

## Solution Brief

# E-Series for Media

Improve Workflow Efficiency with a High-Performance, Scalable Storage Environment

### Key Benefits

#### Reduce Complexity and Maximize Productivity

NetApp E-Series can replace silos of storage to create a unified storage environment with virtually limitless scale and performance to simplify data management and support future growth.

#### Meet Your Unique Data Fabric Needs

With configurations built to solve for a variety of storage challenges, selecting E-Series systems makes it easy to build and manage the data environment your business requires.

#### Reduce Risk and Management Overhead with Industry Leading Reliability

NetApp E-Series is renowned for its high-availability and continuous performance. You can expect lower costs to manage an E-Series environment and much less impact on productivity than other disparate storage systems.

### From Creation to Distribution

#### Change your approach to storage

Shared storage across production workflows offers tremendous content creation efficiencies. New streaming platforms are extending the reach of media brands. But with these changes come greater production demands and a need for massive bandwidth and capacity from the underlying production storage systems. This need can overwhelm the proprietary media storage systems traditionally used in these environments.

A shared storage repository with infinite bandwidth and a boundless container can benefit all aspects of media operations. By moving to a more centralized, shared content repository, media operations can consolidate high-speed production, support large-scale transcoding and 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. Companies can:

- Gain production efficiencies.
- Manage multi-petabyte repositories easily.
- Lower costs when transcoding, rendering, or delivering high-bandwidth content.

NetApp® E-Series and EF-Series systems provide tens of gigabytes of video bandwidth and petabytes of capacity to support efficient media workflows and to manage huge digital libraries. With E-Series storage, your media organization can improve the production and delivery of television, movies, social media, interactive games, music, or photographic content.

### Choosing the E-Series Solution That's Right for You

E-Series can be configured for all sizes of media operations, ranging from corporate media and local broadcast news operations to 4K and 8K postproduction to large cable and internet delivery services. The system is architected with modular, flexible enclosures that can be configured to meet the specific requirements of each step of your operation. By deploying enclosures that are optimized for each stage of the media workflow, you get a solution that is tailored to your unique needs.



Figure 1) The E-Series E5760 4RU enclosure for maximum density.

