



How To Survive the **AI Supply Chain Crisis**

Diversifying Storage While Maintaining Workflow Efficiency

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EXECUTIVE SUMMARY

There's a meteor headed straight at the Media & Entertainment (M&E) Industry and anyone else whose business heavily depends on affordable storage and other IT components. Major disruptions in the supply chain of storage, including solid-state and spinning hard disk drives, are driving up costs to unprecedented levels and will continue to do so for the foreseeable future as the pace of the buildout of hyperscale data centers and colocation centers accelerates.

At the same time and for the same reasons, M&E organizations—like society at large—will increasingly be required to deal with disruptions in power due to the growing load these data centers will place on the electric grid.

Waiting out supply chain and power disruptions is not an effective nor sustainable strategy as the demand for storage to support entertainment production is expected to grow dramatically—more than tripling how much digital storage M&E organizations will require by 2031.¹

Rather, these disruptions give media organizations an opportunity to rearchitect their storage and production workflows to be more resilient, greener and more flexible in responding to future challenges, delivering better total cost of ownership (TCO) and having more control and sovereignty over what happens to their production workflows.

This white paper examines:

- How the buildout of hyperscale data centers and growth of colocation centers is impacting the supply of storage and other IT components.
- The massive scope of the buildout in the United States and around the world.
- The impact of the buildout on power consumption.
- How the build out is affecting the price of storage, including Non-Volatile Memory express (NVMe) SSD and spinning disk.
- The expected duration of the supply chain crisis.
- The Media & Entertainment Industry's storage requirements today and tomorrow.
- Why deploying a mix of storage under MAM control is a wise approach to minimizing storage costs without sacrificing performance.
- The role of LTO in establishing a diverse storage ecosystem for M&E organizations.
- How LTO storage compares with hard disk drive storage.
- The workflow consequences of adding LTO into an M&E organization's storage ecosystem.
- The operational benefits and considerations of integrating LTO into a diverse storage environment.

The massive buildouts of hyperscale data centers and the continued growth of colocation centers has heightened demand for NVMe SSDs, spinning disks (HDD) and other IT components like GPUs and CPUs to the point that supply is falling far short of demand and driving significant price increases, creating a situation that's come to be known as the "AI Supply Chain Crisis."²

For media organizations, the ramifications of the supply chain crisis strike close to home because digital data storage is central to nearly every creative workflow from acquisition and ingest through editing, effects and graphics creation, color grading and ultimately to playout and distribution.

The numbers tell the story. Currently, massive cloud and tech providers like AWS, Microsoft, Google and others have deployed between 500 and 770 hyperscale data centers,³ and more are on the way. In the United States some 3,000 data centers⁴ are planned or are currently under construction.

Another convenient way to measure the growth in data center capacity is the electrical power needed to operate and cool these facilities. Currently, in the Americas some 43.4 GW of capacity is required for existing datacenters, and 25.3 GW is under construction⁵ to meet expected future demand.

The dramatic growth in the number of hyperscale data centers and resulting escalating demand for IT components is clearly reflected in higher storage prices. For example, as of early 2026 the price of a 4 TB-plus NVMe solid state drive at retail has risen 30 to 35% compared to 2023-24 prices.⁶ Price hikes in enterprise SSDs are even more dramatic. For instance, the price of a 30 TB NVMe SSD climbed 250% between 2023-24 levels and early 2026.⁷

Spinning disks have not been immune to climbing prices. The price of a 16 to 20 TB spinning hard disk drive used for nearline storage, for instance, grew 30 to 35% as of early 2026 from 2023-24 prices.⁸

A 10-year projection of mass data storage reveals some price relief per TB five years out from today, and even more in 2036. For instance, NVMe retail pricing today ranges from about \$75 to \$110 per TB—the consequence of total lack of components. In 2031, the price per TB is expected to drop to about \$40 to \$50, and five years later fall to around \$20 to \$30 per TB.⁹



While a positive sign, this is only a projection and offers no guarantee upon which an M&E organization can make strategic decisions about how to proceed in supporting its future storage requirements for creative workflows.

