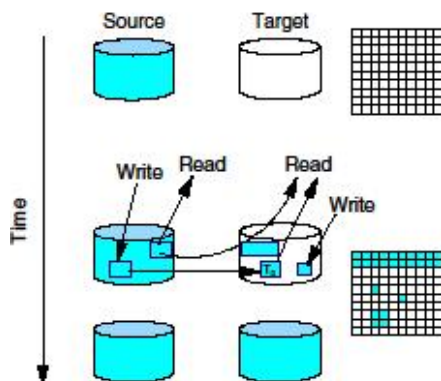
§ z/OS Global Mirror (XRC)

§ z/OS Metro/Global Mirror



FlashCopy

FlashCopy provides a point in time copy



§ FlashCopy command issued

§ Copy immediately available

§ Read and write to both, source and copy image possible.

§ When copy is complete, relationship between source and target ends

Optional feature on DS6000 and DS8000

Agenda

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Enterprise Tape Storage for Secure, Long-term Protection

Helping clients retain data securely and comply with regulatory mandates

- § Comprehensive tape storage product line for System z attachment
 - Tape drives, libraries and virtualization offer:
 - Integrated System z testing
 - High capacity and performance
 - High availability features
 - Support for encryption to protect data
- § Tape is energy efficient and cost effective
 - Lower price per MB when compared to disk
 - Lowest power and cooling storage option available today



“Tape continues to provide the fiscal responsibility and functional value that enterprises require in the twenty-first century.”

The Clipper Group

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Enterprise Tape for Secure Information Retention

IBM System Storage TS1130 Tape Drive

#1 Enterprise drive market share¹

§ Client Value

- Improved performance (160MBps) and capacity (1TB)
- Shortens backup windows
- Reduces infrastructure through consolidation
- Secures data from loss and inadvertent or deliberate compromise through encryption
- Leading tape technology
 - New GMR head provides outstanding data integrity and subsystem reliability
 - New head overcoat technology helps increase overall drive life expectancy
- Higher performance, high capacity drive
 - Upgrade available from TS1120

Store the text of one million books
on a single tape cartridge



Information Retention
Information Security

¹Source: IDC Branded Tape Pivot Q1CY08

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Enterprise Tape for Secure Information Retention

IBM System Storage TS3400 Tape Library

#1 Enterprise automation market share¹

§ Client Value

- Capacity up to 54TB for data backup and archive
- Compact footprint for remote locations or branch offices
- Control and data path failover to enhance availability
- Supports encryption and WORM for data protection and compliance
- Supports high capacity, high performance TS1130 tape drives

Extend enterprise drive technology
from the data center to remote
locations



Information Retention

¹Source: IDC Branded Tape Pivot Q1CY08

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Enterprise Tape for Secure Information Retention

IBM System Storage TS3500 Tape Library

#1 Enterprise automation market share¹

§ Client Value

- Scalable capacity up to 18.6PB for data backup and archive
- Attaches to multiple simultaneous heterogeneous servers
- Host-based path failover and dual robotics to enhance availability
- Supports encryption and WORM for data protection and compliance
- High density storage only frames
 - Patented high density slot technology
 - Reduces floor space and energy requirements
- Allows non-disruptive addition of capacity on demand

¹Source: IDC Branded Tape Pivot Q1CY08

New high density frames store over
3PB of data on 10 square feet



Information Retention

Over 10,000 TS3500 Libraries shipped
HD frames available November 7, 2008

Integrated Removable Media Manager (IRMM)

§ Systems management product for Linux® on IBM System z™

§ Manages open system media in heterogeneous distributed environments

§ Virtualizes physical tape libraries

- Capacity of multiple heterogeneous libraries in a single reservoir of tape storage

