



eBook

# Taming Post-Production Challenges with Modern Storage Solutions



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# Table of Contents

Post-Production Is Complex To Say the Least	03
Content Is Crucial. How and Where It's Stored Is Key	05
Object or Block/On Premises or Cloud	06
Seagate Helps Boutique Animation Shop Dream Big	08
Content Gets Complicated	09
A Best-Practice Framework	10
Seagate Enterprise Storage Solutions for Media and Entertainment	11
Edge/Backup/Analytics and M&E	12
Meeting Post-Production Data Demands	13





# Post-Production Is Complex To Say the Least.

**Media and Entertainment (M&E) content producers face formidable challenges. To stay relevant, competitive, and to grow in the marketplace, they need to generate quality content (such as video, audio, animations, etc.) quickly, all while maintaining a steady flow of assets.**

In recent years, the rise of public cloud resources resulting from industry demand and ease of access has helped accelerate the scale of content creation. However, this hasn't happened without a cost to creators.



Budgets are typically tight and cost pressures are real. Without keeping pace with modern technological foundations—including data storage and infrastructure—and process efficiencies, competitive advantage is lost. Network and infrastructure limitations can impose speed, performance, and security barriers. These can impede various tasks, including ingestion, production, delivery, presentation, and archiving. Additionally, data's availability, or lack thereof, can produce delays and bandwidth issues. These problems are magnified when teams also need to protect and secure content while working across time zones and geographic regions.

An enormous amount of data is generated throughout post-production workflows—for example, the processing of initially filmed/created content. A video project, for instance, may be initially shot in a digital format or converted from film to digital. That up-front data is what post-production teams work with, so it must be sufficiently and securely stored. At that point, the amount of data grows as post-production creative teams add their expertise (e.g., special effects, sound design, animation, or any number of creative efforts that help improve the final result).

At each stage along the way, the edited output must also be backed up, often along with any digital assets used, such as alternate takes, music, images, 3D models, etc. These assets are frequently reused and shared, often getting stored in a separate content repository along with the completed projects. As data loss at any stage can set a project back considerably in both time and costs, many post-production firms adhere to the common [3-2-1 backup strategy](#) to ensure safekeeping.

This rapid growth of data and files can lead to an unmanageable situation without the right data storage solution. Many M&E firms lack robust storage infrastructures and face challenges related to content delivery, data management, backups, and archiving. Yet, post-production teams require a fast, flexible, and scalable way to put projects into motion quickly and seamlessly while protecting data along the way.



# Content Is Crucial. How and Where It's Stored Is Key.

The competition for interest, clicks, and dollars is intense. As M&E businesses look to gain an advantage in today's crowded content marketplace, performance can't take a back seat to innovation. There's a requirement to easily build, distribute, share, and access a diverse array of digital media types and content effortlessly and at speed. The efficiencies of public cloud resources and their ability to support these requirements have resulted in their seemingly perpetual growth and increased use.

However, along with its growth, the enterprise cloud environment has become more complex. A remedy for many companies has been to adapt by integrating with multiple public clouds and by creating private clouds of their own, resulting in a hybrid cloud model that can reduce costs and provide efficiencies for content providers.

Many content producers must deal with the practical realities of large and often diverse files that include the problems of needing to store, index, manage, and locate both older and new content across multiple cloud repositories regionally and globally. Unfortunately, when data is spread across multiple, unconnected, disparate, and legacy "storage silos," errors and complexity increase while agility and flexibility decrease. There is opportunity for a more evolved modern data storage framework that allows an enterprise to seamlessly create, store, and share important assets across the organization and beyond.

Some of today's more popular cloud service providers may seem like an efficient all-in-one solution. These providers have unforeseen

expense challenges forcing users to manage transactional activity to address variable costs of moving data out of the storage. This is called cloud vendor lock-in.

Evolving beyond single vendor lock-in and the problems it creates provides an opportunity for content developers by converting management costs into the ability to invest more in their content products.

