NetApp®

Agile Infrastructure for Your Media and Your Business

NetApp at the center of media throughout your company

Key Benefits

Achieve high performance over ethernet
NetApp® ONTAP® systems support media workflows without the cost and complexity of a Fibre Channel network.

Leverage the cloud
NetApp ONTAP includes tools to manage the movement of content to and from public and private clouds, making it easy to extend your data fabric.

Minimize risk and cost
With built-in predictive support tools, your content is better protected, and your storage system costs less to support.

While Others Were Making Plans for Tomorrow, the Future Arrived and NetApp Was Ready

Just a few years ago, who in their right mind would have thought that enterprise storage would be able to solve the challenges of real-time media production and global media distribution? Who would have guessed that off-premises cloud workflows would provide a strategic advantage? Or that Ethernet would ever be fast enough for high-bitrate editing? Or that media operations could avail themselves of a digital content repository that could provide uninterrupted access for decades? For that matter, who in media would have thought that integrated data protection, data security, and storage analytics would become essential? NetApp did.

Gain Flexibility and Reduce Overhead with the Cloud

Since the introduction of public cloud services, media companies have experienced varied success in reconciling the size of media data files, network bandwidth, workflow processes, storage costs, and data availability. Early efforts to leverage cloud services as part of media workflows frequently meant a mix of many tools and vendors with a healthy dash of custom engineering thrown in.

NetApp uncomplicates the use of the cloud for media enterprises by managing assets for optimum efficiency, cost, and access, regardless of location, through a single data and storage management layer. NetApp believes that incorporating the cloud into your infrastructure should be no more complicated than selecting it from a menu.

Enter NetApp ONTAP

Now we find ourselves in a time when enterprise storage is beyond fast enough for challenging media operations. Modern IT storage can leverage lower-cost high-speed networking infrastructure like Ethernet compared to Fibre Channel, and it includes storage intelligence in the file system to reduce administrative costs. Media organizations can take advantage of all the features of a modern IT storage solution without struggling to keep up with performance demands.

For the majority of your media production, analytics, AI, and delivery workflows—whether data is on your premises, distributed across continents, or in the cloud—NetApp ONTAP has the performance and storage efficiency features, combined with always-on operations, to best support your media and business requirements in a unified environment. It balances hybrid and all-flash configurations with cloud enhancement technologies to move and manage your content and your data to where you need it. ONTAP is the industry-leading data management software because it runs not only in NetApp appliances, but also as software-defined storage, breathing new life into your legacy storage arrays and, as ONTAP Cloud, it's available in all three leading pubic clouds.

Whether your media or data is in the cloud or on site, you can manage, monitor, and move it using robust NetApp data services. You can create a seamless data fabric between your on-premises infrastructure and the cloud environment of your choice—public, private, or hybrid—without complicated multivendor gateways and software systems.

■ NetApp®

Storage Types for Media Workloads
- SAN
- NAS or SAN
- NAS

Uncompressed Finishing · 2K/4K Compositing · 4K/8K Video Editing · Digital Intermediates

NetApp E-Series SAN Storage

Content Ingest

Enterprise Multimedia · Transcode & Distribution · Video Processing · Analytics & Reporting · MAM & PAM

Content Delivery Network · OTT & IPTV · Playout Server · Mobile & Wireless

NetApp ONTAP NAS Storage

Archive Cloud or Tape

3D Animation · Animation & Effects Rendering · Media Transactions · Proxy Workflows · Digital Dailies · Subscriber Management · Internet Media · VOD & Cloud DVR
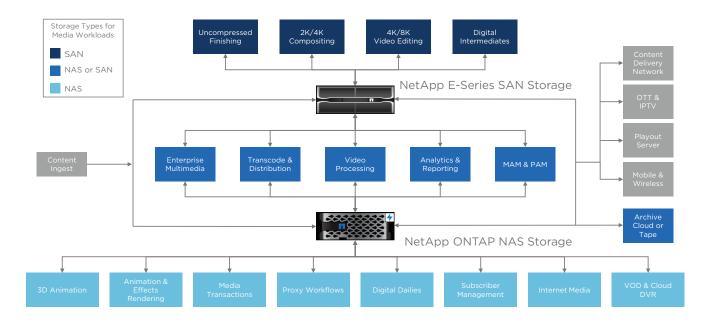
Figure 1) ONTAP provides an agile infrastructure for animation and effects rendering, active archiving, transcoding, distribution, internet media services, and TV anywhere, plus shared IT for business operations. Extremely high-bandwidth E-Series can be deployed for real-time high bit rate production. Both platforms have superior performance for many media operations.

