SOLUTION BRIEF

Where Storytelling Meets Hyperscale Efficiency

Unlock your creative freedom with Leil and ATTO Technology

Media organizations, post-production houses, broadcast, and content delivery networks are under pressure to store and serve exploding volumes of 4K/8K, HDR, and VFX content while keeping projects accessible for longer durations. Traditional NAS/SAN designs struggle to balance high-performance access for creative teams with affordable, power-efficient capacity at petabyte scale.

"**For studio workgroups, broadcasting teams, and content delivery networks the challenge is often not raw capacity alone, but sustaining multi-stream performance, predictable costs, and operational resilience as content libraries expand.**" – Werner Paulus, Chief Commercial Officer of Leil.

This joint solution from Leil and ATTO Technology brings hyperscale efficiency, capacity, and automation on-prem, giving studios cloud-like economics with predictable performance, cost-control, and reliability that fuels next-generation M&E workflows.

Enhanced Storage Provisioning Optimized for Production, Finishing, and Archive

Leil's distributed, HDD-Native™ storage architecture is optimized for large-file, sequential workloads, and multi-stream read/write – making it ideal for streaming, editing, grading, and rendering. ATTO's high-performance storage connectivity ensures that access to dense HDD pools can be optimized to approach line-rate throughput with deterministic latencies. Together, they deliver a scalable media storage backbone that combines hyperscale efficiency with the reliability and interoperability expected in professional post-production environments.

Key Benefits for media-centric workflows

Non-stop playback and ingest at scale

- **Leil** aggregates HDDs into a single high-throughput pool that can feed multiple edit, grading, and special effects streams concurrently.
- **ATTO** ExpressSAS® HBAs and FastFrame™ NICs maintain low-latency high-bandwidth paths from those HDD pools to workstations and render nodes, reducing dropped frames and stutters in multi-stream timelines.

Cloud-like economics for on-prem media tiers

- **Leil's** HM-SMR-aware engine increases usable HDD capacity and reduces cost per TB for large online, nearline, and active-archive tiers by 20%.
- **ATTO** connectivity lets studios attach dense, low-cost JBODs over SAS or Ethernet without sacrificing streaming performance, so they can safely shift more workloads from expensive flash to economical HDD.

Resilient, edit-ready media protection

- **Leil** uses erasure coding and snapshots to protect projects, camera originals, and delivery masters, while keeping them quickly recoverable.
- **ATTO** solutions ensure consistent I/O behavior during rebuilds, snapshot operations and reliable high-speed transactions and distribution across the network - helping protect foreground edit and render performance when the system is under load.

Green features to provide energy savings and lower production cost

- By using HM-SMR drives, studios already save 20% in energy consumption compared to the conventional drives. **Leil** complements these gains through innovations designed to improve drive efficiency and extend media lifecycle while reducing the overall carbon footprint.
- With **ATTO's** cutting-edge technology and optimized connectivity solutions, customers can achieve these benefits without compromising on performance, reliability, and manageability of their storage infrastructure at scale.

Scale-Out Data Infrastructure Built for Media Storage

At the core of this solution is a dense JBOD (or) set of JBODs populated with high-capacity HDDs, including HM-SMR (and CMR) drives, connected via ATTO ExpressSAS HBAs into one or more storage or media servers. Leil's distributed file system spans these drives and presents POSIX, NFS, or SMB access to editing workstations, VFX render nodes, and MAM/media-asset management systems.

