



PRESS RELEASE

Folio Photonics Announces Breakthrough Multi-Layer Optical Disc Storage Technology to Enable Industry-Disruptive Cost, Cybersecurity and Sustainability Benefits

Technology Advances Primed to Usher in a New Era for Active Archiving and Ultimately Establish a New Normal for All Archival Data

Solon, Ohio – August 30, 2022 – [Folio Photonics](#), a leading pioneer of immutable active archive, today announced that it has achieved a significant breakthrough in multi-layer optical storage disc technology that will enable an unprecedented level of cost, security and sustainability advantage. Leveraging patented advancements in materials science, Folio Photonics has developed the first economically viable, enterprise-scale optical storage discs with dynamic multi-layer write/read capabilities, which will enable the development of radically low-cost/high-capacity disc storage.

“Folio Photonics is on a path to engendering far greater data densities than was thought possible several years ago,” said John Monroe, lead analyst at Furthur Market Research and former VP analyst in the data center infrastructure group at Gartner. “Using next-generation materials, patented polymer extrusion, and film-based disc construction processes (distinct from mere optical layering), in concert with customized optical pickup units (OPUs), Folio Photonics appears poised to deliver a new optical technology that enables eight or 16 film layers per side per disc, as opposed to only three optical layers per side per disc for archival discs today, with a roadmap to add additional layers over time.”

Data growth is overwhelming existing storage technologies, and today’s outdated enterprise storage technologies fail to address three key pain points of cost, cybersecurity and sustainability. The high cost of storage is untenable with exploding data growth, cyber threats continue to escalate, and data centers are a major contributor to energy/water usage and CO₂ emissions. Current hard disk drive (HDD) and LTO tape roadmaps reflect insufficient technological advancement to meet user needs and desired price points in the future.

Folio’s technology milestone proves the feasibility of its materials, manufacturing and optics and shifts the company from the research phase to product development. With disc availability targeted for 2024, Folio’s multi-layer disc capacity is expected to start at 10TB per cartridge (1TB per disc) with an

aggressive roadmap to multi-TB capacities. The roadmap is enabled by the addition layers due to its easily scalable polymer co-extrusion process as well as significant increases in capacity per layer.

“Our talented engineering team – under the leadership of founder and CIO Dr. Kenneth Singer – has pioneered a fresh approach to optical storage that overcomes historical constraints and puts unheard of cost, cybersecurity and sustainability benefits within reach,” said Steven Santamaria, Folio Photonics CEO. “With these advantages, Folio Photonics is poised to reshape the trajectory of archive storage.”

Folio Photonics optical discs will provide a powerful combination of game-changing characteristics that make data archives ACTIVE.



ACTIVE Archive Storage Technology

A Affordable	5x lower acquisition cost and orders of magnitude lower total cost of ownership (TCO)
C Cybersecure	Airgap, WORM, encryption, and US-based manufacturing
T Time to Data	Random access ensures superior time-to-first-bit relative to tape
I Immutable by Design™	Resilient to radiation, saltwater, heat, cold, and humidity
V Viable	Media lifespan of 100+ years with near-infinite backwards compatibility
E ESG (Environmental, Social, Governance)	80%+ power savings

Folio Photonics is well positioned to be a leader in the archival storage market, projected to be \$10B⁺¹, 2.68⁺² Zettabytes in 2025. It plans to start with adoption in the immutable active archive use case and expand to become a standard for all archive data. Folio’s manufacturing advantages drive room for significant channel/partner margin and profitability and position the company for sustainable growth and continued investment in the business.

“Archival storage data comprises up to 80 percent of all data according to industry estimates, and Folio Photonics is in a strong position to be a leading player in this large, fast-growing market,” said Fred Moore, president, Horison Information Strategies. “Archival data is typically unchanging, presenting itself as ‘write once’ and requiring immutability. At the same time, artificial intelligence (AI), machine learning (ML) and Big Data analytics are increasing activity and accessibility requirements for archival storage systems. As a result, the demand for immutable active archives will only increase as immutability and higher performance requirements reshape the exploding secondary storage paradigm.”

Unlike tape, Folio Photonics ACTIVE archive storage will provide random access to archives to ensure effective data retrieval. Unlike HDD, its ACTIVE archive storage is Immutable by Design™ and offers a 5X lower acquisition price – roughly \$25/TB for HDDs and less than \$5/TB for Folio. Folio Photonics discs are highly sustainable and will provide 80 percent power savings over HDDs. In addition, its ACTIVE archive storage is not vulnerable to electromagnetic pulse (EMP) attacks, offers an air gap to ensure cybersecurity and provides a media lifespan of 100 years.

“Folio’s next-generation storage media will radically reduce the upfront cost and TCO while making data archives active, cybersecure, and sustainable – an ideal combination for data center and hyperscale customers. We believe that it will disrupt and reenergize the multi-billion-dollar data storage industry with its breakthrough financial and sustainability upside,” added Santamaria.

¹ Folio Photonics projection based on the report by Fred Moore, Horison Information Strategies, *Reinventing Archival Storage*, 2021.

² Folio Photonics projection based on the report by John Monroe, Further Market Research, *The Escalating Challenge of Preserving Enterprise Data*, 2022.

About Folio Photonics

Folio Photonics is reenergizing storage media innovation with the first-ever enterprise-scale, immutable active archive solution that delivers breakthrough cost, margin, and sustainability benefits. Leveraging game-changing advancements in materials science to create dynamic multi-layer write/read capabilities, Folio’s technology overcomes historical optical constraints to reshape the trajectory of archive storage. Ideal for data center and hyperscale customers, Folio’s next-generation storage media radically reduces upfront cost and TCO while making data archives active, cybersecure, and sustainable.

Folio Photonics and its licensed technology was spun-off from Case Western Reserve University and its National Science Foundation Center for Layered Polymeric Systems by Dr. Singer. Current investors include Material Impact, Refinery Ventures, Early Stage Partners, Pavey Investments and JobsOhio.

To learn more, visit the Folio Photonics [website](#).

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