



ATTO Technology, Inc.



where information lives®

## Features

### High Performance

- Designed from the ground up for video applications
- Can sustain over a dozen streams of uncompressed SD and multiple streams of uncompressed HD
- Configurable parameters to ensure uninterrupted media streaming

### Data Protection

- Excellent data protection with minimal loss of storage capacity for parity data
- Storage Processor or drive failures will not cause data loss

### Industry-Proven Technology

- ATTO Technology has been providing leading-edge technology and storage connectivity to the digital media industry for over 15 years
- Industry-leading EMC CLARiiON systems have helped over 25,000 businesses keep critical data available all of the time—while meeting the most challenging service levels
- Apple Final Cut Studio software users are able to collaborate workflow across heterogeneous operating systems via Quantum StorNext File System

### Seamless Integration

- Datalink Corporation provides a turn-key solution from architecting the solution design to implementing the solution based on specific needs
- Ongoing customer support and maintenance is front-ended by Datalink as the single focal point for call management

### Technology Brief

High Availability Storage for Apple Environments

# High Availability Storage for Apple Environments

## REDUNDANT STORAGE NETWORKS

Numerous applications in today's data-intensive work environments require that storage systems maintain their viability, even when a component fails to work correctly. Often this requires the network to access a different path from server to storage via a process termed, "multi-pathing". Windows and Unix operating systems include general support for redundant storage network infrastructures, or multi-pathing. The Apple Operating System also provides capabilities for high-availability systems, although they are proprietary to Apple storage products.

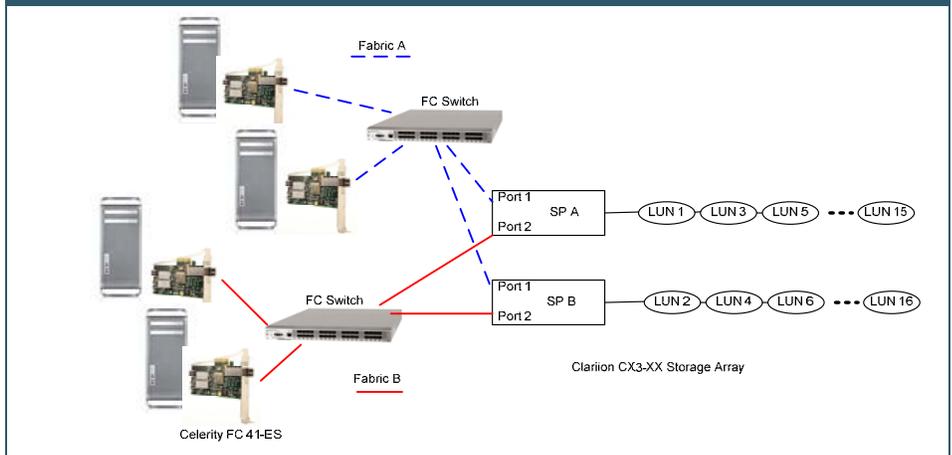
ATTO Technology developed a capability to enable a high-availability Enterprise storage solution for the Mac market.

ATTO, a long-time developer of storage solutions for the Apple market, has created a specialized Fibre Channel driver to allow multi-pathing to high-availability, RAID-protected EMC CLARiiON storage systems. In addition to continuous data protection, the solution is robust enough to support the throughput demands put forth by today's high-end video applications. It is also scalable across multiple workstations and CLARiiON storage arrays in a shared Fibre Channel SAN.

This results in less down-time and significantly increased productivity due to uninterrupted access to the storage media.

## CONFIGURATION

The diagram illustrates one example of a high-availability Fibre Channel SAN where multiple users have shared access to protected data.



## PERFORMANCE VS. AVAILABILITY—NO NEED TO CHOOSE

The EMC CLARiiON CX3-XX storage array is composed of two front-end Storage Processors (SP) and mirrored cache memory. Raw disks can be bound into RAID 5 groups using EMC CLARiiON Navisphere Management software. These RAID Groups are partitioned into multiple LUNs and mapped to either of the two SPs.

## Key Components



Celerity FC-41ES and FC-41XS  
Fibre Channel Host Adapters

- Single 4-Gb Fibre Channel port (41ES PCIe; 41XS PCI-X)
- Specialized FC device driver for use with EMC CLARiiON
- Exclusive Advanced Data Streaming (ADS™) Technology for smooth playback of streaming content
- Simple installation and management via Java-based utility



EMC CLARiiON CX3 Storage Array  
Family

- Scalable solutions up to 237 TB
- Delivers in-the-box data movement within and between tiers of storage
- Advanced design and feature set to deliver best-in-class price/performance/usability
- EMC Navisphere Management Suite streamlines management and simplifies key tasks via wizard-based tools

During normal operation, load balancing is used to send data through both of the CLARiiON Storage Processors for optimal performance. In the event of a front-end path failure, or if an SP needs to be taken off-line for field service (microcode update), the EMC “LUN Trespass” feature will automatically reassign the LUN(s) associated with the failed SP to the operational SP, allowing users to have continued access to the data. Once the SP is back on-line, the LUN(s) will automatically “fail back” to the original SP.

The ATTO Celerity 4-Gb Fibre Channel Host Adapter provides connectivity to the EMC CLARiiON through a Fibre Channel switch. A custom driver, developed by ATTO for use with Celerity host adapters, allows the Apple Operating System to recognize each CLARiiON Storage Processor as an independent device. This ensures maximum bandwidth to each controller. ATTO’s years of digital media industry experience with high-bandwidth environments ensures that Celerity host adapters are tuned for optimal performance.

This high-availability storage solution for media also supports a multiple workstation SAN environment. Apple’s Xsan or Quantum’s StorNext software is used as the shared-file system. Each CLARiiON Storage Processor has dual, 4-Gb Fibre Channel inputs allowing for bandwidth to be distributed across two separate fabrics. The Apple Xsan software controls read/write access permissions to the shared LUNs allowing for collaborative workflow environments.

In the past, digital media customers were forced to choose between high-performance, high-availability or consolidated shared data when it came to implementing their storage solutions. As the digital media market continues to expand, the requirement to support all of these needs becomes more prevalent. The combined capabilities of EMC and ATTO Technology deliver a solution that meets both high-availability and high-performance requirements.

### REQUIREMENTS

- ATTO Celerity FC-41ES or FC-41XS 4-Gb Fibre Channel Host Adapters
- ATTO Custom Multi-Pathing driver for EMC CLARiiON
- EMC CLARiiON CX3 Storage Array Family
- EMC Navisphere Management Suite
- Mac OS 10.4.X
- For Multiple Workstations: Apple Xsan or ADIC StorNext SAN Management Software
- Apple Xserve, Mac Pro, or Mac G5 Power PC Workstation

### AVAILABILITY AND SUPPORT

Datalink Corporation is an information storage architect. Datalink analyzes, designs, implements, and supports information storage infrastructures that store, protect, and provide continuous access to information. For product availability and post-sales support, contact Datalink at 1-800-448-6314, or visit [www.datalink.com](http://www.datalink.com).