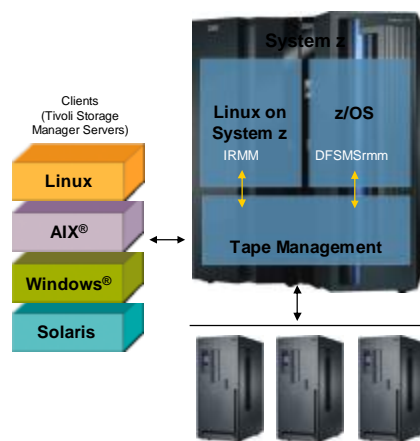
§ IRMM is designed to provide:

- Centralized media and device management
- Dynamic resource sharing

§ IRMM extends IBM's virtualization strategy to tape library resources

- Drives and cartridge pools

§ IRMM complements Linux on System z consolidation efforts



Enterprise Tape for Information Availability

IBM TS7700 Virtualization Engine

#1 Enterprise virtualization market share¹

§ Client Value

- Simplifies and optimizes tape processing
- Fast access to data
- Helps to reduce infrastructure to lower costs
- New options provide higher capacity
 - TS7720 with up to 70TB SATA capacity for applications that require data to be disk resident for fast access
 - New TS7740 cache models offer increased capacity of over 13TB for large workloads
- New TS7740 with integrated library controller reduces costs and floor space requirements

Up to 70TB cache capacity for fast access to large amounts data



Information Availability

¹Source: IDC Branded Tape Pivot Q1CY08

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IBM virtualization engines for tape

§ Customer Challenges

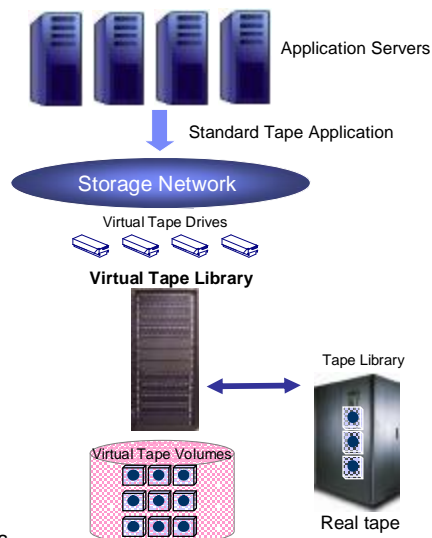
- Rapidly growing information
- Shrinking backup windows
- Operational Complexity
- Business resiliency

§ Customer Benefits

- Eases management burden of tape processing
- Improves backup and recovery times
- Improved reliability and utilization of the backup-and-restore infrastructure
- Enhanced business continuity through electronic replication of tape data
- Reduced operational costs

§ IBM Offerings

- TS7700 - for System z
- TS7500 - for Power and Modular systems



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What is Virtualization?

Logical representation of resources not constrained by physical limitations

- Enables user flexibility
- Centrally manage many resources as one
- Dynamically change and adjust across the infrastructure
- Create many virtual resources within single physical device
- Eliminates trapped capacities



A comprehensive platform to help virtualize the infrastructure

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IBM's Comprehensive Virtualization Offerings

Server virtualization

- § IBM System p, System i, System z LPARs, VMware ESX
- § Virtually consolidate workloads on servers

File virtualization

- § IBM General Parallel File System
- § Virtually consolidate files in one namespace across servers

File system virtualization

- § IBM System Storage N series Virtual File Manager
- § Virtually consolidate file systems into one namespace

Storage virtualization

- § New IBM Virtual Tape for Mainframe (VTFM)
- § IBM System Storage SAN Volume Controller, TS7500, TS7700
- § Virtually consolidate storage into pools

Storage infrastructure management

- § IBM TotalStorage Productivity Center
- § Consolidated management of *virtual and physical* storage resources



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IBM Information Infrastructure for Storage Virtualization

IBM System Storage SAN Volume Controller for Linux on z

§ Client Value

- Improves storage utilization and reduces storage growth
- Reduces power and cooling requirements helping make data centers more “green”
- Boosts performance and simplifies storage management for IBM and non-IBM disk
 - Improve storage administration productivity by up to 2x
- Redundant architecture supports enterprise-class availability
 - Non-disruptive upgrades of both hardware and software
- Supports non-disruptive data movement

