



# IBM System Storage™ DS3/4/5000 and ATTO Mac Connectivity Solution

## Challenges for Current Mac Customers

- Finding high performance, scalable, highly available, and redundant storage systems to connect with Mac environment
- The ability to continually access and stream video data, even after a component failure
- Limited user options for shared storage to improve workflow

## IBM System Storage DS3/4/5000 and ATTO Solution

- Providing enterprise-level Fibre Channel (FC) connectivity for Mac OS environment
- Connect IBM System Storage DS3/4/5000 series to ATTO Celerity line of dual and quad port FC host adapters
  - ATTO Celerity FC Host Adapters with mutipathing driver (failover and load balancing) for high-availability in Mac OS environment
  - Delivering the capability for Macintosh servers and workstations to take advantage of fault tolerant, multipath I/O and failover/failback features of the IBM DS3/4/5000 series storage systems
- Enable Mac workstations and servers to utilize the robust feature of the IBM DS3/4/5000 series storage systems



## IBM and ATTO Joint Certification *(As of December, 2009)*



### DS4700/DS5100/DS5300

- ATTO Celerity FC-82EN dual channel PCIe 2.0
- ATTO Celerity FC-84EN quad channel PCIe 2.0
- Mac OS X Leopard (10.5) and Snow Leopard (10.6)



### DS5020

- ATTO Celerity FC-82EN dual channel PCIe 2.0
- ATTO Celerity FC-84EN quad channel PCIe 2.0
- Mac OS X Leopard (10.5) and Snow Leopard (10.6)



### DS3400

- ATTO Celerity FC-82EN dual channel PCIe 2.0
- ATTO Celerity FC-84EN quad channel PCIe 2.0
- Mac OS X Leopard (10.5) and Snow Leopard (10.6)

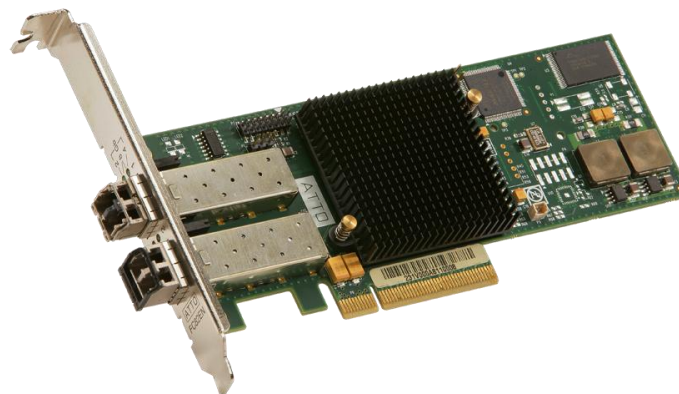
## ATTO Celerity FC-82EN Host Adapter

- **Achieve the highest I/O and data throughput for advanced video (uncompressed HD Video, 2K and 4K film)**
- **Key features**
  - Dual-channel 8Gb/s Fibre Channel Host Adapter
  - 1600 MB/s throughput per channel in full-duplex mode
  - X8 PCI Express 2.0 host connection
  - Exclusive Advanced Data Streaming (ADS™) Technology
  - Driver support for Mac OS X (10.4.x – 10.6x)

### Celerity FC-82EN

#### ATTO Multipathing Driver and Configuration Tool Features

- Allows simple Setup for the Mac OS X user
- No configuration required from the host perspective
- Simple LUN based multipathing scheme
- Simple UI (User Interface) to view all multipathing information
- Shows the number of paths.
- Shows the status of each connection.
- Displays valuable FC Target and Initiator info
- Shows path data flow information in bytes.