Not All Scale-Out NAS Solutions Are Equal

Because virtually every digital media task begins with accessing data in storage, efficient and high-performing storage improves the entire workflow. In recent SPEC SFS benchmark tests, a 24U NetApp AFF A800 scale-out cluster achieved 3.1 million IOPS and bandwidth of over 40GB per second. That's power you may never have seen before. In video transcode application testing, ONTAP beat out the industry-leading scale-out NAS by a factor of 3 to 1. That means one-third the storage expense with NetApp for the same performance. The potential savings don't stop with the capital investment, either; consider the energy savings and reduced HVAC costs.

Workflow Optimization

Content needs to be accessed repeatedly and with very little latency. That's why NetApp's suite of flash technologies work together to enable groundbreaking results. By caching media where it's most efficient—at the client or in SSDs—a NetApp architecture can balance cost, cache capacity, and latency.

Integrated Data Protection

As you consider the cost and workflow efficiency advantages of centralized shared storage, data protection becomes increasingly important, and the complexity can become a challenge. Storage subsystem capabilities that deliver resiliency, protection against data loss, and proactive monitoring and maintenance are key elements to securing your intellectual capital. You should expect your storage solution to deliver five nines availability—NetApp delivers six.

NetApp integrated data protection delivers high-availability, backup, compliance, and disaster-recovery services directly from the ONTAP storage system. Protection scales across applications and virtual infrastructures because it runs in the storage, where data lives.

Most data protection implementations are complex and costly, requiring several specialty products to be "bolted" onto your environment. The NetApp integrated data protection tools are robust and efficient, and they require fewer server, storage, and network resources. And they're simple enough that you can activate and roll out services in minutes.

NetApp also provides advanced RAID capabilities, which deliver enhanced data protection with no performance degradation against multiple disk failures.

Storage Management

Many storage management products are limited to a single class of storage or a specific capability, or they separate management of physical and virtual resources. To keep pace with 50% or greater data growth without adding staff, media operations need tools that drive storage management efficiency.

NetApp Active IQ® uses AI and predictive analysis of your infrastructure to analyze and prescribe system management activities that reduce risk and costs. Support cases and replacement part requests can be generated automatically. You can review collected data, system status, open cases, and predictive risks on the NetApp Cloud Insights dashboard, from your desk or on your mobile device.

FEATURE	DESCRIPTION
FlexCache® software	Caches actively read datasets within a cluster and at remote sites. Accelerates read performance for hot datasets by increasing data throughput within a cluster, and improves the speed and productivity of collaboration across multiple locations.
FlexClone® technology	Instantaneously creates file, LUN, and volume clones without requiring additional storage. Saves time in versioning and eliminates the need for working copies.
FlexGroup	Enables a single namespace to scale up to 20PB (raw) and 400 billion files. Supports compute-intensive workloads and data repositories that require a massive NAS container while maintaining consistent high performance and resiliency.
Performance capacity monitoring	Provides a real-time and historical view of storage performance with clear guidance on deploying new workloads on storage nodes. Simplifies management and enables more effective provisioning of new workloads to the optimal node.
Adaptive QoS	Simplifies setup of Quality of Service policies and automatically allocates storage resources to respond to workload changes (number of terabytes of data, priority of the workload, and so on). Simplifies operations and maintains consistent workload performance within your prescribed minimum and maximum IOPS boundaries.
RAID-TEC™ and RAID DP® technologies	Provide triple parity or double-parity RAID 6 data protection that prevents data loss when three or two drives fail. Protect your data without the performance impact of other RAID implementations and reduce risk during long rebuilds of large-capacity HDDs.
SnapCenter® software	Provides backup and restore of NetApp volumes without the performance overhead associated with tape or disk-as-tape archive systems.
SnapMirror® technology	Provides integrated remote backup/recovery and disaster recovery with incremental asynchronous data replication. Preserves storage efficiency savings during and after data transfer. Provides flexibility and efficiency when replicating data to support remote backup/recovery, disaster recovery, and data distribution.
SnapMirror Synchronous technology	Delivers incremental, volume-granular, synchronous data replication to achieve zero data loss protection (RPO=0) while preserving storage efficiency during and after data transfer.
SnapRestore® software	Rapidly restores single files, directories, or entire LUNs and volumes from any NetApp Snapshot™ copy. Instantaneously recovers files, databases, and complete volumes from your point-in-time Snapshot copy.

Table 1) NetApp ONTAP data management products and features.