§ Powerful data management capabilities

- Space-Efficient Virtual Disks support on demand provisioning
- Space-Efficient FlashCopy dramatically reduces storage needed for backup copies by as much as 75% or more
- Virtual Disk Mirroring helps improve availability for critical applications

**Outstanding performance,
flexibility, and high availability
while controlling storage TCO**



Information Availability

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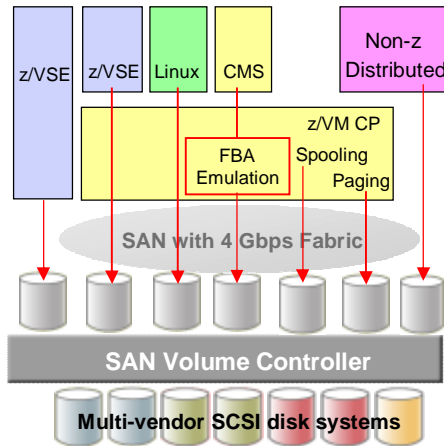
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z/VSE V4.2 Enhancement: SAN Volume Controller (SVC)

- § SAN Volume Controller (SVC) creates a single pool of SCSI disk capacity
- § Disk storage options include IBM DS8000, DS6000, ESS, DS4000, etc. plus qualified systems from various non-IBM vendors
- § SVC *platform* includes both hardware and software components:
 - SVC 'nodes' provide redundant components plus cache
 - Systems Storage Productivity Center (SSPC) software provides administrative and copy services
- § Also supported in z/VM V5.3 and later, as well as Linux on System z