A modern storage environment makes it simple to move and share content at will, catalog and index assets, and keep costs under control. This environment should have the ability to work with new sources of media, including edge sources like the Internet of Things (IoT) and core production datacenters. These sources account for growing volumes of both structured and unstructured data, including raw image, video, audio, and any other production data needed for finished content.

Certain cloud service provider frameworks lack the facilities needed in a storage solution that delivers required features, capabilities, and value proposition. A comprehensive storage framework must provide strong content security, privacy safeguards, and support for regulatory controls. With this best practice framework, it's possible for companies to efficiently use and reuse content and drive financial gains. The result is accelerated performance, unlocking the business value of data, and enhancing financial value.



# Object or Block / On Premises or Cloud



Like many other industries, M&E companies have benefited from the evolution in data storage architectures. Conventional file-level storage is the most common type for creative content workflow, used by typical end-users for their file and folder structures. Also known as a hierarchical file system, file-level storage has a layer consisting of a file system (e.g., NFS, SMB) to process before accessing the data. Here, usability is the strength. Scalability is limited. This system also has relatively high overhead and medium access speeds.

Block storage holds data in blocks that can be spread across a storage pool made of many individual disks. It is very efficient for managing large files that require frequent updates.

Here scalability, low overhead, and file access speeds are the strengths.

Block storage is useful for organizations that work with very large data sets and require fast access. As such, it can be as fast and accessible as a company's networking infrastructure allows, from either on-premise storage or via network connection with a cloud-based storage provider. Block storage is considered a more direct pipeline to the data.

Object storage is another modern option, along with file-level and block storage. Object storage does not include the overhead from a hierarchical file storage structure. It has data objects that carry the data, identification, and associated metadata. With this system, the strength is the ability to accommodate very large storage sets with low transactional requirements. It's also perfect for "write once, read often" data. Many of today's well-known cloud service providers, including those offering cloud-based data storage, use an object-based data structure.





The following chart provides a look at the differences between block and object data storage structures:

	Block	Object
Performance	Databases and software	Large data sets
Location	Centralized	Distributed
Capabilities	No metadata	Customizable metadata
Scalability	Limited to defined file size	Infinite

Seagate® has been a trusted data storage provider and advisor for M&E companies since the early days of video digitization. Seagate provides solutions for any data storage architecture— file, block, or object—for needed backup through any point in the postproduction process through to safekeeping final projects and related digital assets within content repositories and archives. In addition to compatibility with your chosen data storage structure, Seagate can meet your needs for preferred location, including on-premise options (for instance, in traditional on-site storage hardware or an on-site private cloud), in a public cloud (with equipment hosted and maintained offsite), or in a hybrid combination.



# Seagate® Helps Boutique Animation Shop Dream Big

In the video production industry, great work can lead to more work—this means more generated data, and subsequently, the need for more storage. Od Studios—a Vancouver-based boutique visual effects studio with an emphasis on creating animation for films, TV series, and commercials had ambitious goals to produce full-length animated feature films using the latest technology and production practices. To reach those goals, they knew that they could no longer get by with their older consumer-grade storage solution.

As a newer studio with a limited budget, Od Studios considers affordable TCO a very high priority. However, it knew that it needed to balance affordability with throughput and stability. It also wanted the flexibility to allow for scaling and future growth without reengineering its storage solution beyond a certain size. Plus, it wanted to install whichever vendor's drives it chose, as well as to use the Lustre file system software it selected.

The studio soon found Seagate and chose the Exos® X 5U84 RAID array because it offered a cost-efficient design, more raw storage capacity than the studio had initially considered, and it provided the studio with the flexibility to pivot should it ever need to. The studio can now take on much larger projects knowing its storage capacity can handle anything it needs for quite some time. Most appreciated are the lack of vendor lock-in across the entire stack, low TCO, and the ability to sleep soundly without worrying if the studio's storage is going to fail.

