

IBM z Systems

IBM[®] DS8870 + IBM z Systems[™]

Why Synergy Matters

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Worldwide Business Line Executive (BLE) , DS8000



The market is moving, forcing businesses to transform



Explosion in transaction growth

driven by Mobility and DR Expansion



Analytics is moving to real time

to capture new opportunities at the point of impact



Hybrid cloud is the new standard

for delivering service, agility, trust and efficiency

Emerging workloads are creating new challenges

\$1.5M 

The hourly average cost of downtime¹



Consolidation and Flash implementation are two of the top storage projects for customers²



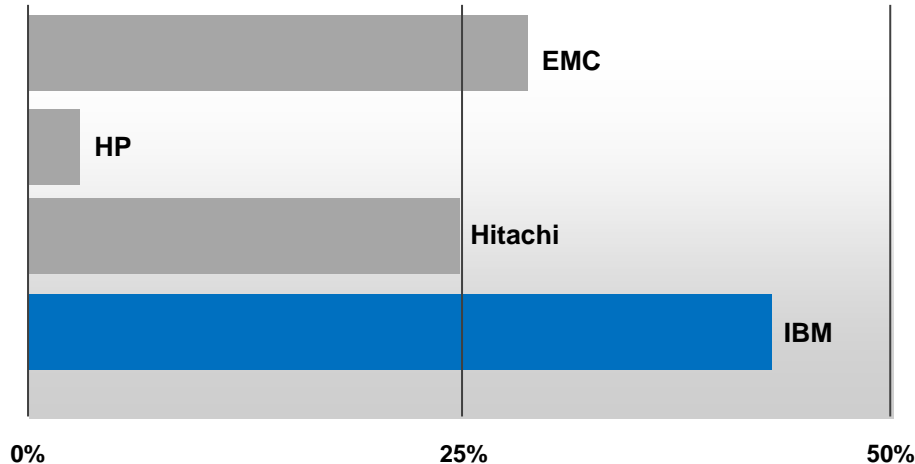
Delivering storage performance is the second most important concern for customers²



83% of CIOs say their visionary plans include analytics³

Having the right infrastructure is essential: IBM DS8870 is ranked #1 storage for the Mainframe

Market share 3Q 2014

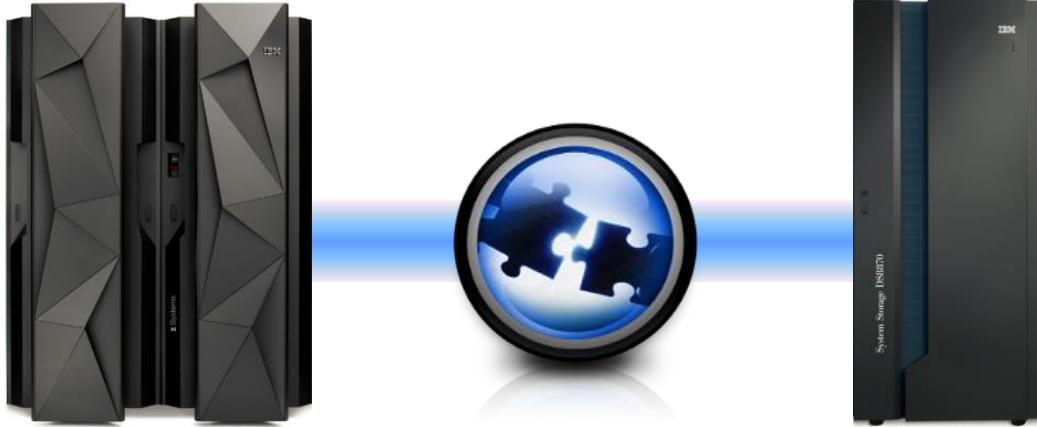


Global market acceptance
#1 with 44% market share

Clear leadership position
52% greater revenue than next closest competitor

18 of the top 20 world largest banks
use DS8000 for core banking data

Synergy is much more than just interoperability: IBM DS8870 and IBM z Systems



Designing, developing,
and testing together is
key to unlocking true value

Only IBM!