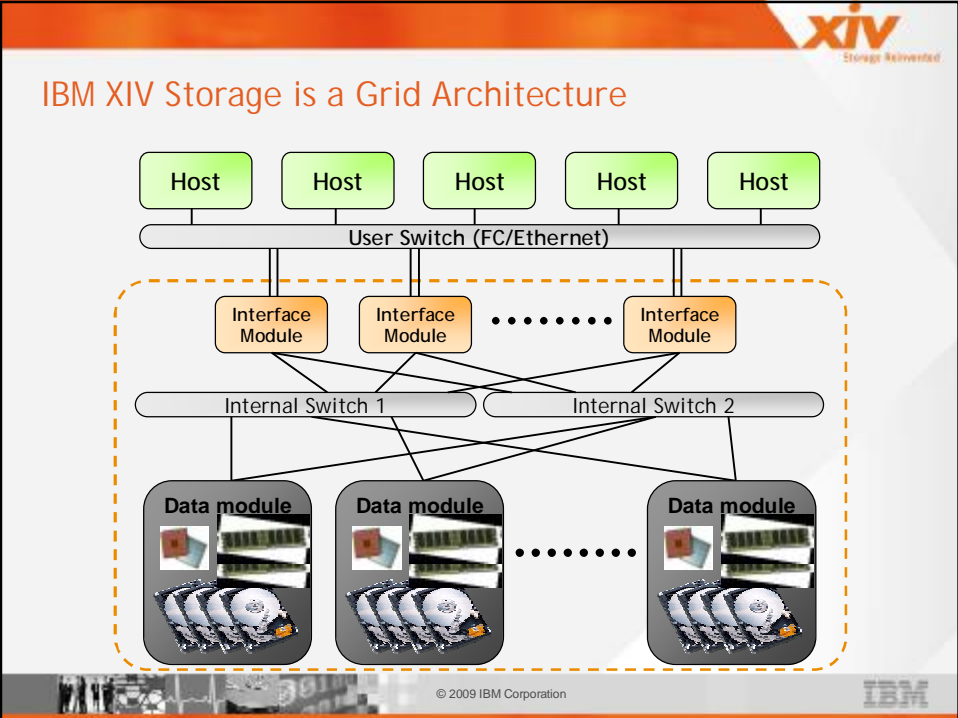
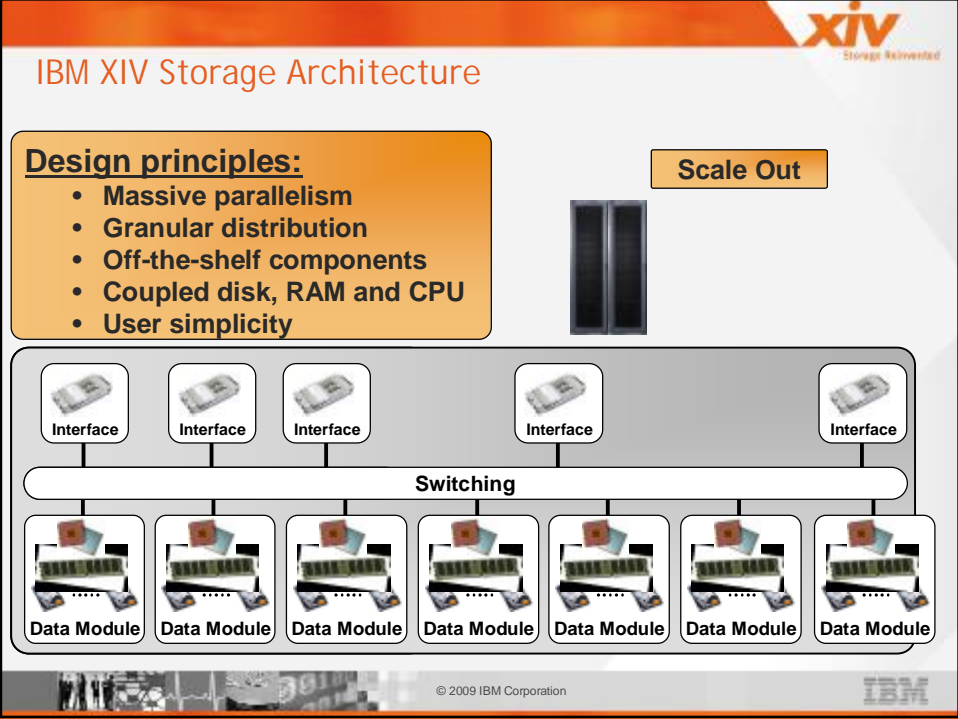
Learn more at: ibm.com/storage/support/2145

IBM XIV Storage System

Breakthrough Technology for Open Systems, Enterprise Workloads



- § Leading Technology
 - Revolutionary grid-based storage architecture
 - Built-in virtualization greatly streamlines management and configuration tasks
 - Eliminates storage tiers, avoiding overhead of ILM
- § Consistent performance
 - Simple and easy to manage
 - No manual tuning
- § Client value
 - Thin provisioning to improve IT operations
 - Near-instantaneous volume cloning to dramatically speed up Test & Q&A database operations
 - Almost unlimited, space-efficient, near-instant snapshot capabilities for data protection



New! IBM XIV Storage System Hardware Details



§ New IBM XIV hardware

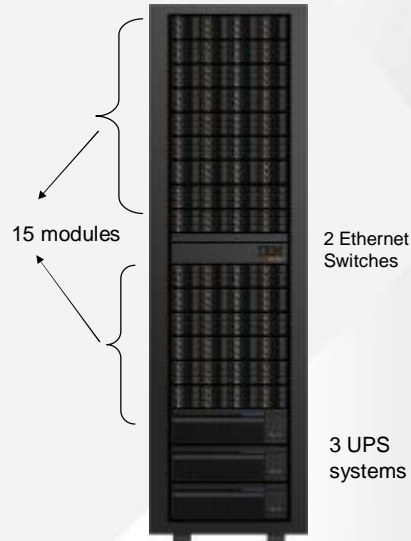
- 15 modules with 12 drives per module
- 6 of them with FC ports (four 4Gb ports per module)
- 24 x 4Gb FC ports
- 6 x 1Gb iSCSI ports
- 120GB of memory (15 * 8)
- 3 x uninterruptible power supplies
- 180TB Raw; 79TB Useable (1TB disks)
 - Global spare space - full module plus 3 disks
 - 79TB = (180 - 12 - 3)/2 - 3.5 (Internal use)