“The ability to scale out is a big win,” said Marc Horsfield, founder and visual effects supervisor. “With Seagate’s Exos X 5U84, we have options to scale, and that flexibility is paramount in an ever-changing industry.”

[See the full Seagate Case Study here.](#)







# Content Gets Complicated

Organizations and post-production teams that lack the tools and resources to address today's challenges often find themselves struggling to produce, manage, and distribute content efficiently. For example, a gaming company might need to incorporate clips from a movie so that they appear in a video game. Cataloging, indexing, retrieving, and editing that content is a complex undertaking.

Others, such as entertainment websites, television networks, and content distributors require business analytics data spanning areas such as demographics and viewership, including counts and how much of the content someone watches. This data is essential for developing and delivering relevant and desired content, marketing it to consumers, and understanding whether the company is meeting its fundamental business goals.

Siloed files and data make it difficult to use and reuse content in flexible and modular ways. The result is that projects take longer, inefficiencies become embedded in processes and workflows, and content creators may find it difficult to produce or access the best possible media content. All of this can result in compromised quality and expensive delays.

A hybrid cloud approach allows companies to benefit from the best of on-premise and public cloud storage strategies. On-premise storage, including private clouds, allows users to fine-tune their performance and data security. Public clouds are useful in sharing data with remote workers and customers, as well as seamlessly scaling when the amount of data grows. Seagate provides solutions for either strategy, as well as their combination in hybrid configurations and integration with tools for organizing, unifying, and synchronizing data between all environments.



# A Best-Practice Framework

As organizations in the M&E space look to boost their post-production capabilities and modernize their IT frameworks, it's critical to focus on several key areas:

- Footage ingestion, including off-set and on-set production that spans various forms of legacy and modern media and may include digitalization and other requirements.
  - Media Asset Management (MAM) and asset tagging, key components in storing and retrieving media.
  - Concurrent backup features, including air-gapping, to provide protection from ransomware.
  - Cost-effective data storage solutions with no vendor lock-in fees or egress charges, and complete and total transparency for businesses to understand what they are paying for.
  - Fast, flexible, and scalable storage.
  - High-availability and fail-over capabilities that support business resilience.
  - Compatibility with compute resources that can handle a wide variety of video production and management tasks.
  - Dependable and accessible backup sets, ideally with one off-site for disaster recovery.
  - Advanced archiving, backup, and synchronization methods that address reuse, monetization, licensing, stock footage, and various customer requirements.
- A fast and effective tool designed to manage data transport and larger migrations, including moving content to the cloud.
  - Strong data security and privacy features revolving around authentication, encryption at rest and in motion, intrusion detection, performance monitoring, firewalls, and security incident handling.
  - A technology foundation that can address continually expanding and changing digital requirements, including things like virtual reality (VR), augmented reality (AR), the metaverse, and Web 3.0.

Media and Entertainment companies require data storage solutions where vendor lock-in doesn't exist and where agile, flexible, scalable data reigns. The firms that embrace such an approach are equipped for efficiency and innovation.



# Seagate Enterprise Storage Solutions for Media and Entertainment



Seagate has over 40 years' experience of providing state-of-the-art data storage solutions worldwide across multiple industries, including media and entertainment. M&E firms have a variety of choice when it comes to keeping their valuable data secure and ready to be fully utilized when needed. Seagate's wide array of enterprise storage solutions cover Public Cloud, Edge Storage, Private Cloud, Backup & Recovery, and Big Data Analytics requirements of today's M&E customers.

Seagate's enterprise-grade data storage solutions provide options that can help improve digital media workflows by speeding up data transfers and improving streaming performance, leaving creative professionals to focus on the creation and delivery of captivating content. When an M&E firm's storage needs evolve, Seagate can help to easily scale out petabytes of storage. Plus, our vendor-agnostic platforms help ensure smooth data flow, management, and flexibility.

