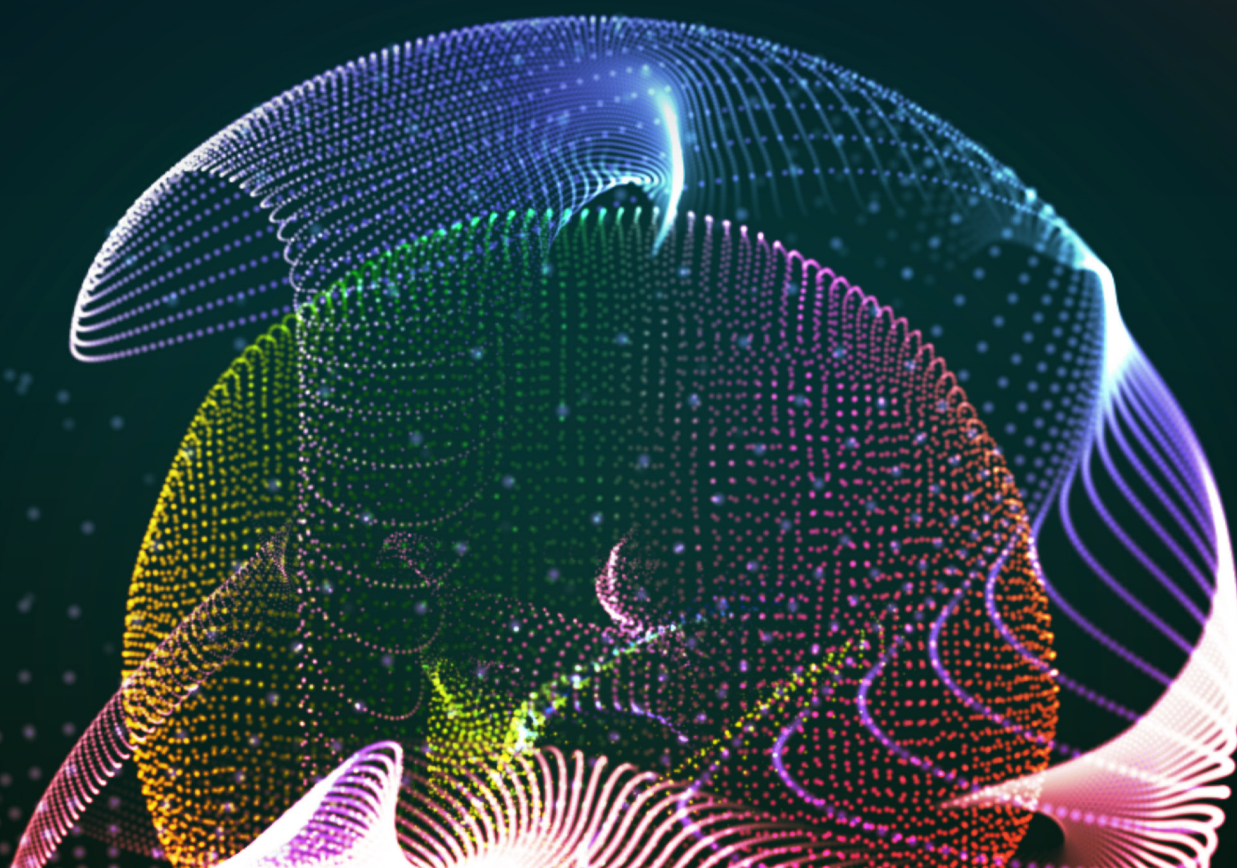




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Powering the AI Era

How LTO Tape delivers unprecedented
economic and strategic business value



In the data center of 2026, your ability to efficiently harness the power of large amounts of data will be the defining measure of your organization's success. As AI-driven analytics and real-time processing propel businesses into the exabyte era, LTO tape technology has emerged as the silent, highly efficient engine of the world's most modern and capable architectures.

By embracing Linear Tape-Open (LTO) technology, enterprise architects can build an active, long-term foundation for the AI data lifecycle that delivers total data retention, the throughput AI demands, and a cost and power footprint nothing else can match.