The projections also forecast the per TB retail cost of HDD falling to about \$7 to \$10 in 2031 from today's level of around \$12 to \$18. By 2036, they show the per TB retail cost of HDD will range from about \$4 to \$6.

Regarding the price premium of SSD vs HDD storage, the dollar gap between the two per TB this year ranges between 8x and 12x. In five years, the dollar gap is expected to shrink to 5x to 6x and by 2036 to about 4x.¹⁰

CRISIS DURATION

If it were not for the urgency to satisfy production workflows and deliver evermore content, some in the M&E Industry at first glance might think waiting out the AI Supply Chain Crisis is the wisest course of action. However, given the dollar value of the film and video production market—estimated to be \$31.24 billion in the U.S.¹¹ and nearly \$297 billion worldwide annually¹²—waiting for storage prices to fall potentially puts billions of dollars in revenue needlessly at risk.

Industry watchers expect the current supply chain crisis to last through 2027. If waiting out the supply chain crisis

IT Component Pricing, Especially for Storage

DISK TYPE	SIZE	% PRICE INCREASE
NVMe SSD (Retail)	4TB+	30-35% (from 2023-24 prices to early 2026 prices)*
NVMe SSD (Enterprise)	30TB	250% (from 2023-24 prices to early 2026 prices)**
Spinning Disks (Nearline HDD)	16 to 20TB	30-35% (from 2023-24 prices to early 2026 prices)***

Sources: * TrendForce 2026, ** CIO Magazine April 2026, *** ComputerBase

translated into impeding production workflows from meeting delivery obligations for only 10% of projects, the potential loss of revenue over the next two years to the U.S. M&E Industry could translate into putting more than \$6 billion at risk.

As M&E organizations weigh their options for how to proceed, they should keep in mind how industry observers see the crisis playing out over the next several years. 2026 is seen as peak crunch time due to a complete lock up in supply lines.¹³ Components like DRAM, necessary for HDD cache memory, and NAND flash memory used in SSDs are completely sold out.

Next year, industry watchers expect supply line tightness to persist and so-call “memflation” to continue as demand continues to outstrip supply through most of 2027.¹⁴ One industry researcher, however, expects to see prices plateau in the second half of the year.

In the 2028-2029 timeframe, relief from the crisis is expected as a multi-billion-dollar global fabrication expansion comes to fruition, creating what watchers anticipate will be a flood of supply, driving down the price of retail NVMe and enterprise SSD storage.¹⁵

MEDIA STORAGE AND THE M&E INDUSTRY

The AI Supply Chain Crisis is creating an immense problem for the M&E Industry. Estimates of annual storage for active, nearline and archival workflows in the industry place the total at more than 100 exabytes (EB). With no apparent end in sight to the public’s appetite for new entertainment, that number is only likely to grow.

When cloud and local storage capacity for M&E workflows are considered, total storage exceeds 200 EB, according to a 2025 report on trends in M&E storage. Local network storage stood at more than 85 EB with a large portion consisting of high capacity nearline HDD arrays using 18 to 24 TB drives. Cloud storage exceeded 80 EB.¹⁶

Between 100 and 120 EB of storage is devoted to storing historical assets, camera dailies and master files in nearline storage environments, which consist nearly completely of high-capacity HDDs and digital tape, the report said.

Most important for M&E organizations grappling with escalating storage prices during the ongoing supply chain crisis is how much more capacity will be required. According to the research, M&E digital storage capacity is expected to scale 3.3x by 2031.¹⁷

Exacerbating the situation is the typical warranty manufacturers offer with retail and enterprise HDD and SSD drives, which ranges from three to five years,¹⁸ meaning media organizations cannot simply plan for organic business growth but must also plan for the cost of replacing their existing storage as it approaches end of life.