- No other storage delivers 24/7 availability and superior performance for z Systems
- IBM owns the Mainframe architecture: z Systems and DS8870 are jointly developed
- Only IBM designs innovative z Systems capabilities to strengthen the synergy with IBM DS8870
- Protect your investment with IBM DS8870; other vendors support Mainframe features late or never at all

Why 18 banks of the 20 worldwide largest banks selected IBM® DS8000 as the disk for their mainframe environment

IBM z Systems



18 of 20 Top Banks



中国工商银行

Deutsche Bank
Polska

HSBC



One IBM Synergy = Mainframe + DS8870



AGRICULTURAL BANK OF CHINA



BANK OF CHINA



SUMITOMO MITSUI
FINANCIAL GROUP



Bankers and insurers with a different perspective

Competitors







Le bon sens a de l'avenir



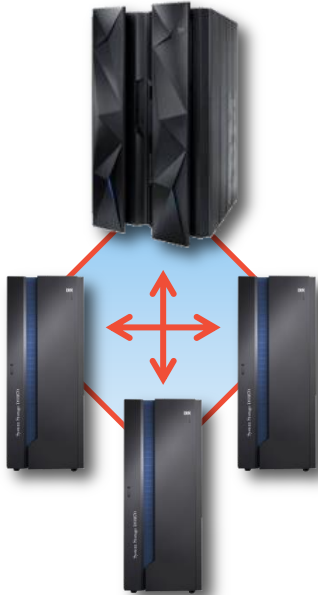
System Storage DS8870

Dedicated online migration tool that performs continuous data migration **2500** times

The TDMF solution has successfully completed continuous data migration projects **2500** times and especially, **experience of big bank ledger data (>100TB)**.

Bank name	Country	WW Bank Rank	TDMF migration Volume	Migration target		Remarks
				Existing	New	
	USA	6	100.5TB	EMC DMX-4	IBM DS8870	<ul style="list-style-type: none"> • 2013 2nd half project • With minimum business downtime, online migration completed
	Australia	42	700.5TB	HDS USP-V HDS VSP	IBM DS8870	<ul style="list-style-type: none"> • 2014 project • Data migration project period (Approximately 6 months)
	USA	14	840.5TB	EMC VMAX	IBM DS8870	<ul style="list-style-type: none"> • 2014 project • DS8870 (70TB) 12 EA • Data migration project period (Approximately 6 months)
	China	1	180.5TB	IBM DS8300	IBM DS8870	<ul style="list-style-type: none"> • 2013 project • Replacement of existing deteriorated equipment with zEC12 + DS8870 and execution of TDMF based online data migration

Synergy matters: 18 of the top 20 Banks use DS8000 and z Systems



- First to integrate High Performance Flash into Tier 1 Storage
- Up to 1 Million IOPs per system
- > 6 nines availability with HyperSwap®
- Fully automated site recovery, well under 5 minutes
- First to deliver true four-way data replication in a wide range of configurations

1. Industrial and Commercial Bank of China
2. HSBC
3. China Construction Bank
4. BNP Paribas
5. Bank of Tokyo – Mitsubishi UFJ, Ltd.
6. JP Morgan Chase Bank, N.A.
7. Agriculture Bank of China
8. Bank of China
9. Credit Agricole Titres
10. Barclays Bank PLC
11. Deutsche Bank
12. Bank of America
13. Japan Post Bank
14. Citigroup Technology Inc.
15. Société Générale S.A.
16. Mizuho Bank, Ltd.
17. Royal Bank of Scotland
18. Banco Santander S.A.
19. Sumitomo Mitsui Card Company, Ltd.
20. Groupe BPCE

IBM DS8870 storage helps z Systems clients to accelerate data analytics and optimise data economics

Deep synergy with z Systems to enable systems of insight

50%

acceleration to application response times for faster banking transactions and increased customer satisfaction

 **FIDUCIA**
Ihr IT-Partner

Extreme performance with High Performance Flash Enclosure

40%

cut in SQL runtime, vital for improving service levels and achieving better control over the infrastructure

aetna

Continuous availability for business critical applications

24/7

availability for true 24/7 production, growth and just-in-time delivery with z Systems



TŘINECKÉ ŽELEZÁRNÝ

Speed matters: Performance innovation for z Systems

Unleash your mainframe environment with DS8870 and Flash

- Reach 4x faster performance in 50% less space with High Performance Flash Enclosure (HPFE)
- Accelerate z Systems database performance by up to 3.2x with HPFE
- Speed replication: up to 70% better response time with HPFE
- Optimise data placement for mainframe applications with Easy Tier[®] API
- Get up to 1M IOPs with Multi-thread Performance Accelerator



Only IBM!

