Solution Brief

E-Series for Media

Consolidate media workflows for greater efficiency

Key Features

- Extreme bandwidth and dense capacity to drive workflow consolidation
- Boundless container to support huge multisite media repositories
- Scalable design for reliable performance at scale

From Creation to Distribution

Change your approach to storage

File-based workflows provide tremendous content creation efficiencies. And with "TV-everywhere" distribution models extending the reach of media brands, the ever-increasing bandwidth and capacity needed from the underlying storage infrastructure is overwhelming legacy storage.

A shared storage repository with infinite bandwidth and a boundless container benefits all aspects of media operations. By moving to a more centralized, shared content repository, media companies can consolidate high-speed production and render workflows, support large-scale delivery architectures, and implement a global repository for greater monitoring and maintenance efficiencies. This move results in key benefits that enable media and entertainment companies to find new ways to monetize content:

- Gain production efficiencies with high bandwidth.
- Easily manage multipetabyte repositories.
- Achieve cost savings with high-bandwidth delivery.

NetApp created a solution that addresses the specific bandwidth and capacity requirements needed to design efficient media workflows and manage huge digital libraries. This solution helps media organizations improve the production and delivery of television, movie, social media, interactive game, music, and photography content.

Flexible Storage for Improved Media Workflow Efficiencies

NetApp® E-Series can be configured for all sizes of media operations, from corporate media and local broadcast news operations to 4K file post-production and large cable and Internet delivery services. The solution is architected with modular, flexible components that can be configured to meet the specific requirements of each step of your operations. By deploying components optimized for each stage of the media workflow, you get a solution that is tailored for your unique needs.

Optimized for consolidation

The NetApp 60-drive enclosure, with its five-9s reliability, is easily serviced. It has retractable disk drawers and optimizes storage density to consolidate all stages of media workflows (ingest, manage, produce, process, deliver, archive, and transact) into a single centralized repository. By consolidating siloed storage, you benefit from an infrastructure that delivers maximum storage capacity with excellent performance. You also reduce or eliminate file copies between silos.

NetApp®

E-Series disk enclosures can be populated with SSD, SAS, NL-SAS, or a combination of drive types for hybrid storage infrastructures. By employing the appropriate drive types and spindle speeds for your media workflow, you can optimize the E-Series platform for the critical metric of "video bandwidth per dollar."

- Massive performance in a 4RU building block:
  - 12GBps mixed video read/write per controller pair
- Extreme density that optimizes rack space, power, and cooling:
  - 360TB in 4RU

Optimized for speed
The NetApp E-Series 24-drive enclosure has two rack units and is designed for 2½" 10K SAS or SSDs. The enclosure enables extreme acceleration of bandwidth-sensitive workflow operations (ingest, production, processing), delivering both high bandwidth and high input/output per second (IOPS). These enclosures are used for 4K production, demanding file system metadata, and media transaction databases. The enclosures can be configured as all-flash arrays or as hybrid arrays with mixed SSDs and SAS HDDs. When they are configured as hybrid arrays, various modes of tiering can be employed from within the E-Series NetApp SANtricity® control software. These modes enable critical workflows to access data from SSDs while aging data is automatically tiered to slower HDDs.

- **Extreme bandwidth**. Delivers up to 4GBps sustained mixed read/write video bandwidth in a 4U 2.5" 48-drive configuration.
- **Smaller footprint**. Reduces power, cooling, and operational costs with fewer disks and less than half the rack space.
- **High-performance real-time edit support**.

Optimized for small workgroups
The NetApp E2712 is a cost-effective enclosure for small workgroups or specific workflow stages. The dual controllers provide 3GBps of bandwidth and systems are configurable in granular 12-disk enclosure increments starting with the initial 2U system enclosure.

High-performance parallel file systems
The high-performance parallel file systems (Quantum StorNext, IBM GPFS, and SGI CXFS) that deliver the power of NetApp E-Series storage are built for video ingest, production, processing, and delivery workflows. Their mature metadata servers can be configured for high availability for continuous uptime. In addition, they dramatically streamline workflow and improve productivity by creating a shared repository that supports flexible, high-performance streaming, even with high-bit-rate media content such as uncompressed HD, 2K, and 4K.

- **Single namespace**. Virtually no bandwidth or capacity limit.
- **Near-linear bandwidth scalability**. Direct data paths between storage and clients.
- **Support for multiple client requirements**. Optimized SAN and LAN connectivity.