If storage prices trend as projected to the low end of the estimated \$7 retail per TB for HDD storage, a tripling of storage capacity for new business will cost the M&E Industry an additional \$2.31 billion annually. Given the projected 5x to 6x

Global Data Center Capacity Share (with Projections)

YEAR	ENTERPRISE ON-PREM	COLOCATION	HYPERSCALE (OWNED/ LEASED)
2018	56%	22%	22%
2025	32%	20%	48%
2031	19%	14%	67%

Source: Synergy Research Group

Hyperscale Data Center Pipeline (by Regions)

REGION	APPROXIMATE SHARE	PRIMARY DRIVERS
North America	About 50 %	Massive AI cluster expansion (Gigawatt-scale campuses)
Europe	About 25%	Driven by strict data sovereignty residency mandates
Asia-Pacific	About 20%	Explosive digital economy growth and localized cloud regions
Rest of World	About 5%	Emerging markets in the Middle East and Latin America

Source: DC Byte and Synergy Research Group.

price difference between SSD and HDD storage, that annual additional storage cost could climb above \$11 billion, depending upon what percentage of total storage is solid state.

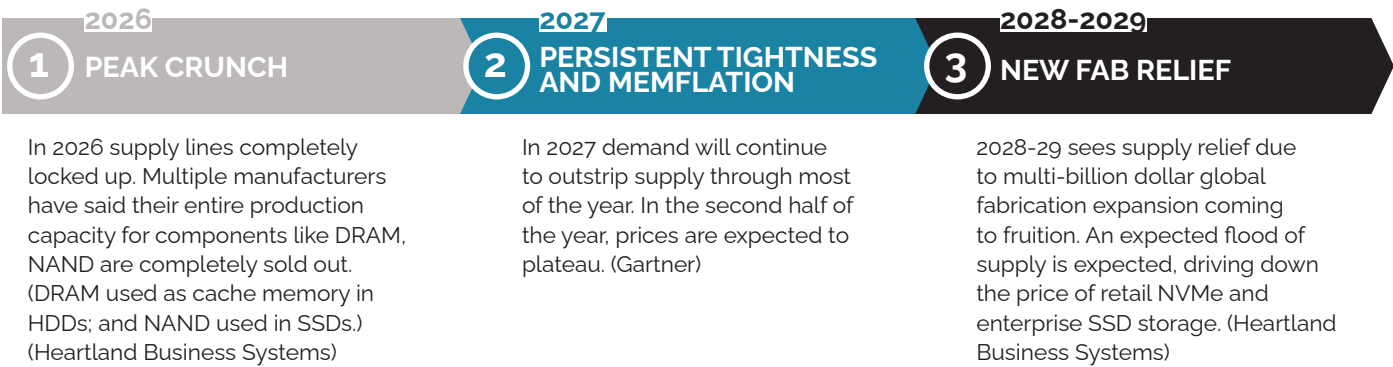
With the rate at which M&E digital storage capacity is expected to grow over the next five years as well as the need to replace existing storage and the associated hefty price tag, it is imperative the M&E Industry develop a storage strategy that is cost-effective but does not sacrifice performance and compromise production workflows.

THE SOLUTION

An effective strategy for meeting the challenge of growing storage requirements in an era of escalating prices centers on deploying a mix of storage technologies in a connected workflow that bridges storage technologies and locations to maximize performance while minimizing costs.

By combining different storage solutions, each with characteristics that match the performance requirements of different

Three Phases of an AI Supply Chain Crisis



stages of the production workflow pipeline, M&E organizations can maximize the effectiveness of their capital expenditure on storage technologies.

For example, video editors, VFX artists, colorists and others who collaborate with peers on specific workflows will find they are best served with shared storage built up from storage arrays of Flash, SSD and HDD.

The right mix of these storage technologies will enable a media organization to derive the greatest value from its

storage dollar while ensuring its creative staff has the storage performance it requires to support its specific workflow. To execute this strategy, these same organizations must deploy workflow orchestration tools, often in conjunction with their MAM.

For archiving, cold storage and even some nearline workflow, such as storage of dailies, archives and historical footage, object storage and tape offer secure, affordable digital asset storage.