Speed matters: Performance innovation for z Systems

*Unleash your mainframe environment
with DS8870 and zHyperWrite™*

- Improve DB2® log throughput with IBM DS8870 Metro Mirror
- Reduce up to 43% of the DB2 database log write time (reduce latency by about 300µs)
- Minimise latency for DB2 log writes combining zHyperWrite with the **new 16 Gb FICON adapters*** and Metro Mirror

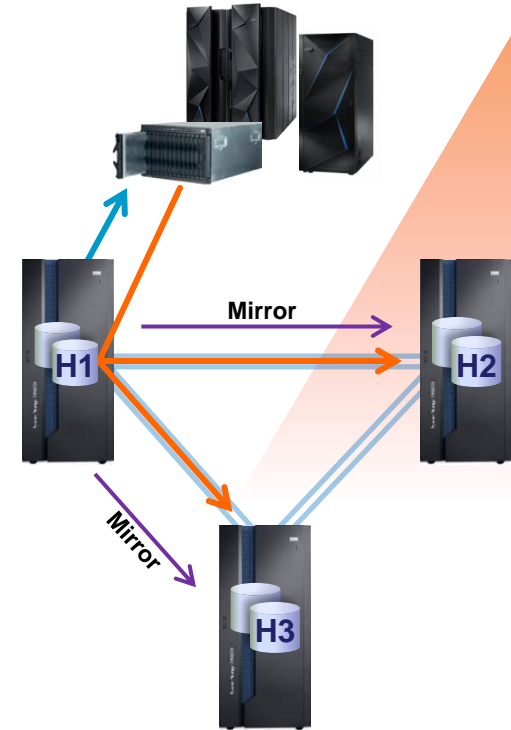


Only IBM!

Availability Matters: world-class business continuity for z Systems

Fully non-disruptive operations

- 99.9999% availability with HyperSwap
- High resiliency and flexibility in Disaster Recovery implementations with Multiple Target Peer-to-Peer Remote Copy
- Fully redundant hardware components
- Hardware Service Console Redundancy
- Data availability protection (GDPS[®] / TPC-R and Global Mirror)
- Built on high performance/redundant POWER7+™ technology



IBM DS8870 & z Systems Synergy: Performance, Availability, Growth



Performance

- zHPF Enhancements (now includes all z/OS® DB2 I/O, BxAM/QSAM)
- Extended Distance FICON
- Caching Algorithms – AMP, ARC, WOW, 4K Cache Blocking
- DFSMS Recognition of SSDs and Storage Tiering
- Easy Tier – Easy Tier Application and Heat Map Transfer
- z/OS GM Multiple Reader Support
- SSDs + DFSMS + zHPF + HyperPAV + DB2
- zWLM + DS8000 I/O Priority Manager
- zHyperWrite + DS8000 Metro Mirror

Availability

- HyperPAV
- GDPS and GDOC Automation
- GDPS Active / Standby/Query/Active
- HyperSwap Technology Improvements
- Remote Pair FlashCopy and Enhancements
- zCDP for DB2, zCDP for IMS – Eliminating Backup windows
- Heat map transfer

Management / Growth

- 1 TB EAVs
- Quick Init for CKD Volumes
- Dynamic Volume Expansion
- Space Efficient FlashCopy
- z/OS Distributed Data Backup
- z Systems Discovery and Automatic Configuration (zDAC)
- Alt Subchannel Exploitation
- Disk Encryption
- TPC for Replication, GDPS

DS8870 and z Systems: Improve performance and resiliency for mainframe environments

Only IBM!

January 2014 preview : Only IBM offering for z Systems and DS8870*

FICON Dynamic Routing

Reduce costs with improved and persistent performance for supporting I/O devices

16Gb host adapters

Improve network performance with 2x faster FC and FICON adapters; minimise latency for DB2 log writes with zHyperWrite

Forward Error Correction

Preserve data integrity with more redundancy on the information transmitted via 16Gb adapters

zHPF Extended Distance II

Increase remote data speed with 50% better IO performance for remote mirror

Fabric Priority

Improve resiliency capabilities and enhance the value of FICON Dynamic Routing



*Based on industry standards, IBM announces *ONLY IBM* offering of z Systems & DS8870

Synergy matters: enable your infrastructure for systems of insight with DS8870 and z Systems

Only IBM!



