

# Increased Streaming Capacity Solutions for Media and Entertainment



## Configuration:

StorNext Filesystem – version 6.1.0

Data Stripe Group – 223.5  
TiB usable capacity

NetApp EF600 w/ 4 32G FC HICs  
(8 ports per controller)

24 MZWLL15THMLA-0G5 - 14TB NVMe drives

2 10+2 RAID 6 Volume Groups

4 27.9 TiB Volumes per Volume Group with 512KiB segment size.  
(Capacity is 20% under provisioned)

MDC/Journal Stripe Group -200 GiB

NetApp EF570 w/2 32G FC HICs

4 PX02SMU080 - 800 GiB SSD drives

1 4 Drive RAID 10 Volume Group

2 200 GiB Volumes

## Hosts

### Clients

RHEL 7.7

1 x ATTO CTFC-324E in each server,  
Driver 1.76MP, Firmware 3/26/2019

2 x Intel Xeon E5-2670 v3 2.3GHz

128 GB RAM

### MDC

RHEL 7.5

## ATTO and NetApp Fibre Channel Workflows Provide Superior Client Performance

### Overview

Lower latency and high availability are the key to achieving the highest quality streaming workflows. In a recent benchmark conducted by NetApp Inc., ATTO Celerity™ Fibre Channel adapters consistently provide more streams of video than competitors when paired with NetApp EF-Series storage.

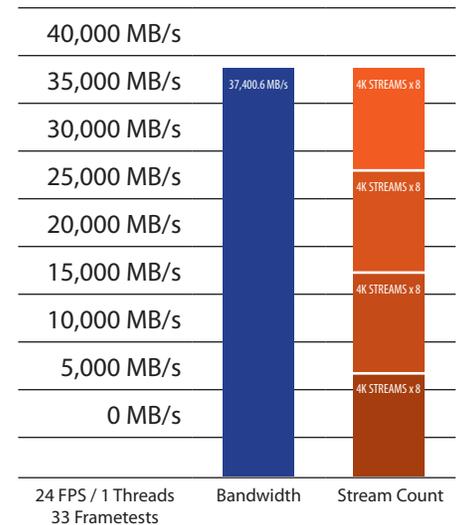
### Importance of Latency:

The higher the latency the greater the delay before a transfer of data. As a result, video and rich media applications may experience poor performance leading to other inefficiencies along the production chain.

Low latency solutions allow users to enhance their intensive media streaming environments and performance-tuned applications with fast, reliable, and flexible high-end storage and consistent high-performance bandwidth. These solutions can provide high availability access for pre- and post-production needs.

**ATTO Advanced Data Streaming (ADS™)** is proprietary technology built into ATTO host adapters that is designed to manage latency in high-bandwidth environments.

ADS provides controlled acceleration of data transfers by utilizing a combination of features to move large amounts of data faster and efficiently, maintaining the highest consistent performance and lowest latency well beyond the competition.



**RESULTS:** ATTO provides a consistent 32 streams of 4k with zero dropped frames. This results in a consistent 8 streams of 4k per client.

### IO Latency Average (across all hosts)

Competitor Fibre Channel Vendor 25.3 ms

ATTO w/Multipath Director 18.9 ms

### IO Latency Max (across all hosts)

Competitor Fibre Channel Vendor 138.6 ms

ATTO w/Multipath Director 65.5 ms

## ATTO MultiPath Director and NetApp EF-Series

MultiPath Director™ is a specialized multipathing driver incorporated into ATTO Celerity Fibre Channel host bus adapters. Multipath Director implemented across all hosts improves overall Fibre Channel SAN efficiency with consistent uninterrupted access to data through failover and failback protection. Load balancing increases overall system performance by using more than one Fibre Channel path to transfer data.

Automatic path and storage controller failover and failback provides uninterrupted access to data and continuous uptime. Windows®, Linux® and Mac® workstations and servers can be mixed into a heterogeneous environment. NetApp EF-Series storage is easily expanded and managed, while ATTO ConfigTool™ simplifies administration and troubleshooting of multiple paths to storage.