Public cloud storage also offers M&E organizations a digital storage alternative that can complement remote workflows as well as providing a disaster recovery location.

When paired with intelligent data tiering and management technology such as Quantum’s StorNext Storage Manager, it is possible to move files automatically from primary storage on Flash or HDD to object storage or tape and vice versa in a single, connected workflow.

Quantum’s ActiveScale Object Storage offers S3-compatible ‘warm’ storage with an integrated cold storage tier, powered by tape technology, in a single workflow for greater protection and dramatically lower storage cost. Media organizations may also add Scalar tape storage systems to archive content directly for long-term archival protection.

As M&E organizations think about how to architect their workflows, meet production demands and respond to the ongoing pressures they face in the storage market, one important advantage they must keep in mind is the likelihood that as little as 20% of their media assets need to be stored on fast-access SSDs or HDDs at any given time to support ongoing production workflows while the remaining 80% can be stored on object storage and tape and retrieved whenever needed.

Employing a storage strategy that recognizes reduced storage performance characteristics are required to support different creative workflows makes M&E organizations far less vulnerable to the ongoing spike in storage pricing stemming



from the AI Supply Chain Crisis. Rather than putting a storage monoculture in place that is sure to drive digital storage costs far higher than need be, deploying the right storage technology or technologies for the workflow ensures organizations derive the greatest value from their storage spending and secure the storage performance required.

HDD VS. LTO PRICING

There is a stark difference between the raw cost of media to store one TB of digital data on an LTO tape cartridge compared to the per TB cost of spinning enterprise HDDs.

Currently, an LTO-9 cartridge, which can store 18 TB costs \$85 to \$100, or about \$5 per TB. A 30 TB LTO-10 cartridge costs \$260 to \$280, or \$9 per TB. A 40 TB LTO-10 tape cartridge costs about \$570, or \$14.25 per TB.

A 32 TB enterprise HDD costs \$650 to \$700, or about \$20 to \$22 per TB. Of course, this price comparison does not tell the whole story when considering the cost of storing data.

To store and retrieve data from LTO tape requires a dedicated LTO tape drive or LTO library. Currently, LTO-9 drive costs range from \$4,500 to \$6,000, and LTO-10 tape drives are priced between \$9,000 and \$10,000.

Given the cost of tape drives, storing digital data on LTO tape becomes more economical than HDD storage when the amount of data needing to be stored exceeds 200 to 500 TB.

Calculating the total cost of ownership (TCO) of LTO, compared to other storage, whether its HDDs or the cloud, is far more involved than a simple comparison of media and hardware prices, however. Operational costs, maintenance expenses, the cost of floor space, sustainability charges, average

energy usage and total CO2 emissions factor into determining TCO as well.

An online TCO calculator makes it easy to compare total cost of ownership of various digital storage solutions. Available at lto.org/tco-calculator/, the interactive tool enables users to enter data relevant to their unique organizations and compare the TCO of using LTO tape, Just a Bunch of Disks (JBOD) and the cloud to store their data. In addition to a comprehensive user guide, the tool offers helpful prompts to clarify what information is being requested.

BENEFITS AND CONSIDERATIONS

Integrating LTO storage into M&E production workflows offers several operational benefits as well as requires M&E organizations to anticipate and plan for certain aspects of storing digital data on LTO tape.

One of the biggest benefits of using LTO is its extraordinary power efficiency. Unlike a spinning disk that draws power continuously, whether or not it is being used to store or retrieve data, LTO can sit idly by without drawing electricity. In fact, an LTO tape library packed with drives can use less power than a typical high-end gaming GPU.

As electrical power becomes a premium for M&E organizations and society at large as hyperscale data centers are built out, the power efficiency of LTO means an organization will have power to give back to its overall power budget.

Another benefit of LTO of particular importance to M&E organizations is its security advantages when it comes to keeping valuable intellectual property safe. An LTO tape stored on a shelf is truly air-gapped and thus not subject to ransomware attacks that have plagued some media organizations. Additionally, LTO tape drives or backup software can provide AES 256-bit encryption.

