Big FinSvcs Firm Breaks Free from Storage Constraints

The future is software-defined. The future runs on TCP. The future is Lightbits.

A large U.S.-based financial institution was facing a dilemma: stuck in a vendor-locked data infrastructure model built around SAN block storage, Dell, and NetApp, where every capacity upgrade or performance improvement came with strings attached—high hardware costs, rigid and monolithic node configurations, and network complexity. With storage and compute coupled, scaling was expensive and inefficient. Licensing and lifecycle management felt like a maze of dependencies. The way forward—introduce disaggregated, flexible, Ethernet-based storage to augment Dell and replace NetApp systems. Enter Lightbits.

The large-scale modernization initiative targeted rack consolidation, improved power efficiency, sustainability, simplified management, and lower TCO. Lightbits' software-defined approach, running over commodity x86 hardware and standard TCP/IP networks, delivered all that—plus software encryption, better performance and lower latency.

From Rigid Infrastructure to Elastic Simplicity

Legacy systems brought a tightly integrated storage and networking model that worked—until it didn't. Expansion required deploying matched compute+storage nodes, complicating operations, inflating rack density, and increased costs. In contrast, Lightbits offered:

- True disaggregation of compute and storage
- Any hardware vendor support
- NVMe/TCP transport running over existing Ethernet
- Smaller datacenter footprint with better performance

With Lightbits' advanced flash management and data reduction capabilities, the client was able to consolidate nine racks down to just three, while boosting usable capacity by over 2.5x higher density.

Final Outcome

- **Reduced physical footprint by 67%** (from 9 racks to 3)
- **Increased usable capacity 150%** while lowering storage cost per TB
- **Cut power and cooling by 50%**
- **Eliminated vendor lock-in** by using off-the-shelf hardware
- **Avoided network sprawl** with NVMe/TCP on existing Ethernet fabric
- **Software encryption** with better performance and stronger and more flexible management scheme

Hyperscale-sized modernization replacing proprietary, overengineered SAN stacks with a **software-defined, NVMe/TCP** architecture. 100s of PBs stored on Lightbits delivering software encryption, better performance with fewer racks, more flexibility with zero dependency on a vendor's hardware roadmap.

To get started using Lightbits contact info@lightbitslabs.com.

Comparative Analysis

Rack Density and Capacity

Platform	Racks Required	Usable Capacity (PB, compressed)	Capacity per Rack (PB)
SAN Block Storage	9	~12	1.3
Lightbits (AMD)	3	~30.4	10.1

Performance and Latency

Metric	SAN Block Storage	Lightbits
Protocol	Proprietary stack	Standard NVMe/TCP
Avg Latency	>500 µs	<200 µs
Throughput Consistency	Variable under load	High, low-jitter

Operational Efficiency

Category	SAN Block Storage	Lightbits
Rack Power Draw	>9kW	<4.5kW
Cooling Requirement	High	60% lower
Lifecycle Management	Complex	Simple/Photon GUI/API-driven
Hardware Flexibility	Fix/Proprietary	Any NVMe x86 server

Infrastructure and Networking

Aspect	SAN Block Storage	Lightbits
Network Fabric	Dedicated storage network	Existing TCP/IP infrastructure
Deployment Flexibility	Fixed topologies	Mix-and-match hardware
Expansion Model	Rigid, tied to compute	Seamless, independent scale

About Lightbits Labs

Lightbits Labs® (Lightbits) invented the NVMe over TCP storage protocol, embedding it natively into their software-defined block storage to deliver ultra-low latency and exceptional throughput while leveraging commodity infrastructure—essential for reducing the cost and complexity of data infrastructure at scale. Built from the ground up for high performance, scalability, resiliency, and cost efficiency at scale, Lightbits software delivers the best price-performance value for real-time analytics, transactional, and AI workloads. Lightbits Labs is backed by enterprise technology leaders [Cisco Investments, Dell Technologies Capital, Intel Capital, Lenovo, and Micron] and is on a mission to deliver best-in-class block storage for performance-sensitive workloads. To learn more about Lightbits Labs, visit https://www.lightbitslabs.com/