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eBook

Post-Production Storage Needs in a Post-Pandemic World

Meeting data capture, archive, copy, and access needs for unprecedented demand.

Table of Contents

Adapting to Post-Production Storage Needs

From pandemic-related set disruptions and the hastened move to more virtual productions to unprecedented demand for streaming content, the media and entertainment (M&E) industry has undergone tremendous change in a few short years.

Production companies are grappling with the need to speed up production, decrease costs, and run safe sets. At the same time, trends that were already revolutionizing the industry, including digital content, augmented reality (AR), virtual reality (VR), and ultra-high resolution, are being accelerated from leading edge to the norm.

For example:

- AR/VR experiences like NBA XR Courtside helped fill the void of canceled events during the pandemic by allowing fans to sit “courtside” at an NBA game filmed in 360 degrees.
- Film and TV productions are using AR to “merge” virtual sets with actors on a green-screen stage in real time, allowing for multiple sets on the same stage and faster production.
- Streaming content providers like Netflix and Amazon Prime offer their original content in 4K. Basic models of UHD and 4K TVs are affordable at just a few hundred dollars, and 8K is becoming more popular.
- Smart stage LED walls with real-time rendered content means that designing a non-destructive asset pipeline from visualization through production and post-production can be achieved in tandem with a VFX company.

These technology advances also create massive amounts of data, which all M&E companies—feature film, live event broadcast, reality and scripted TV, and pre- and post-production—are struggling to capture, archive, copy, and access. The time is right for savvy companies to reassess and update their IT infrastructure to establish effective data workflows that can handle both today’s volume and inevitable increases in the future.

The number of mobile AR users is predicted to increase to 2.4 billion by 2023, up from 1.7 billion in 2020.[i]

You're Gonna Need a Bigger Boat: The Cost of Innovation

The new world of production and remote post-production, combined with more data-intensive technologies, has helped create the perfect storm for IT teams tasked with creating a scalable data workflow for their productions. It's all about the data, and the challenges are major.

Companies need:

- More capacity and less transfer time
- Streamlined copy, archive, and storage workflows
- Enterprise-grade end-to-end data security, including data in transit
- The ability to support virtual production and off-set collaboration in a secure and efficient way
- To realize the full potential of all this new technology while keeping costs in check

The global market for 8K is projected to reach $4.2 billion by 2027.[ii]

The Data Deluge

High-resolution productions require massive amounts of storage between on-set capture and copy, on-set archive, and post-production needs. Footage in 8K has 16× the number of pixels as a full HD frame, and a single camera shooting 8K can eat up 1TB of data in less than two hours.

A full, multi-camera shoot will greatly multiply that amount—and advanced technology will exponentially multiply it. AR/VR require enormous amounts of data to achieve immersion into another reality, and 360-degree video uses specialized multi-camera rigs with LIDAR scans/cameras that generate huge footage files.

Augmented reality graphics often involve hundreds of 3D models, textures, and effects, which can result in thousands of terabytes of data that require real-time processing, low latency, and multi-user access. The scalability and performance of an M&E company's IT infrastructure are put to the test with these projects.

The Accessibility Deluge

Access is a challenge with several faces. With production teams potentially working from home or in production/effects houses in different countries, accessing, playing, and editing raw footage is a serious concern.

Production teams need to not only store high-resolution files but also be able to quickly prepare the data for ingestion to the production workflow so it can be used by the post-production team in a vendor-agnostic way that everyone can access.

Often, even the best internet connection can't transfer the data fast enough, so teams must move data on physical storage, which can lead to IT concerns over device standardization, transfer speed, data security, and cost to maintain devices. The physical storage must also be fast enough to read the footage for playback and editing.

The Transfer Trap

Bandwidth limitations can also potentially put enormous constraints on content transfer. For example, massive amounts of data—40 TB or more—needs to be moved and transferred quickly to off-set locations, often more than once a day.

Since each scene being shot needs to be backed up not once but up to three times to avoid any data loss, that also means up to three backup transfers for each scene. With remote shoots, it can be challenging to minimize data transfer times so that anyone who is not on set can access the dailies. The footage also needs to be preserved via transfer to the nearest data center for the production. Complicating matters…

- Every project differs in terms of storage device needs—e.g., how many devices, capacity, location
- Storage capacity needed for initial camera offload can change almost daily and is dependent on many factors, such as number of takes, number of cameras, angles, resolution, frame rate, and camera format
- Bandwidth issues can cause expensive delays

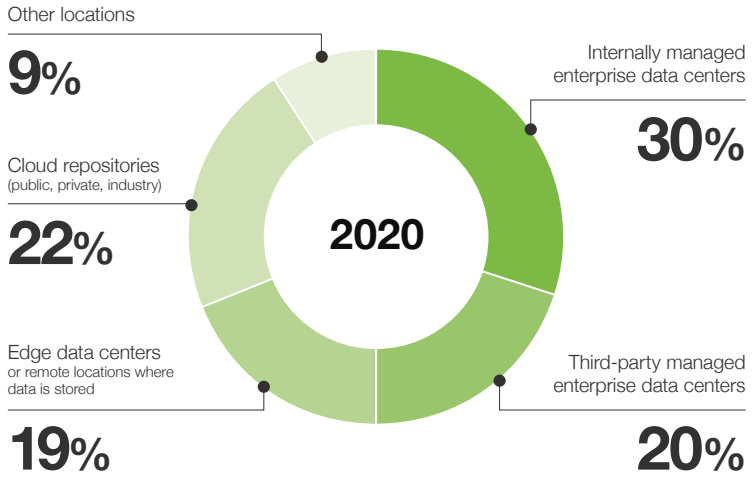
If You Build It, They Will Come: Solving Data Operational Challenges

How do you overcome the challenges associated with:

- Managing the vast quantities of data required to create modern, immersive experiences
- Ingesting and transferring all that data quickly to a central location that can be accessed by far-flung post-production teams
- Storing that data securely, no matter how much capacity is required for each project

Overlaying these challenges is one of the biggest questions: How do you move massive amounts of data when traditional production and post-production workflows simply don't have the bandwidth to accommodate this deluge?