Media organizations considering LTO should keep several operational considerations in mind, including:

- LTO Roadmap: LTO-9 reads and writes LTO-8 and LTO -9. LTO-10 leverages new drive technology offering higher speeds and up to 40 TB capacity.
- LTO-9 Initialization: Media organizations should be prepared to initialize an LTO-9 cartridge the first time it's used.
- Environmental: Preserving data stored on LTO requires certain environmental conditions, including optimal temperature, humidity, HEPA filtering of archives and tape orientation. This, however, should not be a heavy lift for most M&E organizations and data centers because on the whole they are already well-managed and running efficiently, meaning using LTO requires nothing out of the ordinary.
- Health Monitoring: Media organizations must employ strategies to protect against bit rot and track degradation. For those with automated LTO libraries, one solution is Quantum's Extended Data Life Management (EDLM) feature that automatically scans for problems.

HDD/SSD/NVMe vs. LTO Pricing

STORAGE TYPE	PRICE/TB (Q3 2026)
High Density* Enterprise QLC NVMe	\$300-\$400
Standard Enterprise* TLC NVMe	\$250-\$300
Enterprise SSD** (Mainstream TLC Drives)	\$150- \$250
Highest Density*** Data Center Enterprise SSDs	\$583
LTO-9 Tape Cartridge****	\$5.44-\$5.83
Standard LTO-10***** Tape Cartridge	\$8.66-\$9.50
High-Density LTO-10***** Tape Cartridge	\$12/12-\$12.45

Note: Many factors account for total cost of ownership of LTO storage, including tape drives/tape libraries. To determine LTO TCO specific to your organization's unique circumstances, visit: lto.org/tco-calculator/ and complete the interactive, online form.

Sources: *TrendForce Memory Pricing Surveys, **VDURA Flash Volatility Index and Stoe Economics Optimizer, ***Tom's Hardware and Global One Technology, ****HPE or Quantum via IT distributor, *****Fujifilm

10-Year Projections (2026–2036)

METRIC	2026	2031	2036
NVMe Retail Price	~\$75 - \$110 / TB	~\$40 - \$55 / TB	~\$20 - \$30 / TB
HDD Retail Price	~\$12 - \$18 / TB	~\$7 - \$10 / TB	~\$4 - \$6 / TB
Max Consumer Capacity	8TB - 16TB (M.2)	32TB - 64TB (M.2)	128TB+ (EDSFF/M.2)
Price Gap	~8x - 12x	~5x - 6x	~4x (Dollar/TB between SSD and HDD)

Source: "Mass Data Storage Reports," Tom Coughlin, Gartner Hyper-Scale Storage Infrastructure Studies, Western Digital, Samsung, Seagate, SK Hynix and Micron.

WORKFLOW CONSIDERATIONS

Achieving the right balance of data storage performance while protecting an organization from escalating storage prices during the ongoing AI Supply Chain Crisis comes down to introducing LTO storage as part of a mixed storage environment.

A critical part of optimizing production workflows with mixed storage is the ability to migrate media content on and off LTO and spinning HDDs seamlessly so that creative personnel, such as video editors or VFX specialists, are not waiting for media to load.

Quantum StorNext can play a foundational role in combining spinning disk or solid-state disk with automated LTO library storage. By integrating the file movement to and from object storage and tape into the file system, StorNext bridges the gap between the high-throughput requirements of production workflows like editing, color grading and VFX and cost-effective LTO tape storage.

StorNext protects against disconnected workflows by creating a unified workflow. Creative personnel can retrieve needed files and projects from archive regardless of where a file resides—in other words, whether it is stored on spinning disk or LTO tape.

To manage the interaction between disk and LTO, StorNext Storage Manager (SNSM) acts as an automated Hierarchical Storage Management engine that executes storage policies based on metadata parameters, such as age and access, watermark triggers and project-based rules.

