SOLUTION BRIEF

ATTO

ATTO FastFrame™ 25/40/50/100GbE NICs Accelerate High Resolution Video Workflows

Challenge

The new high resolution video formats being adopted by the film and television industry for production and post-production come with new requirements to support those workflows. Advancement of 10GbE technology paved the way for Ethernet in the media and entertainment space by providing the necessary throughput for HD video. It also addressed technical issues such as high latency and packet loss that had prevented the otherwise widely-used transport mechanism from being deployed in post-production environments. Now the move to new formats, along with the proliferation of animation and special effects in everything from TV shows to blockbuster movies, is driving a need for studio infrastructure that supports multiple high-resolution streams.

The Solution

The industry-leading latency and throughput provided by ATTO FastFrame™ 3 10/25/40/50/100GbE network interface card (NIC) makes it suitable for uncompressed 4K and 8K applications. A single stream of 16-bit 8K EXR video at 24 frames per second requires 28.2Gb/s of bandwidth. While that need can be met by multiple ports on a 10GbE NIC, using a single port on a FastFrame 50GbE NIC provides a more cost-effective and power-efficient solution. It's also important to note that FastFrame achieves near-line rates, while most competing NICs on the market perform at significantly less.

ATTO FastFrame has near-line speed throughput is enabled by careful latency management and its implementation of Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE). This feature uses zero copy data transfers to permit more efficient data movement between servers and storage, freeing up the host's CPU for editing, compositing and rendering. RoCE is already a standard in latency-sensitive markets such as high performance computing clusters (HPCC) and is seeing increased adoption in editing workflows due to its latency and CPU utilization benefits.

Scale-out Network Design with 10/25/40/50/100GbE

While the need for more bandwidth is being driven by transcoding and encoding, rendering and effects, There is a card for every place in these workflows for related tasks with lesser performance requirements such as business applications and playout.

Network Attached Storage (NAS) is often used in editing environments due to the homogeneity of the protocols used (NFS RDMA, SMB Direct, etc.). Scale-out versions of NAS allow for easy expansion of that storage—necessary as higher resolution video eats up more and more storage space
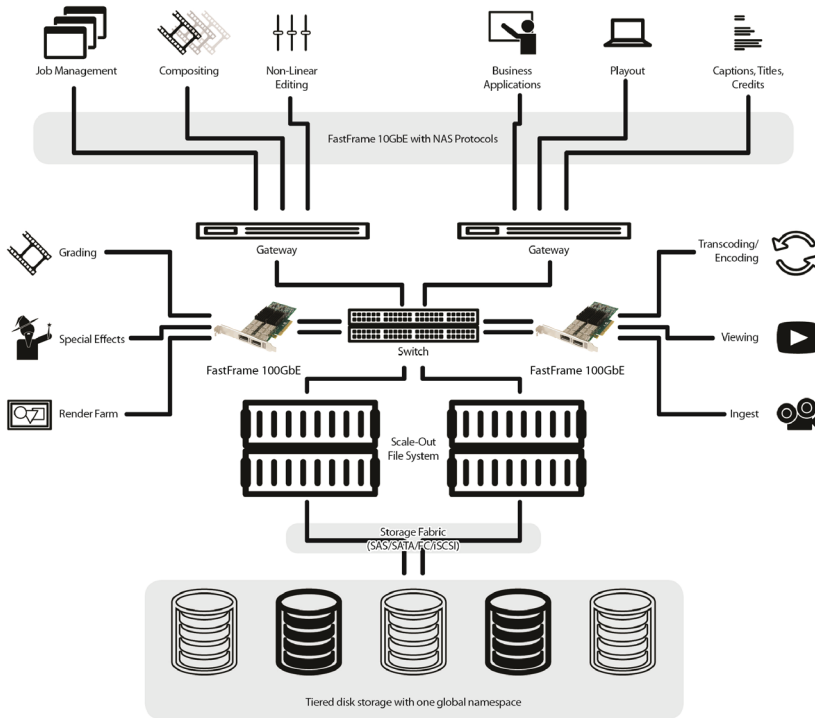
ATTO 25/40/20/100GbE FastFrame NICs in a demanding 4k video environment utilizing NAS storage. This scale-out file system allows shared RDMA access to media storage, with support for one 4K/24fps stream for each workstation using RDMA. Areas in the workflow that don't require real-time uncompressed streaming utilize the gateway to access media files.

ATTO FastFrame™ NQ41
- Single Port 40GbE PCIe 3.0 Network Adapter

ATTO FastFrame™ NQ42
- Dual Port 40GbE PCIe 3.0 Network Adapter

ATTO FastFrame™ N351
- Single Port 50GbE PCIe 3.0 Network Adapter

ATTO FastFrame™ N311
- Single Port 100GbE PCIe 3.0 Network Adapter

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