## ATTO Celerity FC-84EN Host Adapter

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  - 1600 MB/s throughput per channel in full-duplex mode
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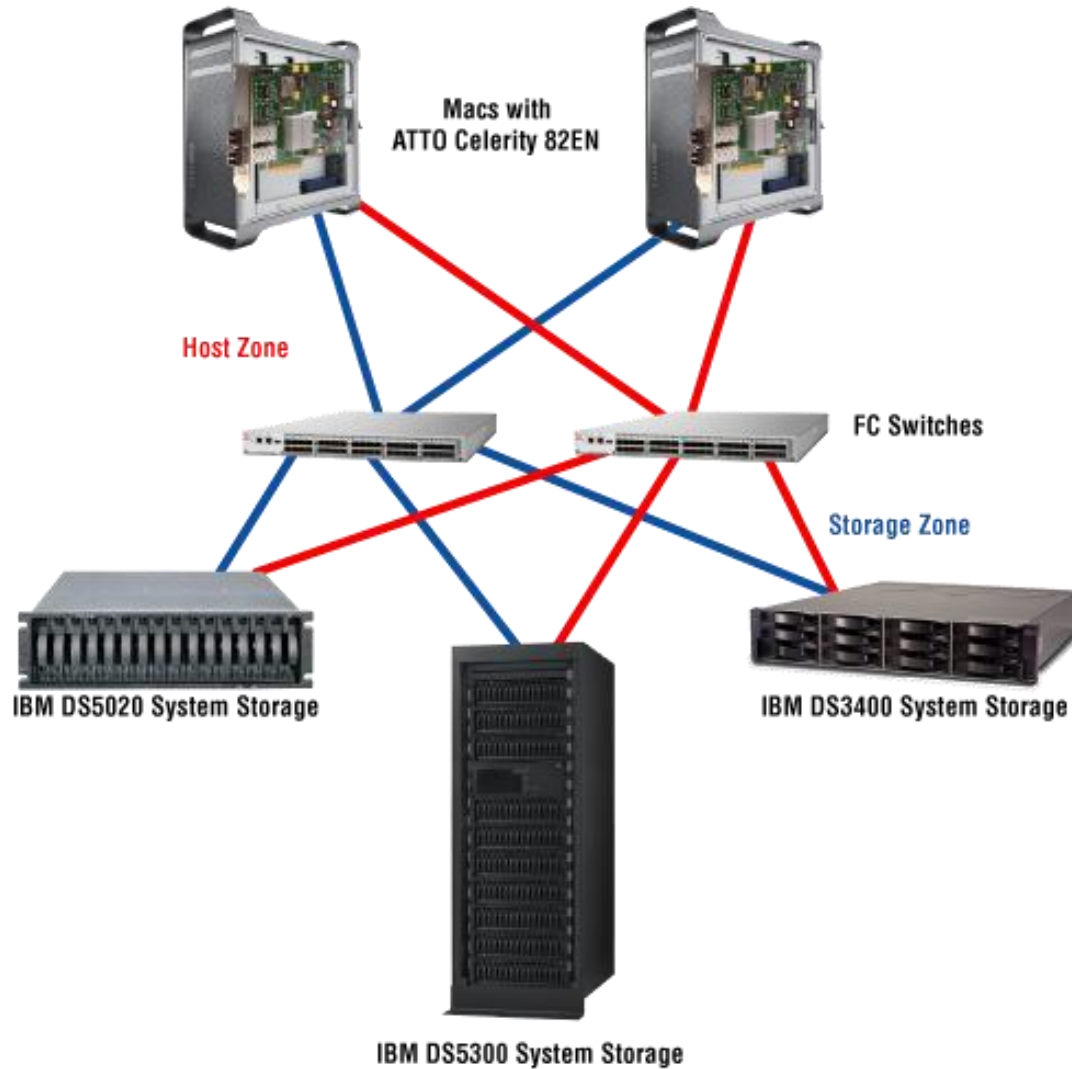
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# IBM and ATTO Solution Example





# IBM Midrange Storage Positioning



## DS5020

- FC connectivity
- FC, FDE, SATA drives
- Partitioning, FlashCopy, VolumeCopy, ERM

## DS3400

- FC connectivity
- SAS, SATA drives
- Partitioning, FlashCopy, VolumeCopy



## DS5100, DS5300

- FC connectivity
- FC, FDE, SATA, SSD drives
- Partitioning, FlashCopy, VolumeCopy, ERM