Many Media Asset Management (MAM) systems support StorNext, including Quantum’s own CatDV, Dalet Flex, ELEMENTS, Telestream Vantage, IPV and many other automation-first MAMs.

MAMs in general—and StorNext in particular—ensure media workflows automate the movement of content from LTO onto fast spinning disk or SSD without requiring manual intervention to move content from fast storage to LTO to free up space for a specific creative task.

FADE TO BLACK

The M&E Industry has shown itself to be extraordinarily resilient. However, the challenge the AI Supply Chain Crisis is creating for the industry is unlike anything it has ever seen. At the very time the industry is being called upon to produce more content, the cost of the very technology it requires to meet that demand is on an upward trajectory.

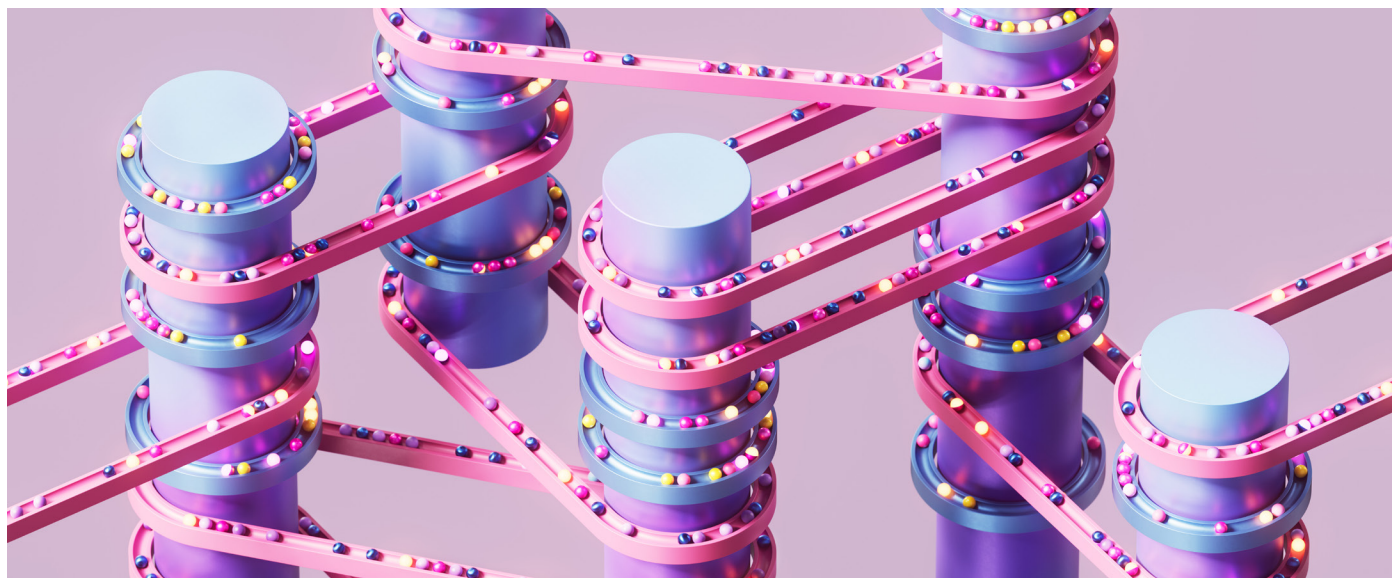
While waiting for the supply chain crisis to resolve itself might seem to be a solution, doing so during a period of soaring demand for content threatens any competitive advantage an M&E organization may have created in the minds of its clients. Turning business away is simply untenable for any organization focused on long-term growth and economic success.

Beyond simply the business consequences of waiting out the crisis, however, it must also be remembered that IT market experts are projecting that some relief is at least a year away and that new manufacturing capacity is not fully expected to kick in till at the earliest 2028.