Continuous performance and maximum resiliency
NetApp SANtricity Dynamic Disk Pools (DDPs) are designed for sites that demand continuous high performance and maximum resiliency. DDPs provide significant improvement in data protection over static RAID striping methods. These disk pools reduce the performance impact of a drive failure by drastically reducing the rebuild time versus that of traditional RAID.

E-Series DDPs also perform at up to 90% of optimal performance during data recovery, so critical workflows can continue unhindered. Their flexible disk pool sizing enables DDPs to optimize disk drive utilization per enclosure. No longer is there wasted space in the enclosure for spare drives that do not contribute to the bandwidth needs of the operation.

How do DDPs work? They distribute data, parity information, and spare capacity across a pool of drives (seven patents are pending). DDPs are able to utilize every drive in the pool for both normal and rebuild operations, making every enclosure maximally efficient.

If a drive failure occurs, every drive in the pool contributes to recreating the lost data blocks. This dynamic rebuild behavior is the key to DDPs' exceptional performance under failure conditions and their quick return to optimal condition.

Consolidate Workflows for Greater Efficiency

E-Series storage will increase the effectiveness and flexibility of your end-to-end processes. You will be able to achieve greater operating efficiencies across your workflow (ingest, manage, produce, process, deliver, archive, and transact), giving you the ability to deliver better-quality content at a lower cost.

Ingest
Real-time video ingest requirements have grown from a single channel of SD to dozens of channels of HD. This increase requires higher storage bandwidth for a reliable ingest operation. NetApp E-Series storage provides the extreme bandwidth required to efficiently ingest more streams and fatter bit-rates without the need to transfer between storage buckets. This capability gives you more time to spend on the creative process. You can scan film frames, record live feeds, transfer files, or upload field- and consumer-generated media with a solution designed for workflow efficiency and massive scalability.

- **Choice**. Select the bandwidth and capacity option tailored to your individual operations.
- **Small workgroups or individual suites**. The 24- and 12-disk E-Series enclosures meet the needs of small workgroups and specific workflow stages.
- **Large environments or consolidated workflows**. The 60-disk enclosure optimizes storage density to consolidate all stages of your media workflow.

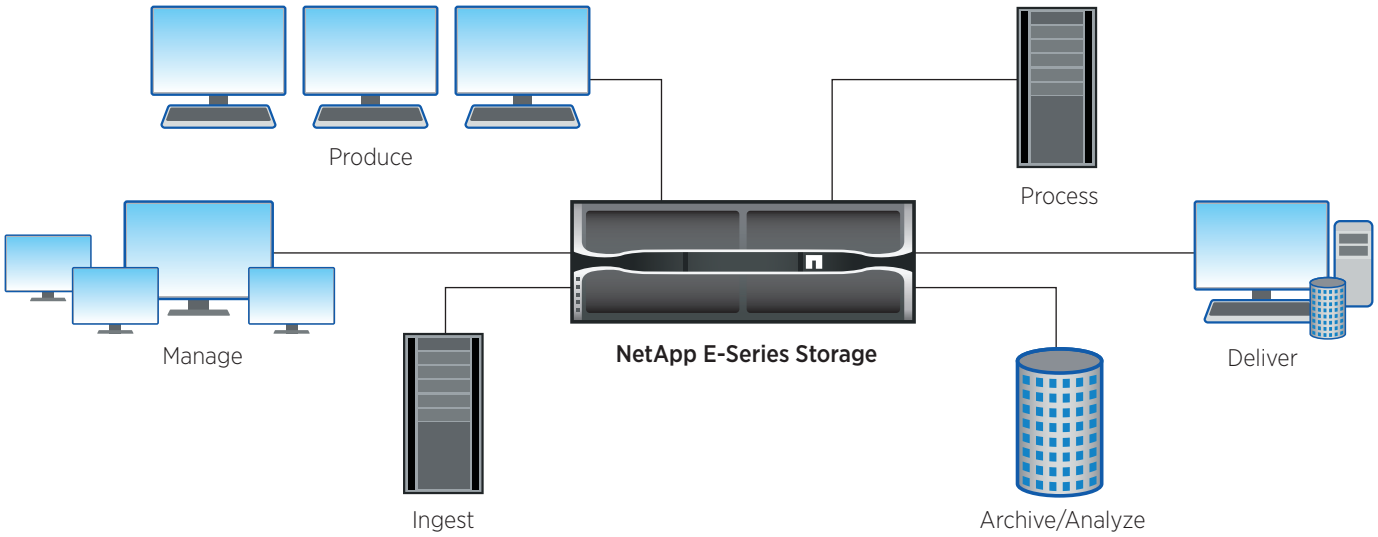

Figure 1) Consolidate workflows for greater efficiency.