Data is the Strategic Resource Behind Enterprise AI

Artificial intelligence models are massive consumers of data, and attempting to house all foundational data, ingest and historical telemetry, and historical checkpoints on high-performance NVMe, flash, or HDD storage is simply financially unsustainable. While some organizations have turned to "half-measures" like SMR (Shingled Magnetic Recording) HDDs or Cloud Cold Tiers, these alternatives often hurt the bottom line:

The Cloud Egress Tax: Cloud storage may look cheap initially, but just a 2% monthly data egress can trigger a massive 164% spike in total storage costs. Modern tape solutions never have egress charges.

The SMR Trap: SMR drives offer 25% more capacity than traditional HDDs, but they force organizations to take on 70% of the complexities of tape while realizing less than 25% of the savings.¹

The Modern Pivot: Making All Data Available to AI

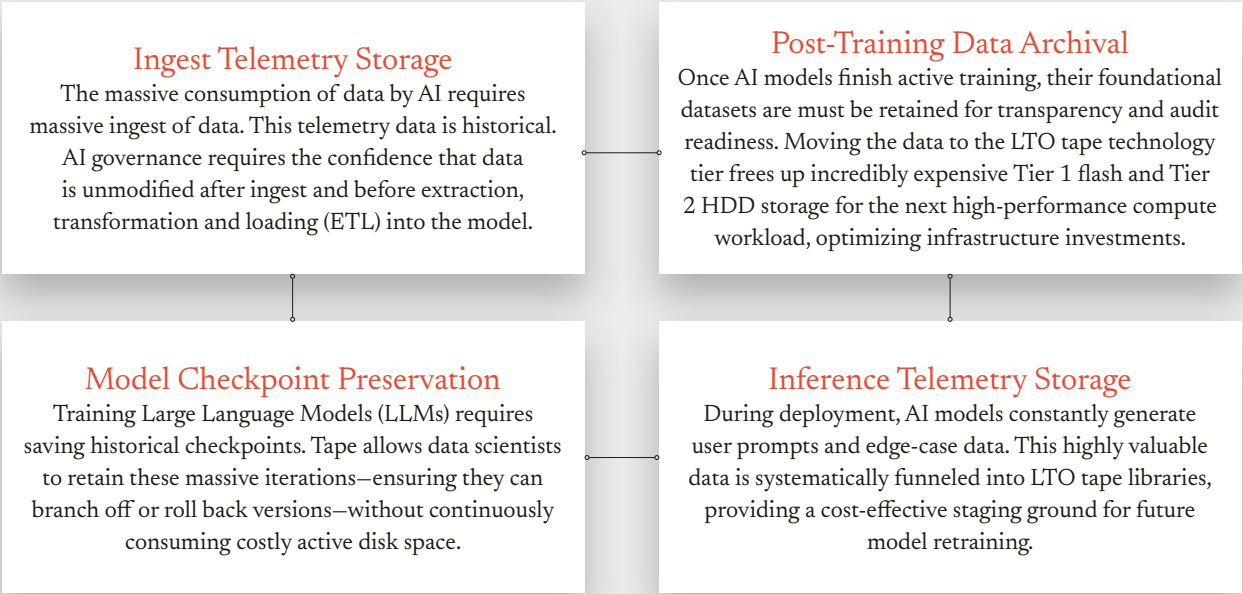
While HDD will continue to play a significant part in data storage, we no longer live in a world of complex tape operations. Modern tape solutions have evolved into integrable, AI-driven architectures. By utilizing Automated-tier-Caching, organizations are bridging the performance and archive accessibility gap. AI-driven predictive indexing now anticipates retrieval requests, pre-staging data to solid-state or HDD tiers before the data is required. This integration with Software Defined Storage (SDS) allows tape to behave as an object-storage tier; offering the economics of cold storage in a tiered solution with HDD multi-second storage and computational SSD, Flash and transactional memory.