§ Ordered through eConfig/AAS

§ IBM Branded CLI, GUI and HW

§ IBM Service and Support

- 1 year, 4 hour response, 24x7 Same Day On-Site Repair
- IBM HW and SW Installation



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Linux on System z - XIV Support Statement

April 30, 2009

IBM is announcing qualification and general availability of support for Linux on System z (SLES 10) with the IBM XIV Storage System.

§ IBM eServer™ zSeries® 890, 990 (z890, z990), all IBM System z9® and all IBM System z10™ servers

§ IBM XIV Storage System (2810-A14)

§ Environment:

- Native LPAR mode: Linux on System z SLES 10 SP2
- Guest OS mode: Linux on System z SLES 10 SP2 z/VM® is supported as a Hypervisor only. VM System volumes must reside on non XIV storage. z/VM release 5.4 and 5.3 are supported.

§ SLES 10 2.6.16.60-0.34-default (or higher) is required

IBM **xiv**
Storage ReInvented

Linux on IBM System z - IBM XIV Storage System Support Statement

IBM now supports Linux® on IBM System z® (SLES 10 SP2) with the IBM XIV® Storage System.

Linux on System z combines the advantages of the IBM mainframe with the flexibility and open standards of the Linux operating system. Linux can help simplify business integration through the use of open industry standards, and it can also support deployment of new solutions more quickly.

Now the benefits of Linux on System z can be combined with the phenomenal capabilities of XIV - Storage ReInvented to support today's fast growing dynamic environments. The IBM XIV Storage System is a revolutionary open-storage system that represents the next generation of high-speed data storage, offering self-healing and self-healing for consistently high performance and reliability, as well as an option to simplify and reduce total costs.

IBM is announcing qualification and general availability of support for Linux on System z (SLES 10) with the IBM XIV Storage System. This includes the migration into the IBM enterprise support mechanisms as well as all standard qualification items (hardware and software).

Support qualification is as follows:

Hardware z Model Type:	IBM eServer™ zSeries® 890, 990 (z890, z990), all IBM System z9® and all IBM System z10™ servers
Storage hardware:	IBM XIV Storage System (2810-A14)
Operating System:	1. SLES 10 SP2 mode Linux on System z SLES 10 SP2 2. SLES 10 mode Linux on System z SLES 10 SP2 z/VM® is supported as a Hypervisor only. VM System volumes must reside on non XIV storage. z/VM release 5.4 and 5.3 are supported.
Linux code levels:	SLES 10 2.6.16.60-0.34-default (or higher) is required
IPV code address:	IBM XIV Storage System software release 5.0.1.0 (or higher) is required
Access restrictions:	IBM XIV is in a state with an XIV FC user IBM XIV is in a state with an XIV FC user
State:	April 30, 2009
URL:	http://www.ibm.com/systems/esupport/management/ibm/xiv/storage and http://www.ibm.com/systems/esupport/management/ibm/xiv/storage

IBM XIV Storage System Support Statement for Linux on System z (SLES 10) with the IBM XIV Storage System. This includes the migration into the IBM enterprise support mechanisms as well as all standard qualification items (hardware and software).

IBM Linux on System z 10 SP - Support Statement

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XIV Real Life Application

Bank Leumi



High performance
Efficient snapshot capability



Problem

- § Bank had 7TB Oracle Database for logging activities (compliance).
- § Extreme performance requirements.
- § Tried DMX without success.
- § Hot backup was not possible with current storage.