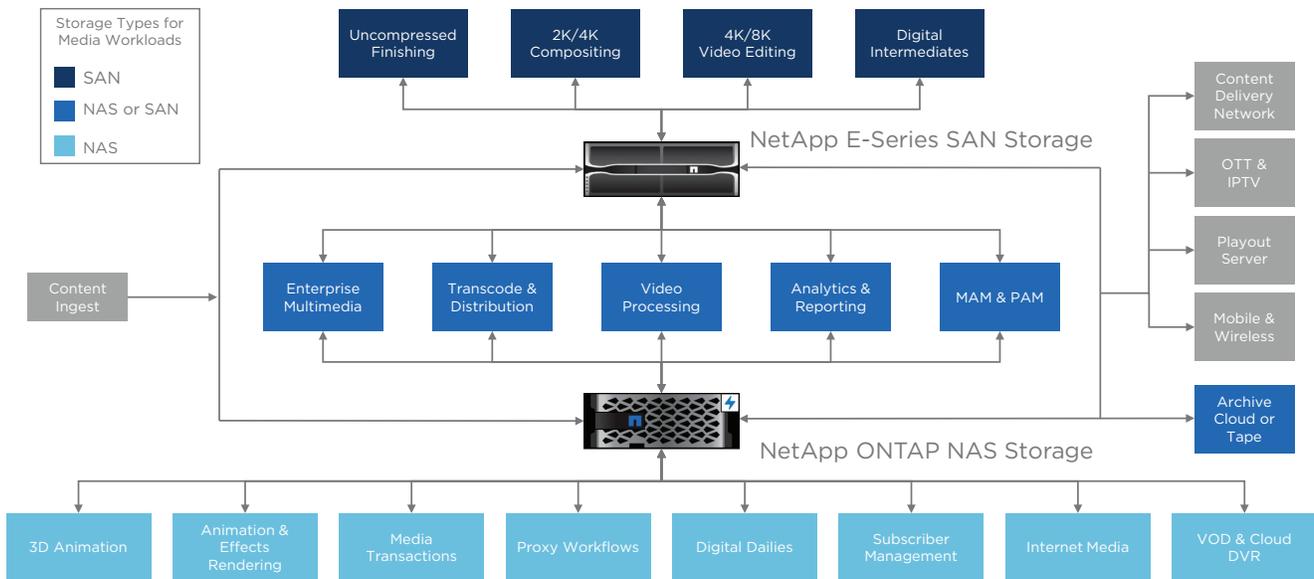


Figure 2) ONTAP provides an agile infrastructure for animation and effects rendering, active archiving, transcoding, distribution, internet media services, and TV anywhere, plus shared IT for business operations. Extremely high-bandwidth E-Series can be deployed for real-time high bit rate production. Both platforms have superior performance for many media operations.

### E-Series: Optimized for Consolidation

The NetApp 60-drive enclosure (E5760), with its extreme availability (99.999%) and easily serviced, retractable disk drawers, optimizes storage density. It consolidates 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. The E5760 is usually populated with 7.2K NL-SAS drives; but for data acceleration, a few SSDs can be combined with HDDs. By employing the appropriate drive types and speeds for your media workflow, you can optimize the E-Series system for the critical metric of “video bandwidth per dollar.” You also get:

- Massive performance in a 4U building block
- Up to 7GB/s of video throughput
- Extreme density that optimizes rack space, power, and cooling
- Up to 720TB in 4RU

### EF-Series: Optimized for speed

The NetApp EF570 and EF600 24-drive enclosures are 2 rack unit arrays designed for SAS and NVMe SSDs (respectively). The enclosure enables extreme acceleration of bandwidth-sensitive, latency-intolerant workflows (ingest, production, and processing), delivering both high bandwidth and high IOPS. These enclosures are used for 4K production, demanding file-system metadata, and media transaction databases.

EF-Series systems offer:

- **Extreme bandwidth.** Deliver up to tens of gigabytes of video throughput.
- **Smaller footprint.** Reduce power, cooling, and operational costs.

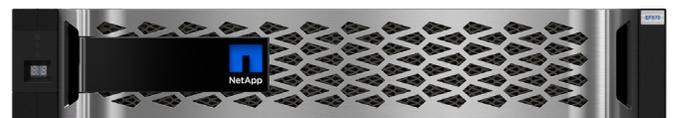


Figure 3) The 2RU EF-Series 600 delivers maximum performance per rack unit.

### High-performance parallel file systems

NetApp E-Series and EF-Series are robust and powerful systems for high-performance parallel file systems that take full advantage of the E-Series and EF-Series capabilities for ingest, production, processing, and delivery workflows. Pixit Media's PixStor, for example, uses the systems' massive bandwidth and IOPS performance to support global organizations with dozens of editors and artists working around the world.

NetApp E-Series plus a file system like PixStor dramatically streamlines workflow and improves productivity. The combination creates a shared repository that supports flexible, high-performance streaming, even with high-bit-rate media content such as HD, 2K, 4K, 6K, 8K, and VR formats. This repository also includes:

- **A single namespace.** Virtually limitless bandwidth or capacity
- **Near-linear bandwidth scalability.** Both scale-up and scale-out configurations
- **Support for Linux, Windows, and OS X clients**

### Continuous Performance and Maximum Resiliency

NetApp SANtricity® Dynamic Disk Pools (DDP) technology is designed for sites that demand continuous high performance and maximum resiliency. The DDP feature offers significant improvements in data protection over static RAID striping methods. It reduces the performance impact of a drive failure by drastically reducing the rebuild time versus traditional RAID.

