ATTO Provides High-Availability Connectivity to Mac for HP Storage

The need for more sophisticated, high-end storage solutions continues to accelerate as the rich media and content creation markets evolve. Many video professionals prefer to use Apple workstations and servers because of their performance and the applications that run on them. The ability to continually access and stream video data, even after a component failure, is a "must have" requirement. The challenge is in finding high performance, scalable, highly available, redundant storage systems to connect with the Mac workstations.

The Solution

ATTO Technology and Hewlett Packard have teamed up to offer a high-end, completely redundant video production solution designed to enhance workflow and increase productivity by keeping content available in real time for multiple users. The result is a solution focused on less down-time which significantly increases productivity due to uninterrupted access to the storage media.

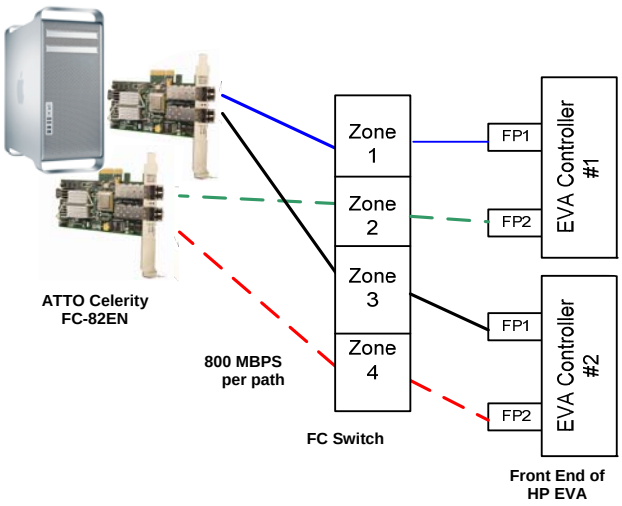
The HP Enterprise Virtual Array (EVA) is designed for environments where there is a critical need for high availability and for improved storage utilization and scalability. In addition to a highly advanced hardware solution, the EVA is supported by a powerful simple suite of management applications, making it easy for users to achieve the highest level of productivity. The EVA family's redundant architecture and value-added software is designed to eliminate any single point of failure anywhere in the storage system.

Windows and UNIX operating systems include general support for high availability, redundant storage network infrastructures. The Apple operating system includes built-in multipathing capabilities, but it tends to be proprietary to Apple storage products, which do not include redundancy on the storage end. In an effort to offer a tremendously more robust storage solution to Apple video professionals, ***ATTO Technology developed a capability to enable high-availability Fibre Channel connections to the HP StorageWorks Enterprise Virtual Array family of storage systems for the Mac market.***

Configuration Details

Combined with the Fibre Channel multipathing solution from ATTO, a completely redundant solution from the workstation to the drive in single or clustered architectures is now possible.

The EVA4000 and EVA6000 have redundant storage controllers, each with two Fibre Channel host interface ports. The EVA8000 has four Fibre Channel host interfaces, eight per controller pair. Each EVA controller pair interfaces with drive enclosures either directly or through Fibre Channel switches. Each controller has a redundant path to each drive. With two controllers, the storage configuration is completely redundant.



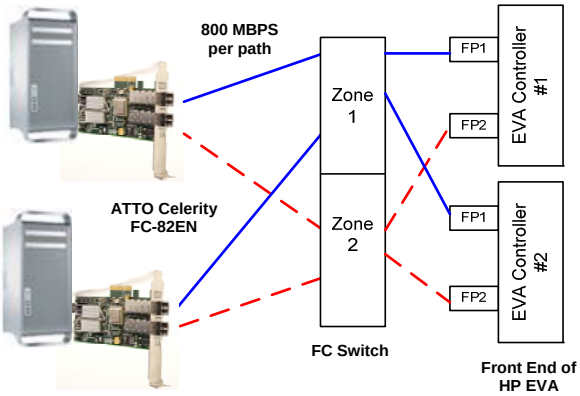
The EVA is used to create RAID protected virtual disks. These virtual disks can be mapped to both controllers in a redundant pair. The ATTO Celerity dual-channel Fibre Channel host adapter is used to provide Fibre Channel connectivity to both controllers. A custom host adapter driver developed by ATTO allows the Apple operating system to recognize each EVA controller as an independent device.