SMB / Entry-level	Workgroup	Department	Data Center	HPC
<ul style="list-style-type: none"> <li>• FC connectivity</li> <li>• DAS/shared DAS/IP SAN</li> <li>• Simple management</li> <li>• Snapshot replication</li> </ul>	<ul style="list-style-type: none"> <li>• iSCSI, FC connectivity</li> <li>• Shared DAS, small SAN</li> <li>• Simple management</li> <li>• Snapshot replication</li> </ul>	<ul style="list-style-type: none"> <li>• FC, iSCSI connectivity</li> <li>• Homogeneous SANs</li> <li>• Performance value</li> <li>• Configuration flexibility</li> <li>• Local/remote data replication</li> </ul>	<ul style="list-style-type: none"> <li>• FC connectivity</li> <li>• Heterogeneous SANs</li> <li>• Highest performance</li> <li>• Configuration flexibility</li> <li>• Local/remote data replication</li> </ul>	<ul style="list-style-type: none"> <li>• FC connectivity</li> <li>• System clusters</li> <li>• GPFS</li> <li>• Maximum bandwidth</li> <li>• Capacity density</li> </ul>



# DS5000 Series Thinking Beyond Today

## Real-world performance

Sustainable, scalable, balanced, responsive

## Green efficiency

Do more with less

## Interface adaptability

4 Gbps FC, 8 Gbps FC, iSCSI\*

## Continuous and reliable access to Information

Online administration, active-active  
redundancy, advanced diagnostics

## Application integration

Certifications, solutions, meet SLAs

\* 2009 feature



## DS5300 and DS5100 Overview

### **DS5300 (1818-53A)**

- Up to 448 drives
- Enhanced performance

### **DS5100 (1818-51A)**

- Up to 256 drives
- Enhanced performance optional

- 8 or 16 FC interfaces – 4 Gbps or 8 Gbps
- 8 GB or 16 GB of data cache
- Sixteen 4 Gbps FC drive interfaces
- FC/FDE/SATA drives in EXP5000 expansion units
  - FC: 146.8 GB, 300 GB, 450 GB (15K 4 Gbps FC DDM)
  - FDE FC: 146.8 GB, 300 GB, 450 GB (15K 4 Gbps FC DDM)
  - SATA: 750 GB, 1,000 GB (7.2K SATA DDM)
- Partitions: 8, 16, 32, 64, 128, 256 or 512
- FlashCopy (up to 16 per base), VolumeCopy, ERM (up to 128)

## DS5020 Express – Overview

- Four 8 Gbps FC interfaces
- Four additional optional interfaces
  - 8 Gbps FC or 1 Gbps iSCSI
- Up to 112 drives in EXP520
  - FC, FDE, SATA
- 2 or 4 GB of cache
  - Mirrored, battery-backed, destaged to flash
- Premium features:
  - Encryption, Partitioning, FlashCopy, VolumeCopy, Remote Mirroring
- Investment protection
  - Feature for migration of EXP810s
- 3 year, 9x5, NBD warranty



# DS3400 – High Performance for the Smaller Budgets

## Simple Consolidated Management

Centralized proficient management to increase control of storage with little to no IT expertise

## Green efficiency

Do more with less – Fewer drives to meet performance and low power consumption

## Continuous and reliable access to Information

Online administration, active-active redundancy, and multi-path failover

## Scalability and Flexibility

Pay as you grow drive support up to 48 drives and SAS/SATA drive intermix to meet tiered storage requirements

## DS3400 - Overview

- Direct-attach or FC SAN solution
- External solution for System x servers, System p servers, and BladeCenter® servers
- Two auto-negotiating 4-Gbps host ports per controller
- Suited for building new SANs or extending existing 1-Gbps or 2-Gbps SANs
- 2U, 19" enclosure with 3.5" SAS drives and/or SATA
  - ▶ Expandable up to 3 EXP3000s for a total of 48 drives
- Managed by DS3000 Storage Manager
- Premium features:
  - ▶ Partitioning, FlashCopy, VolumeCopy





**Thank You**

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