LTO Tape: Making Large-Scale AI Data Retention Economically Compelling

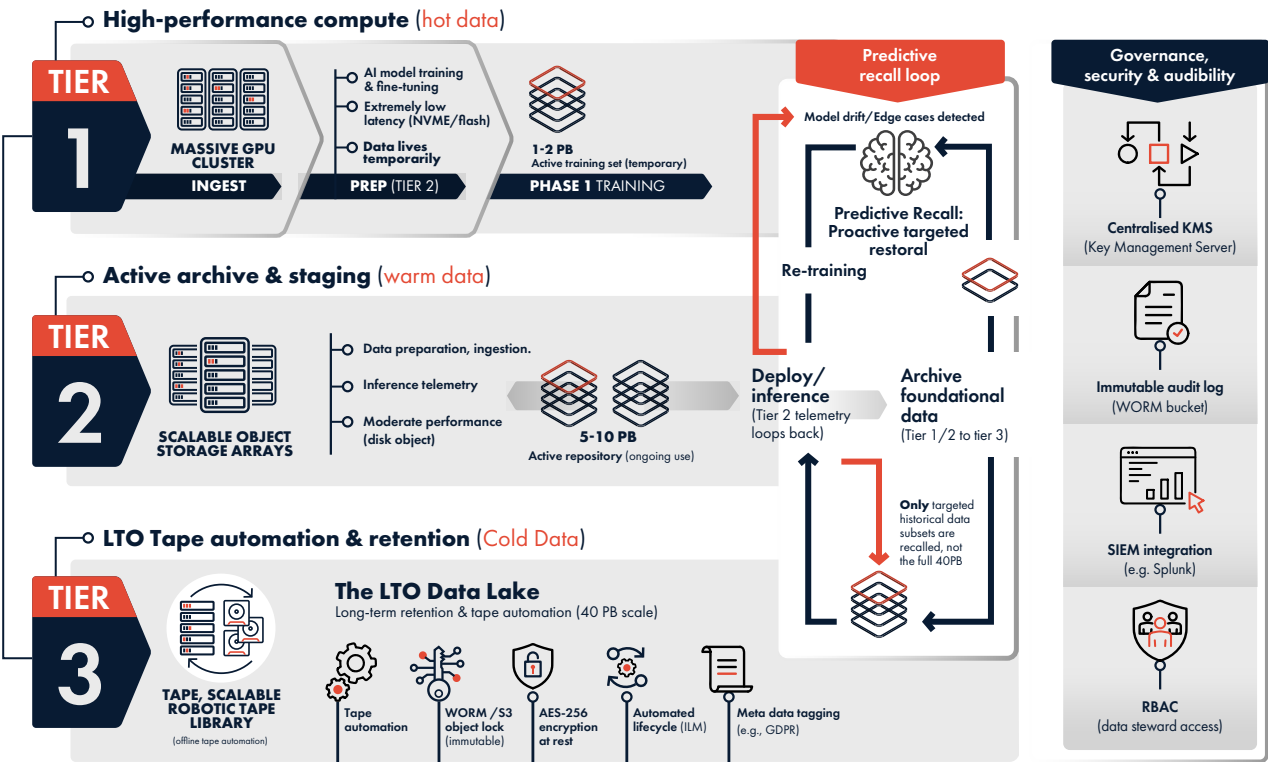
The economics of AI data governance extend to the protection and auditability. Data that is unprotected, is a financial risk for every organization. To ensure robust AI governance and audibility, LTO tape technology provides a highly secure, immutable foundation that is critical for regulatory compliance and risk management. As AI models consume and generate massive volumes of sensitive data, relying solely on primary storage introduces significant security vulnerabilities and overhead. LTO tape technology mitigates these risks by offering a technology gap storage in a non-modifiable format. This along with tape solutions providing capabilities like 'Object Lock', ensure that foundational training data and audit logs remain completely immutable and tamper-proof. Furthermore, modern tape infrastructure natively supports strict governance frameworks through metadata tagging for regulations like GDPR, centralized Key Management Servers (KMS) featuring AES-256 encryption-at-rest, and Role-Based Access Control (RBAC) to ensure only authorized data stewards have access. By seamlessly integrating with SIEM platforms like Splunk® and LogRhythm®, LTO tape technology guarantees that an organization's critical AI telemetry and historical models remain verifiable, secure, and protected against sophisticated cyber threats.



To scale AI initiatives successfully, organizations must seamlessly manage petabytes of governed information across every phase of development. LTO tape technology provides low-cost, critical, active business support at every step:



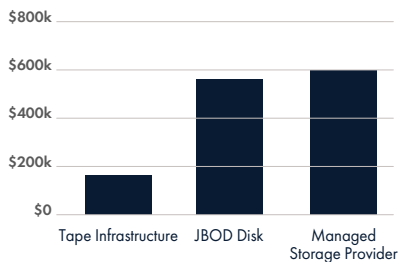
Data lifecycle architecture: **tiered storage with predictive recall at scale**