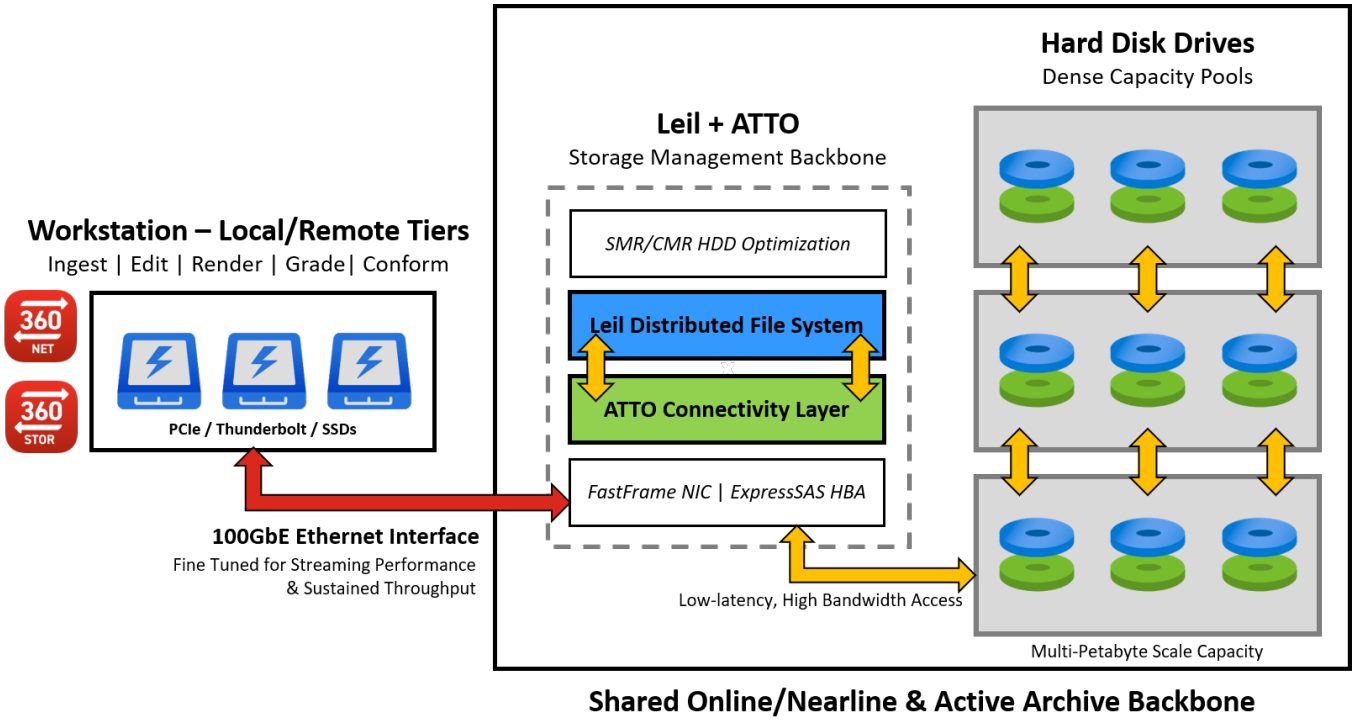

Fig 1: Large volumes of content live and stays accessible for creative applications

This type of hyperscale design principle takes advantage of HDD density, HM-SMR awareness, power optimization, and maximum data protection – and puts it into a form factor that is highly desirable for an operational model that is suitable for on-premises media workflows. It is built to take advantage of modern high-capacity HDDs rather than treating them as generic disks, while ATTO's connectivity stack is tuned for media streaming rather than general purpose I/O.

Unlock Compelling Data Economics with Western Digital SMR Drives

In media and entertainment workflows, the nature of the content itself makes the case for a smarter archive strategy. High-resolution video files are inherently large, written in long, continuous streams, and rarely modified in place – new versions are simply created rather than overwritten. This inherent data behavior aligns perfectly with the design of Western Digital HM-SMR HDDs, where sequential write and read patterns drive maximum efficiency.

With capacities reaching up to 32TB, the DC HC690 leverages UltraSMR and ePMR technologies to deliver exceptional density while proprietary OptiNAND™ technology enhances drive performance and increases usable capacity.

Creative studios, production houses, and media outlets can confidently embrace the reality of data-heavy workflows by building an archive tier that works with their data, not against it – delivering lower cost per TB, predictable performance, and a seamless path to scale as content libraries continue to expand. When paired with systems designed for sequential performance and controlled data movement using ATTO's performance engineered connectivity and Leil's intelligent file system, you gain a solution optimized for sequential data flows, controlled data movement, and seamless access as content libraries expand.

HM-SMR (host managed - shingled magnetic recording) drives provide 20% higher capacity than conventional drives. While these drives have been widely adopted by hyperscalers for more than a decade, their use in enterprise infrastructures has remained limited due to the need for specialized data management. Leil's revolutionary data management platform removes this barrier, enabling both pre and post-production environments to leverage the density and efficiency advantages of HM-SMR technology.

Fig 2: Read-Write performance achieved with Leil's SMR optimization

To fully unlock the performance potential of these high-density storage pools, reliable high-throughput connectivity is essential. ATTO ExpressSAS HBAs provide the deterministic performance, deep queue management, and sustained bandwidth required to move large media datasets efficiently between compute platforms and SMR-optimized storage tiers. Paired with fine-tuned, high-speed networking enabled by ATTO FastFrame network adapters, this architecture allows studios to access the increased density delivered by HM-SMR drives across content creation and modern production workflows.

This architecture enables linear scale-out for both capacity and performance, ensuring that the storage layer grows alongside production and archive demands, aligning with the realities for modern M&E pipelines. By shifting large media tiers from flash heavy infrastructure to SMR-optimized HDD pools, studios can dramatically reduce costs while maintaining edit-ready performance.

M&E Use Cases

- Shared 4K/8K online and nearline for streaming, editing, grading, and conforming, where multiple creatives need concurrent access to large media files and sequences.
- VFX and animation render farms that require high-throughput, HDD-based scratch and intermediate storage without the cost of an all-flash infrastructure
- Active archive of completed seasons, films, and high-resolution scans, enabling quick spin-up of older content for remastering, localization, or reuse.
- AI/ML driven content mining and quality control, where large historical libraries must be efficiently scanned and analyzed without moving data to cost-prohibitive external cloud storage.

Contact us to learn more on how you can preserve performance integrity, simplify deployment, and scale capacity without compromising workflow efficiency or operational control.

About Leil

Leil is an Estonian data storage company developing HDD-native software for large-scale, on-premise infrastructure. Its platform delivers energy-efficient, cost-effective, and scalable storage with hyperscale-grade efficiency. Available in commercial and open-source editions, Leil enables data-intensive organizations to manage rapidly growing data volumes without added complexity. Founded in 2022 by storage experts, Leil aims to make hyperscale storage economics accessible to the enterprise market.

leil.io

About ATTO Technology

ATTO Technology, Inc., is a globally recognized leader in storage and network connectivity solutions for data intensive workflows and performance-driven environments. For over 35 years, ATTO's innovative technologies have empowered organizations worldwide - from enterprise IT and data centers to media production studios - to fully leverage their data, optimizing performance, enhancing reliability, and driving competitive advantage in the digital era.

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