## Public Cloud, Private Cloud, or Both

Media and Entertainment companies may differ in their approach to cloud-based data storage. Seagate can provide needed storage infrastructure whether your organization has adopted, or is considering, either a public cloud or private cloud strategy.

- **Public Cloud** - Seagate storage solutions for Public Cloud help provide predictable economics, flexibility, mass-capacity data transfer, and data security. Users experience per-terabyte pricing with zero add-on charges or egress fees, easy transfer and ingestion of mass data sets into the selected cloud location, and adherence to the most stringent, globally recognized data security standards available
- **Private Cloud** - Seagate storage solutions for Private Cloud help provide lower total cost of ownership, better data control, and easy scalability (either up or down). These precision-engineered private cloud solutions include Exos Corvault™, Exos X advanced arrays, Exos AP integrated mass storage systems, and Exos E expansion systems, all offering the best value per petabyte, trusted durability, robust security, and built-in redundancy to safeguard critical assets.

In Media and Entertainment workflows, using public or private clouds, infrastructure that's on-premises or off, solely cloud-focused or hybrid - any of these options can benefit from Seagate storage solutions.



# Edge/Backup/Analytics and M&E

**Edge Storage** - It's rare that every aspect of a media and entertainment project can be handled at one location. Most often, multiple parts of the process take place away from one centralized site. Edge infrastructure distributes both computing and storage resources closer to the micro, metro, and macro edge locations where data is generated and consumed. Seagate edge storage solutions help control how and when to store and analyze data (where it's created and consumed) to deliver fast, simple, secure, and streamlined data workflow.

**Backup and Recovery** - Media and entertainment projects are well-known for their costs and durations—all the more reason why backup and recovery are taken very seriously within the industry. Reshoots can be a pain, both in time and money that could be better spent. Seagate backup and recovery solutions deliver the best value per petabyte with leading capacity, proven reliability, and multi-protocol support for mixed storage environments. Seagate storage arrays deliver world-class performance that guarantees maximum data protection and quick rebuilds. Customers can choose to manage their data storage on premise or via simple, trusted, and efficient cloud storage.

**Big Data Analytics** - Like any organization, a media and entertainment company's large collection of held data contains considerable value and insight, if analyzed properly. Such analyses help to improve processes and save money. A company's "Big Data" can also help feed associated applications such as artificial intelligence (AI) and machine learning (ML). Seagate provides cost-effective, high-throughput, scalable storage technology, safely securing the vast amount of collected data that can be analyzed and used to its best potential.





# Meeting Post-Production Data Demands

Post-production demands are greater than ever. There's no end in sight for the enormous growth of data, content, and media. As video, animation, and multimedia productions become more complex and sophisticated—and more advanced media such as augmented reality, virtual reality, and the metaverse take hold—M&E companies require a more sophisticated storage solution for producing, managing, and distributing assets.

The foundation of a best-practice approach is a storage framework that can optimize processes, maximize results, and provide the flexibility to deliver consistent outcomes. By avoiding vendor lock-in and adapting dynamically as business conditions change, M&E firms can navigate the challenges and transform them into opportunities.

# Further Info

Data Storage Systems: [www.seagate.com/products/storage/data-storage-systems/](http://www.seagate.com/products/storage/data-storage-systems/)

Enterprise Hard Drives and SSDs: [www.seagate.com/products/enterprise-drives/](http://www.seagate.com/products/enterprise-drives/)

What is Hybrid Cloud?: <https://www.seagate.com/blog/what-is-hybrid-cloud/>

Private Cloud Solutions: <https://www.seagate.com/solutions/cloud/private-cloud/>

Backup & Recovery Solutions: <https://www.seagate.com/solutions/backup/backup-and-recovery/>

Big Data Analytics Solutions: <https://www.seagate.com/solutions/data/big-data/>

Seagate Resource Center: [www.seagate.com/resources/](http://www.seagate.com/resources/)

**For more information about Seagate data storage solutions for M&E, visit:** <https://www.seagate.com/solutions/industry/media-and-entertainment/>

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