## About ATTO

For over 30 years, ATTO Technology, Inc. has been a global leader across the IT and media & entertainment markets, specializing in network and storage connectivity and infrastructure solutions for the most data-intensive computing environments. ATTO works with partners to deliver end-to-end solutions to better store, manage and deliver data. Working as an extension of customer's design teams, ATTO manufactures host bus adapters, network adapters, protocol bridges, Thunderbolt™ adapters, and software. ATTO solutions provide high level connectivity to all storage interfaces, including Fibre Channel, SAS/SATA, iSCSI, Ethernet, NVMe, NVMe over Fabrics and Thunderbolt. ATTO is the Power Behind the Storage.

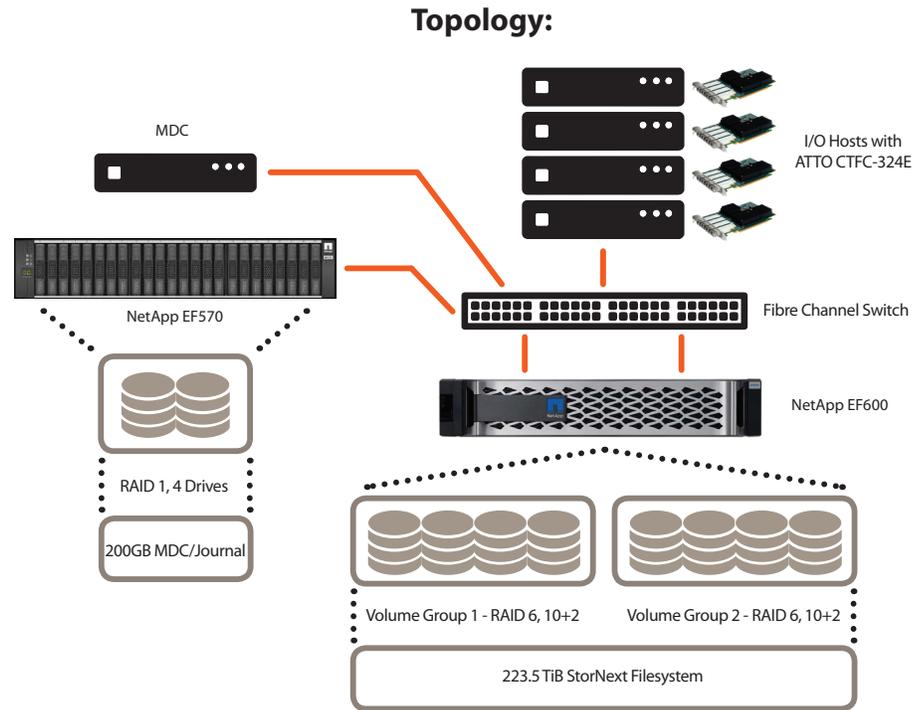
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## About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touch points, foster greater innovation and optimize their operations. For more information, visit [www.netapp.com](http://www.netapp.com). #DataDriven

## Real Results and User Impacts

Using a multiple single threaded frametest ATTO was able to achieve 38.5GB/s equating to 32 simultaneous 4k streams at 24fps without any dropped frames. The combination of ATTO MultiPath Director and ADS keeps latency low to allow these impactful performance results. Real time and simultaneous access to data enables workgroups or single users to create efficient workflows that save time and money, while dramatically decreasing a project's time to completion.



## The Role of Fibre Channel in Low Latency Solutions

When users need a low latency solution they turn to Fibre Channel. Fibre Channel is a key technology for existing and new networks targeted at content creation and is crucial for high bit rate and bit depth applications. One of its signature features is providing deterministic throughput and reliability. Routine actions like playback, which is transitioning from HD and 2K to 4K and 8K streams, are backed by a deterministic backbone with Fibre Channel.

## Summary

ATTO has designed a highly specialized and industry proven Fibre Channel stack optimized for high-performance, low latency environments. ATTO Advanced Data Streaming provides managed latency for high-bandwidth environments. As an industry leader in Fibre Channel, ATTO enhances high-performance appliances, servers, workstations and storage solutions with Initiator and Target Mode driver support.

NetApp EF-Series storage systems directly connect to Linux, Mac and Windows workstations and servers for a complete heterogeneous solution. This cost-effective solution of ATTO and NetApp features high bandwidth, low latency and high availability data transfers. Users are able to pool, share and centrally manage storage resources for improved storage utilization, scalability and workflows.