Solution

- § XIV Storage with high spindle utilization and efficient snapshot capability

Benefits

- § Achieved higher transactions per minute than with other high-end systems
- § Can make hot backups without noticeable performance impact
 - Now taking 4 daily snapshots for backup
 - Snapshots are saved for a week
 - Can instantly return to any of the 28 snapshots

High-end and Enterprise Disk Systems



	XIV	DS6800	DS8100 & DS8300
Product	IBM XIV Storage System	IBM System Storage DS6000	IBM System Storage DS8000 Turbo
Machine/model	2810/A14	1750/522	2421, 2422, 2423, 2424/931/932/9B2
SW system support	AIX, Solaris, HP-UX, Windows, Linux, VMware, Macintosh Apple OS X	z/OS, z/VM, z/VSE, TPF, Linux on System z, i5/OS, OS/400, AIX, Solaris, HP-UX, Windows, Linux, OpenVMS, TRU64, NetWare, VMware, Apple Macintosh OS X, Fujitsu PRIMEPOWER, SGI IRIX	
Host connectivity	Fibre Channel, iSCSI	Fibre Channel, FICON	Fibre Channel, FICON, ESCON
SAN support	Direct, FC-AL, Switched Fabric, Ethernet	Direct, FC-AL, Switched Fabric	
Copy services	Synchronous mirror, snapshot, thin provisioning	FlashCopy, Metro mirror, Global mirror, Global copy, target for z/OS Global mirror	FlashCopy, FlashCopy SE, Metro mirror, Global mirror, Global copy, z/OS Global mirror, Metro/Global mirror
Availability features	Fault tolerant, N+1 redundancy, hot-swappable parts, 3 power supplies, non-disruptive hardware changes and software code load updates, multipathing device drivers	Fault tolerant, dual redundant and hot-swappable RAID controller cards, battery backup, non-disruptive hardware and software code load updates, multipathing device drivers	Fault tolerant, dual redundant and hot-swappable RAID controller cards, battery backup, non-disruptive hardware and software code load updates, multipathing device drivers, LPAR
Controller	Multiple active-active		
Cache (min, max)	48/120 GB	4 GB	16/256 GB
RAID support	Data mirroring	5, 10	5, 6, 10
Capacity – raw	72 TB – 180 TB	292 GB – 57.6 TB	1.1 TB – 384 TB – 1024 TB
Drive interface	SATA	2 Gbps Fibre Channel	
Drive support	1000 GB	73, 146, 300, 450 GB (15,000 rpm)	73, 146 GB solid-state drives; 73, 146, 300, 450 GB (15,000 rpm); 1 TB (7,200 rpm)

Agenda

- § IBM Information Infrastructure
- § High-end and enterprise disk systems
 - DS6000
 - DS8000
- § Enterprise tape
 - Tape drives
 - Tape libraries
 - Virtualization engine
- § Storage virtualization
 - SAN Volume Controller
 - XIV
- § Summary



IBM Storage Information Infrastructure for IBM System z

Trusted to deliver scalable, innovative solutions for over 50 years

Innovative:

- Consistently lead the industry in storage innovation for System z

High Availability:

- Designed for round-the-clock operations

Simplified Management:

- System z and System Storage products are architected, designed and tested to work better together

Energy Efficient:

- High performance, efficient technology and flexible tiered storage

Trust:

- Extraordinary IBM support and service



IBM System Storage Leadership*

- § Industry-leading information infrastructure for mainframe environments
- § Broadest, integrated portfolio so clients can work with one vendor
- § Leading innovator of information encryption, secure key management and access control technology
- § Leading storage virtualization vendor
- § Able to virtualize storage across multiple vendor technologies, including EMC, HP and Hitachi
- § Best enterprise disk TCO, with flexible warranties
- § Leading disk and tape performance
- § Leading storage software and archiving
- § Leader in WW storage services



* Sources: Various external consultant reports

IBM Storage Systems and System z Together



Thank
You