During normal operation, load balancing is used to send data through both of the controllers for optimal performance. In the event of a front-end path failure, or if a controller needs to be taken off-line for field service, the ATTO Celerity host adapter will route all traffic through the remaining path for continued access to the data. Once the processor is back on-line, data will again be load balanced across both ports. All this occurs without the need for user intervention.

For environments that require higher bandwidth or redundancy, the virtual disks can be mapped to four host interface ports on the EVA controller pair. For high-performance applications, the ATTO Celerity quad-channel Fibre Channel host adapter can be used to provide load balancing across four independent paths to the disk. For high-availability environments, two ATTO dual-channel adapters can be used – each providing redundant paths to the storage. Again, data to and from the virtual disk will be load balanced across four independent 4-Gb Fibre Channel connections.

The ATTO Configuration Tool can be used to monitor all the paths between the workstation and the EVA. The utility will show all associated paths to each virtual disk

as well as the status of that path (active, inactive, available). It can also be used to track statistics for data bytes transferred across each path.



This high availability storage solution for media also supports a multiple workstation SAN environment. Apple's Xsan or Quantum's StorNext software can be used as the shared file system. The file system software controls read/write access permissions to the shared LUNs allowing for collaborative workflow environments.

Video houses that use various tools, running on different operating systems, for video production can now easily collaborate. Mac, Windows and Linux systems can all connect to the HP EVA in a highly-available, redundant Storage Area Network.

ATTO's years of digital media industry experience with high-bandwidth environments ensures that Celerity host adapters are tuned for optimal performance. The ability to continually deliver uninterrupted data, frame after frame, is critical to ensure all of the bits of video data can be transferred in real time in order to sustain the chosen frame rate. Not only in normal operation, but also when a drive has failed and data is being calculated from parity information stored on the system. 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 is becoming more prevalent. The combined capabilities of HP and ATTO Technology deliver a solution to meet both high-availability and high-performance requirements.

Key Components

ATTO Celerity 4Gb & 8Gb Fibre Channel Host Adapters

- Dual 4Gb Fibre Channel HBA (42ES PCIe / 42XS PCI-X)
- Quad 4Gb Fibre Channel HBA (44ES PCIe)
- Dual 8Gb Fibre Channel HBA (82EN PCIe 2.0)
- Quad 8Gb Fibre Channel HBA (84EN PCIe 2.0)
- Specialized FC Mac Device driver for use with HP EVA Storage Systems
- ATTO Configuration Tool provides simple installation and management

HP EVA Storage Systems

- Flexible, cost-effective, high-end modular storage systems
- Fully redundant and hot swappable components
- Redundant controllers with 4 or 8 host interface ports
- Models scale from 0.2TB up to 128TB
- Full spectrum of HW & SW solutions as well as HP services

Requirements

- **ATTO Celerity FC-42ES, FC-42XS or FC-44ES 4Gb Fibre Channel Host Adapters**
- **ATTO Celerity FC-82EN, or FC-84EN 8Gb Fibre Channel Host Adapters**
- **ATTO custom multipathing Mac driver for HP EVA systems (available at www.attotech.com)**
- **ATTO Configuration Tool for HP EVA systems (available at www.attotech.com)**
- **HP Storage Works Enterprise Virtual Array storage system**

  EVA4000 Starter Kit, EVA4000 SAN Starter Kit, EVA4000, EVA6000 or EVA8000 Series
- **Mac OS 10.4.6 or higher**
- **For multiple workstations: Apple Xsan or Quantum StorNext SAN management software**
- **Apple Xserve, Mac Pro, or Power Mac G5 Power PC workstations**

ATTO Technology, Inc.

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