IBM is uniquely positioned to provide this value long before competitors

Extreme performance

Process transactions faster with 4x better performance in 50% less space

Deep integration with z Systems

Accelerate z Systems database performance by up to 3.2x with High Performance Flash Enclosure

24/7 availability

Achieve near zero downtime with advanced business continuity, full redundancy, and 3 and 4 site configurations that automatically switch over

Self-tuning agility

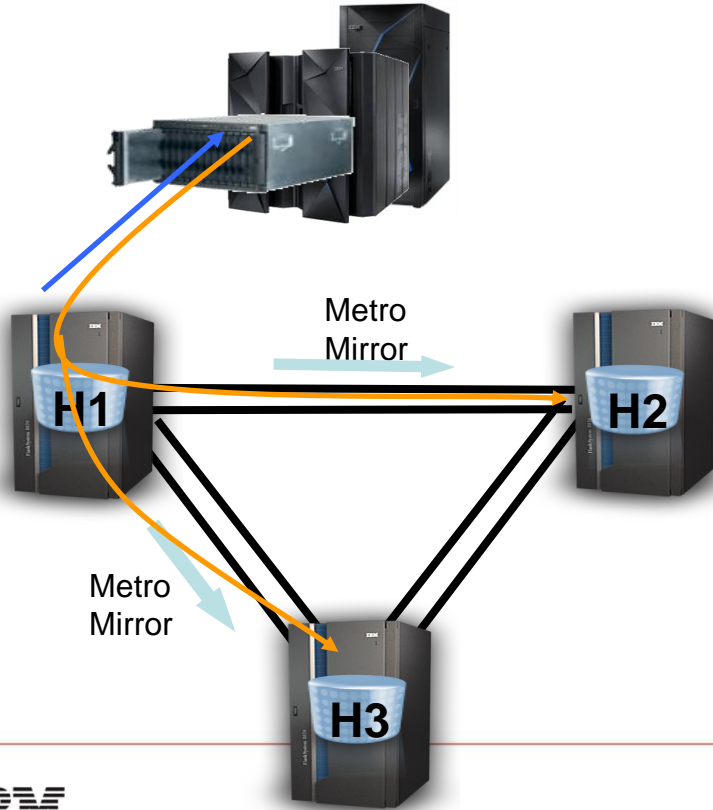
Optimise economics and maximise performance with self-tuning Easy Tier[®], automated quality-of-service and easy to use GUI

Advanced security

Protect and secure information with standard full disk encryption and advanced capabilities to keep sensitive data secure