Manage
Your digital media files are valuable only if they can be found and repurposed when needed. E-Series storage enables you to keep all of your assets in a single repository, using fewer storage arrays and a single namespace for huge libraries. This feature makes it easier for media asset management systems to tag, browse, search, retrieve, and approve content as it is developed and distributed throughout its lifecycle.

- **Cost-effective expansion**. Scale bandwidth and capacity independently within the same container. Start small and expand with 2U or 4U increments as demand changes.
- **Efficient scalability**. Add capacity as needed, expanding to multiple petabytes in a single data container.
- **High density**. Support up to 3.6PB in each industry-standard 40U rack.

NetApp offers media operations a preconfigured, pretested storage solution that delivers the extreme efficiency and massively scalable capacity and bandwidth demanded by today's media workflows.

Produce
Production is all about staff productivity. NetApp enables you to edit, color grade, animate, and design with the confidence that your media will always be available. E-Series storage is architected to provide maximum uptime with optimized reliability, availability, and scalability built in to the platform.

- **High bandwidth**. Provides smooth video ingest and playback of many streams.
- **No single point of failure**. System hardware uses standard redundant components to provide the highest levels of critical data availability.
- **Field-proven technology**. Over 600,000 units shipped, leveraging over 20 years of storage-system design and development.

Process
The automated processes that transcode clips to multiple formats, render images, check quality, and fingerprint copies all perform better with low-latency, high-performance storage. E-Series delivers the extreme performance needed to accelerate these IOPS-intensive operations.

- **Get extreme performance**. Mix several SSDs in an enclosure to further accelerate the performance of critical latency-sensitive workflows.
- **Eliminate bottlenecks**. Dramatically increase efficiencies with up to 12GBps read/write in 2U with SSDs.
- **Benefit from flexibility**. Get a choice of HDDs and SSDs along with read/write caching algorithms to reduce wait states.

Deliver
There is an increasing demand to provide high-bandwidth content in new and cost-effective ways to support the massive uptake in users of multistream delivery services. Bandwidth and reliability are the critical components of successful distribution, whether delivered by:

- Traditional broadcast
- Cable and satellite
- Over-the-top Internet video
- Social media

NetApp enables the effective streaming and play-out of media content, providing both high bandwidth and high IOPS with an excellent price/performance ratio.

- **Extreme bandwidth**. Delivers up to 12GBps sustained read/write per controller pair.
- **Dense capacity**. Supports 3.6PB in each industry-standard 40U rack.

Archive

You can now collapse storage tiers while maintaining the bandwidth required to support media workflows. NetApp enables you to deploy active archives using cost-effective online storage for fast access to historical content or seamless integration with digital tape storage through industry-standard archive management software.

Add capacity as needed, expanding with 60-disk enclosures that scale up to 360 disks in a single system.

- **Capability to scale out**. Multiple systems create a single namespace under the parallel file systems deployed with the E-Series.
- **Flexibility**. Rapidly provision storage capacity.

Transact

The NetApp E-Series is designed to provide both massive sequential and random I/O. E-Series outperforms competitors in media transaction database workloads in which milliseconds can be translated into dollars. Whether configured with SSDs or with SAS HDDs, the E-Series can make an important difference in your media transaction workflows.

Partner with the Experts

Accelerate your implementation and minimize risk by taking advantage of NetApp Professional Services. Using industry best practices, we enable successful deployments of NetApp E-Series storage by designing, deploying, and integrating the solution to meet your specific business needs. You will achieve the highest levels of efficiency, manageability, and agility whether your project is large or small, on one site or across multiple locations.

Summary

NetApp E-Series offers media operations the extreme bandwidth and massively scalable capacity demanded by today's media workflows. The NetApp E-Series platform improves the production and delivery of television, movies, social media, interactive games, music, and photography content. It provides these benefits by simplifying all stages of your media workflows.

About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.

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