Rather than making do, a far wiser approach is for M&E organizations to proactively seek a solution that moves their digital data storage strategy away from reliance on a mono-culture of storage technology to a storage ecosystem made up of a variety of solutions that lower overall storage costs by dedicating different storage types to different workflow tasks and deploying a MAM to make content sharing across storage types seamless to creative personnel.

Doing so will ensure M&E organizations are better equipped not only to deal with rising IT component cost sapping their budgets, but also rising electrical power costs and the inability to refresh storage as needed as flash and spinning disk capacity maxes out.

Establishing storage tiers with storage types that best meet the performance requirements of different creative workflows also offers M&E organizations greater autonomy from public cloud services as well as flash and HDD vendors.



As an added benefit, this strategy also positions M&E organizations to respond to client requests to verify their production chains simply because more of that chain is onsite and under their control and direction.

Of course, M&E organizations can save a lot of money employing this strategy making their hot storage far leaner—both from the perspective of the initial purchase price and what is spent to operate it. To execute this strategy, they simply must shift the 80% or so of their content that's not needed at the moment for a given production to archive storage that is more than fast enough for AI, content monetization, repurposing and other workflows. Doing so also makes it far easier to consolidate operations, replacing multiple systems in different locations with one.

Time and time again, the M&E Industry has demonstrated its ability to rise to whatever challenges it faces. Today's unprecedented challenge stemming from the AI Supply Chain Crisis demands media organizations innovate and refine their operations as well as optimize their workflows and storage technologies. Doing so will position these organizations for the long haul as they grapple with the fallout of the AI Supply Chain Crisis for the foreseeable future. It will also position them for success as consumer demand for entertainment continues to grow.

¹ 2025 Digital Storage I Media and Entertainment, Coughlin Associate.

² "SSDs now cost 16x more than HDDs due to AI supply chain crisis — hybrid SSD + HDD datacenter deployments are now significantly cheaper to deploy than SSD-only equivalents," by Aaron Klotz, Tom's Hardware, Jan. 22, 2026.

³ "U.S. Hyperscale Investment Shifts Decisively Inland," Synergy Research Group.

⁴ "America's Data Center Count Is About to Nearly Double," by Torsten Slack, Apollo Global Management.

⁵ "American Data Center | H2 2025, Cushman & Wakefield, February 2026.

⁶ "TrendForce Q1 2026 Client SSD Price and Trend Analysis," Q1 2026.

⁷ "The AI Infrastructure Tax: How Skyrocketing Data Center Hardware Costs Are Rewriting the CIO Budget," CIO Magazine, April 2026.

⁸ "Memory Shortage Now Wreaking Havoc on Hard Drive Prices, Too," by Jon Martindale, PC Mag, Jan. 16, 2026.

⁹ "IEEE International Roadmap for Devices and Systems (IRDS) Mass Storage, Aug. 27, 2024.

¹⁰ Ibid.

¹¹ "United States Video Production Market Analysis Report (2025-2033)," ResearchandMarket.com, December 2025.

¹² "Film and Video Production Market Report," ResearchandMarkets.com, January 2026.

¹³ Heartland Business Systems.

¹⁴ "Emerging Issue: Managing 'Memflation' Through 2027," Gartner, Feb. 27, 2026.

¹⁵ "AI Memory-Shortage 2026: What IT Leaders Need To Know," Heartland Business Systems, March 5, 2026.

¹⁶ 2025 Digital Storage I Media and Entertainment, Coughlin Associate.

¹⁷ Ibid.

¹⁸ Warranty data from Seagate, Western Digital/SanDisk, Samsung Electronics product guides.

About Quantum

Quantum

Quantum delivers end-to-end data management solutions designed for the AI era. With over four decades of experience, our data platform has allowed customers to extract the maximum value from their unique, unstructured data. From high-performance ingest that powers AI applications and demanding data-intensive workloads, to massive, durable data lakes to fuel AI models, Quantum delivers the most comprehensive and cost-efficient solutions. Leading organizations in life sciences, government, media and entertainment, research, and industrial technology trust Quantum with their most valuable asset—their data. For more information visit www.quantum.com.

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