MT-PPRC Overview and Backup

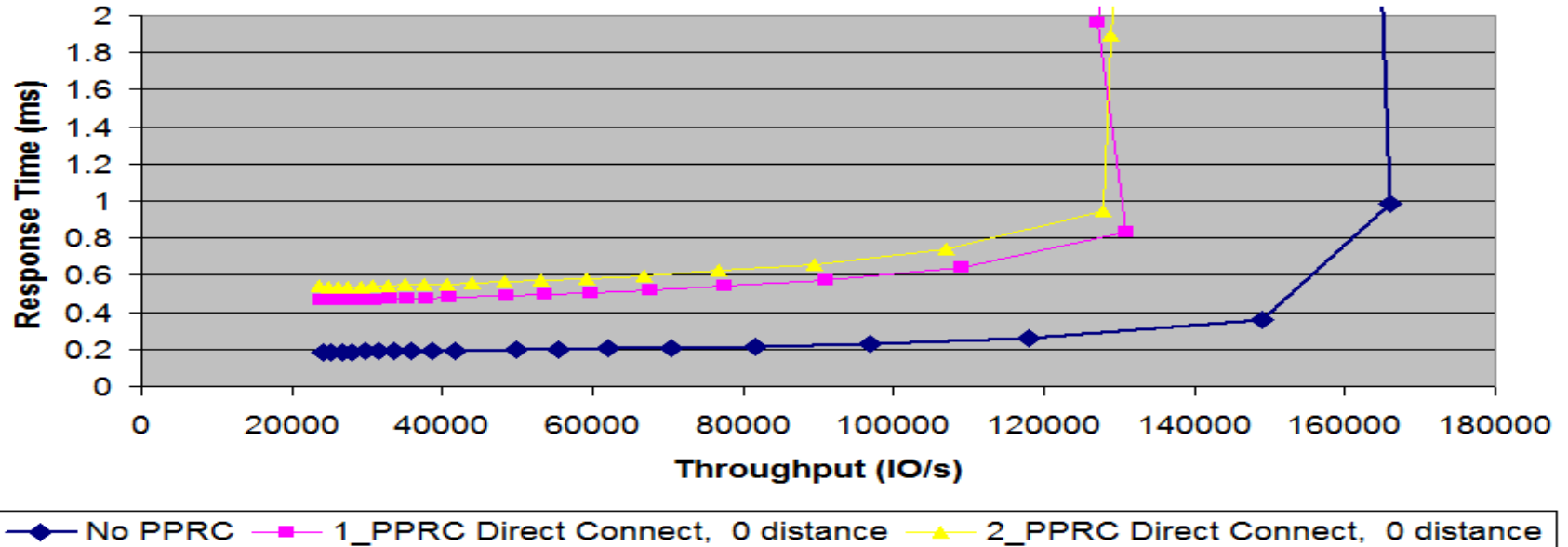
Multi-target Mirroring



- Allow a single volumes to be the source for more than one PPRC relationship
- Provide incremental resynchronisation functionality between target devices
- Use cases include
 - Synchronous replication within a datacentre combined with another metro distance synchronous relationship
 - Add another synchronous replication for migration without interrupting existing replication
 - Allow multi-target Metro Global Mirror as well as cascading for greater flexibility and simplified operational scenarios
 - Combine with cascading relationships for 4-site topologies and migration scenarios
- TPC-R and GDPS support for Multi-target Metro Mirror

Multi-target Mirroring - Performance

4KB Write Hit



New IBM z13: Resilient and intelligent I/O



- New FICON Express16S links reduce latency for workloads such as DB2
- **Reduce up to 43% of DB2 write operations with IBM zHyperWrite** – technology for DS8000 and z/OS for Metro Mirror environment



- **First system to use a standards based approach for enabling Forward Error Correction for a complete end to end solution**



- Clients with multi-site configurations can expect I/O service time improvement when writing data remotely which can **benefit GDPS or TPC-R HyperSwap**



- **Extend z/OS workload management policies into SAN fabric** to manage the network congestion
- New Easy Tier API removes requirement from application/administrator to manage hardware resources



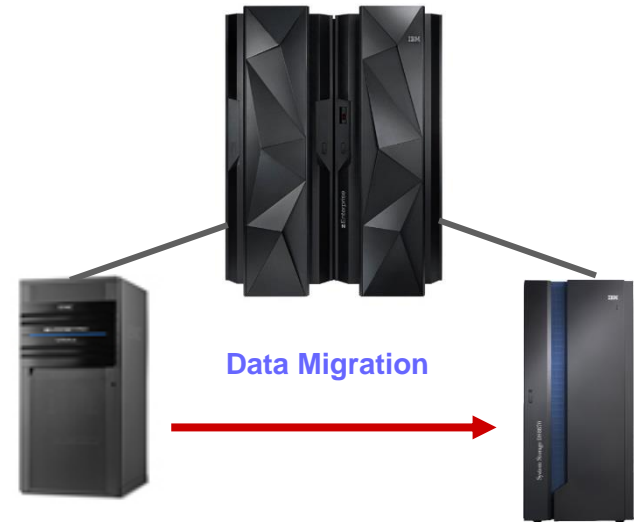
Optimised for enterprise-scale data from multiple platforms and devices

DS8870 data migration in Mainframe environments

Effective storage migration with continuous application availability

- IBM® Transparent Data Migration Facility (TDMF®) z/OS® and IBM z/OS Data Set Mobility Facility for end-to-end, host-based, vendor independent data migration
- Migrate data more effectively, with reduced complexity, on time and within budget.
- Avoid the risk of data loss and reduce your overall storage costs - regardless of vendor and disk capacity.
- TDMF z/OS migrates data at the volume level, zDMF migrates data at the data set level.

TDMF z/OS and zDMF Enterprise Data Migration



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