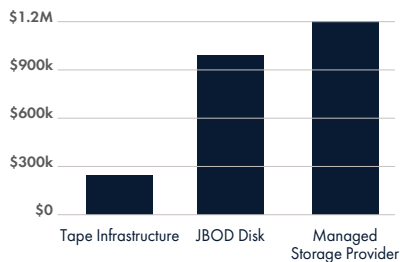
By the Numbers: Unmatched Total Cost of Ownership

68% of I&O leaders are more than moderately concerned about the cost of running artificial intelligence², tape provides the capacity and fiscal relief organizations desperately need. LTO has proven to outpace the industry in scaling capabilities while keeping the cost-per-Gigabyte at an absolute minimum. As tape solutions continue to modernize, LTO-10 demonstrates a low-cost of ownership:

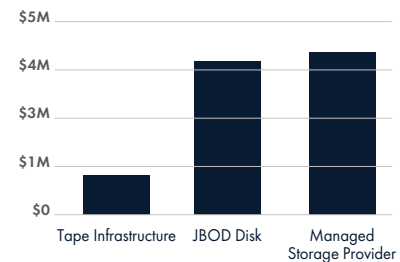
5PB , 7-year TCO including Repatriation^{3,4}



10PB , 7-year TCO including Repatriation^{3,4}



40PB , 7-year TCO including Repatriation^{3,4}



Discover your use case savings with the LTO TCO Tool at LTO.org/TCO-calculator

The Case for Cloud Repatriation

As cloud costs have escalated and data managers are feeling like they have lost control of data governance, a defining trend is Data Repatriation; pulling archives out of the cloud and back onto modern tape solutions utilizing LTO tape technology. The business case for this move is undeniable:

ROI: Most organizations see a full return on investment from tape in less than 24 months.³

Cyber Resiliency: In an era of rampant ransomware, tape provides the only true physical air gap.

Data Control: Demanding governance and regulatory requirements are pushing data back on-premises.

Whether managing 5PB, 10PB, or 40PB of data, LTO-10 delivers a dramatically lower total cost of ownership compared to JBOD disks or Managed Storage Providers, even when factoring in the cost of repatriating data from the cloud.

The Stakes:

"More than 70% of enterprise data will not have any enduring need for the performance of SSDs and HDDs, but will have greatly expanding needs for low-cost Sustainability, Immutability and Security (SIS)..."⁵

The Bottom Line: Data protection and Durability at the Lowest Cost of Ownership

There is no "modern data center" without tape. It is the lifeline for:

Cyber Resiliency:

The ultimate air-gapped defense.

Budgetary Alignment:

Dramatic reduction in TCO vs. Cloud and HDD.

AI Performance:

Predictive indexing makes archive data "accessible" again.



Don't be lulled into the simplicity of the HDD blocks.

Tape is not merely a storage medium; it is an organization's ultimate line of defense—immutable, encrypted, and offline. LTO tape technology has a demonstrated future capacity of 580TB⁶; a massive capacity and secure platform for the 70% of data that defines an organization's long-term value, LTO is an indispensable hero for modern business.



Solutions North Consulting, LLC.

Solutions North Consulting is an independent consulting company that bridges the gap between complex solutions and organizational success. Delivering elite technical leadership and operational expertise to give your company an unprecedented competitive advantage.

1. Reflecting on the Past 17 Years of Shingled Magnetic Recording for Insights Into Future Disk Transitions: A Survey, Khan, R., Koch, A., June 2025, <https://doi.org/10.1145/3731453>
2. Storage in the Age of AI - Challenges and Opportunities, MinIO Infrastructure and operations survey, 2025.
3. LTO.org 2026 TCO tool, Tape data on LTO-10, 7-year retention, AWS Glacier, 1% per month egress, Bulk Retrieval, 15% contractual discount level.
4. Data retention of 7-years, LTO-10 Tape technology, 30TB HDD at May 2026 average price, managed service provider Deep Archive storage tier with zero retrieval or egress charges. Tape and HDD cost includes the cost of repatriation retrieval or egress charges.
5. All Data is Indispensable: The Staggering Immensity of an Active Archive, Monroe, J. and Johns, B. Furthur Market Research, August 2025, https://furthurdata.com/wp-content/uploads/2025/08/5038-All-Data-is-Indispensable_v8.pdf
6. 3 Big Takeaways from the Fujifilm and IBM 580TB tape Demonstration, Rich Gadomski, January 2021, <https://datastorage-na.fujifilm.com/3-big-takeaways-from-the-fujifilm-and-ibm-580tb-tape-demonstration/>

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