Dynamic Disk Pools also provide up to 90% of optimal performance during data recovery so that critical workflows can continue unhindered. Flexible disk pool sizing enables disk pools to optimize disk drive utilization per enclosure. There's no more wasted space in the enclosure for spare drives that don't contribute to the bandwidth needs of the operation.

### Consolidated Storage Means Greater Efficiency for Workflows

E-Series storage helps increase the effectiveness and flexibility of your end-to-end processes. You can achieve greater operating efficiencies across your workflow, so you can deliver better-quality content at a lower cost.

### Ingest

Real-time video ingest requirements have grown from a single channel of SD to multiple channels of HD and 4K content. This increase requires higher storage bandwidth for reliable ingest.

NetApp E-Series and EF-Series storage provides extreme bandwidth to efficiently ingest more streams and faster bit rates without the need to transfer between storage buckets, giving you more time to spend on the creative process.

### Manage

Your digital media files are valuable only if you can find and repurpose them when you need them. NetApp arrays with the parallel file system of your choice allow you to keep all your assets in a single repository, using fewer storage arrays and a single namespace for huge libraries. This 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. You get:

- **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 container.
- **High density.** Support over 7PB in each industry-standard 40U rack.

### Produce

Production is all about staff productivity. NetApp allows you to edit, color-grade, animate, and design with the confidence that your media will be available when you need it. E-Series storage is architected to provide maximum uptime with optimized reliability, availability, and scalability built into the system. Phone-home storage analytics solve storage issues before they become a problem for your operations. You benefit from:

- **High bandwidth.** Provides smooth video ingest and playback of many streams.
- **No single point of failure.** System hardware that uses standard redundant components to provide superior levels of availability of critical data, including during expansion and upgrades.
- **Field-proven technology.** More than a million 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 that you need to accelerate these IOPS-intensive operations. You can:

- **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 tens of gigabytes of video throughput in a single enclosure.
- **Benefit from flexibility.** Get a choice of HDDs and SSDs along with read/write caching algorithms to reduce wait states.

## Deliver

Demand is increasing to provide high-bandwidth content in new and cost-effective ways to support the massive uptake in video delivery services. Bandwidth and reliability are the critical components of successful distribution, whether they are delivered by:

- Traditional broadcast
- Cable and satellite
- Video streaming platforms
- Social media

NetApp technology enables the effective streaming and play-out of media content, providing both high bandwidth and high IOPS with excellent price/performance. E-Series and EF-Series storage offers:

- **Extreme bandwidth.** Delivers up to tens of gigabytes per second of video throughput per enclosure.
- **Dense capacity.** Supports over 7PB in each industry-standard 40U rack.

## Archive

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

You can scale up capacity as needed, expanding with 60-disk enclosures that scale up to 360 disks (six enclosures) in a single system. E-Series storage also gives you:

- **The capability to scale out.** Multiple systems create a single namespace under the parallel file system of your choice.
- **Flexibility.** You can rapidly provision additional storage capacity and increase bandwidth.

## Transact

NetApp E-Series and EF-Series storage is designed to provide both massive sequential and random I/O. It outperforms competitors in media transaction database workloads such as VOD and OTT, in which milliseconds can be translated into dollars. Whether configured with SSDs or with SAS HDDs, E-Series systems can make a difference in your media transaction workflows.

## Partner with the Experts

Accelerate your implementation and minimize risk by taking advantage of NetApp Professional Services. We enable successful deployments of NetApp E-Series and EF-Series storage by designing, deploying, and integrating the solution to meet your specific business needs with industry best practices. You will achieve superior levels of efficiency, manageability, and agility, whether your project is large or small.

## Summary

NetApp offers media operations the extreme bandwidth and the massively scalable capacity that today's media workflows demand. By simplifying all the stages of your media workflows, NetApp E-Series and EF-Series systems improve the production and delivery of television, movies, social media, interactive games, music, and photography.

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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 touchpoints, foster greater innovation and optimize their operations. For more information, visit [www.netapp.com](http://www.netapp.com). #DataDriven