Where Are Enterprises Storing Data Today?



Source: The Seagate Rethink Data Survey, IDC, 2020

Managing the Flood of Unstructured Data

Today's modern storage solutions don't just offer capacity, they provide flexibility and help support real-time processing. To ramp up data management capabilities, petabyte-scale storage systems provide enormous data handling for safely storing, scaling, and accessing files.

Today's production and post-production houses need object-based storage solutions that are made to manage unstructured data, such as video or sound files, at volume. At the same time, it's important to have the flexibility to scale up and down and to use the solutions that best suit your needs as data is moved from set to post-production to archival storage.

To ease the burden on IT budgets and improve agility, consider a subscription-based, storage-as-a-service solution that offers clear-cut pricing, simplified data management, and always-on availability. Versatility is key for an industry with such varied needs.

Look for a partner that can offer the physical appliances you need to manage and move on-set data as a service, high-capacity object storage to manage unstructured data in private data centers, and

Storage-as-a-Service Addresses Accessibility

For today's virtual sets and scattered teams, remote access is just as crucial as storage capability. Dailies need to get to the right teams, no matter where they are located, and a hybrid or multicloud environment provides a space where staff, contractors, and outside agencies can access the files they need. M&E companies that employ virtual sets and worldwide production staff need data infrastructure that can keep up.

A terabyte-scale on-set appliance can provide fast data transfer of huge files and simplifies edge-to-cloud transfers. It should be cloud-agnostic so that you are free to move your data to whatever private or public cloud your teams use. In the cloud, the data can be shared and edited as needed by teams wherever they may be working, while other editors can work with proxy files of the raw material to preserve the original files.

By 2022, 57% of data will be transferred from the edge to the core.[v]

Petabyte-Scale Appliances Speed Transfers

For production and post-production, it's not unusual to need to transfer tons of terabytes of data quickly, easily, and securely in environments that may not have the bandwidth to support such volume. Companies are now leaning towards data transfer appliances such as rackable and ruggedized mobile arrays that offer various enterprise-grade features such as:

- Give production teams full control of data
- Provide stringent security, including encryption
- Have no network dependencies
- Integrate with any cloud
- Speed up time to data availability
- Can also be used for backup and video archiving

Petabyte-scale data transport appliances or shuttles can support front-end production storage, archiving, and transfer. With an integrated family of edge storage and data transfer devices, your arrays, shuttles, and receivers will get footage from on set to where it needs to go, enabling frictionless data transfers between private, public, and hybrid clouds, or seamless plug-and-play compatibility with your current data center.

Additionally, the modular, as-a-service approach allows you to select devices that provide extra data protection when working with and moving drives in challenging environments where they can potentially be damaged.

Time to scale down at the end of a project? Look for a vendor that offers secure erasure once you return a transfer appliance. And for long-term archival needs or tape-to-cloud transfer, solutions are available that provide stringent security, intuitive data management, and predictable costs.

Case Study; Overcoming Bandwidth Constraints Causes a Ripple Effect

When the COVID-19 pandemic swept the world, the Entertainment Technology Center (ETC) at the University of Southern California set out to produce a live-action short, Ripple Effect, that put new technologies and remote workflows to the test.

Using mobile arrays, the production team overcame potential bandwidth constraints, “sneaker-netting” content from the stage to the data center during the shoot.

This enabled ETC to:

- Facilitate high-capacity and high-performance data transfers
- Enable on-site backups
- Engage in safe remote collaboration

Read the full case study here.

To Infinity and Beyond

The post-pandemic world of M&E will carry with it new expectations of streaming content in 8K and immersive experiences in AR and VR, along with the lesson that virtual productions are possible and, in many cases, preferable. Creating this new reality relies on modern cloud-based technology that can ingest, transfer, and store petabytes of data that can be easily available. As a result, data can be archived safely and accessible in any location, no matter where the magic is being created.

Behind the scenes, this magic is enabled with technology that offers high capacity coupled with high performance; secure data with encryption and user management; and easy-to-use (no IT knowledge required), plug-and-play, multi-interfaced connections used in a wide range of environments.

To learn more about how the most advanced storage solutions from Seagate can help your company keep up with these rapidly evolving industry trends, please click here.

References

i Statista, “Global mobile augmented reality (AR) users 2015-2023,” September 1, 2020

ii ResearchandMarket.com/PR Newswire, “Global 8K Resolution Market Worth $4.2 Billion by 2027,” July 17, 2020

iii As calculated on Red.com with a Red Ranger Highest Speed Red Mini-Mag, filming in 8K Full Format with a frame rate of 24 and Redcode of 8:1.

iv IDC, sponsored by Seagate, “Rethink Data: Put More of Your Business Data to Work—From Edge to Cloud.”

v IDC, sponsored by Seagate, “Rethink Data: Put More of Your Business Data to Work—From Edge to Cloud.”

Further Reading

- Seagate Lyve Cloud Storage as a Service: https://www.seagate.com/services/cloud/storage/
- Seagate Lyve Mobile - Data Transfer as a Service: https://www.seagate.com/services/data/data-transfer/
- Seagate Media & Entertainment Data Solutions: https://www.seagate.com/solutions/industry/media-and-entertainment/
- Seagate Resource Center: https://learn.seagate.com/resources/

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