The Bottom Line

To stay ahead of your competition and grow your business, you need storage that eliminates planned downtime, scales nondisruptively across multiple generations of technology, and quickly adapts to changing business environments, all while being easy to manage. Not all storage systems are built the same, and that becomes even more apparent when you're dealing with the file size and storage growth needs of media applications. Storage efficiency, flexibility, and agility are the prominent considerations for media companies today.

Because NetApp FAS running ONTAP is flexible, you need fewer storage systems, and you get more from each system deployed. Fundamentally, this storage and management approach delivers reduced storage management overhead, in addition to reducing data center floor space, power, and cooling needs.

Your next storage purchase can solve a short-term problem but complicate your already overburdened operation, or it can begin to simplify and unify your media business infrastructure. The choice is yours.

Animation and Effects Rendering

ONTAP is extremely fast data management software for highly parallel computing applications such as feature animation and VFX rendering, where thousands of compute nodes might need to access the same computer graphics and texture elements. ONTAP is tuned for high I/O performance and cache flexibility, with several flash options available from NetApp Flash Cache™ directly in the controller to NetApp Flash Pool™ and all-flash arrays.

These options allow NetApp to balance performance, capacity, and cost to meet your budget. Animation studios with many thousands of render cores trust NetApp to provide industry-leading performance for their 24/7 render farms.

Broadcast and Live Production

News, sports, and other made-for-television content require high levels of collaboration and coordination among users and systems. At the center of these operations must be a flexible and capable storage platform. ONTAP exceeds the needs of facilities by providing a repository that can handle millions of files and associated metadata, support instant access to content, and keep running nonstop even during scale-out and upgrade operations.

High-Resolution Editing and Finishing

Even with the advances in general-purpose storage systems, it's still true that the highest bitrate postproduction editing and finishing represent a workflow that is still best supported with dedicated infrastructure. For these tasks, the extreme bandwidth, modular NetApp E-Series SAN platform excels.

Distribution and Delivery

Digital television delivery services are increasing their on-demand, cloud DVR, and second-screen streaming and downloading offerings. FAS running ONTAP is at the center of R&D and operations at major tier 1 content distributors in these areas. Content delivery also requires large-scale adaptive bit-rate and trick-play video on demand (VOD) transcoding operations. NetApp ONTAP is tuned for the small file writes inherent in these workflows, enabling an increase in transcode operations of up to 3 times with the same amount of storage versus other scale-out NAS storage infrastructures.

Active Archive, Central Repository

Studios, broadcasters, cable, and internet media operations can now consolidate their storage tiers with ONTAP. It provides access from all major operating systems and storage protocols and allows tiering across storage device types, including S3 object store and cloud buckets, all within a single file system namespace. This streamlines the storage management effort, allowing operations to manage more terabytes and even petabytes with less engineering overhead.

Internet Media Services

You can maintain large-scale media repositories, support massively scaled over-the-top (OTT) streaming services, transact millions of queries a day, and analyze user patterns, all with one storage infrastructure: the industry-leading storage operating system, NetApp ONTAP. Internet media services, with their vast capacity needs and massive user base, strain the bounds of an infrastructure's capacity and throughput. Having one storage operating system intelligently spanning SSDs, SAS, and SATA allows providers to most efficiently leverage the cost and latency characteristics of all available storage technologies, even on a dynamic basis.

Business Operations

Companies in the media and entertainment sector are still businesses that have the same demanding operations that other companies have. Enterprise applications for finance, human resources, DevOps, and databases all require highly reliable and responsive access to data. Hundreds of thousands of companies rely on NetApp ONTAP for their mission-critical business operations. ONTAP includes many features that simplify the management, protection, and availability of business data. Media companies gain from the reduced administration and data management of systems that are consistent across both production and operations.

Artificial Intelligence

NetApp is an award-winning leader in AI data storage, and the media industry is embracing AI for a broad variety of uses, including using AI to create time-stamped metadata that corresponds to video. Now media production and distribution companies can use facial, object, and audio recognition analysis to index, catalog, tag, caption, and search video, greatly reducing the time and cost associated with these activities. NetApp ONTAP has the performance and scalability to keep up with the vast amount of metadata associated with AI analysis of video content.

As shown in Figure 1, ONTAP provides an agile infrastructure for animation and effects rendering; active archiving; transcoding; distribution; internet media services; and TV anywhere, anytime, as well as for shared IT to run the business. Extremely high-bandwidth E-Series systems are deployed for real-time high-bitrate production. Both platforms offer superior performance for many media operations.

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**. #DataDriven