

Lightbits Powers One of the World's Largest Financial Services Clouds on AWS



One of the biggest challenges facing the financial services industry in 2023 is the need to adapt to new IT technologies. In an industry based on assessing risk, organizations can reduce theirs by proactively addressing this need and embracing digital transformation and IT modernization. By switching to a cloud environment, financial services organizations can safeguard operations, thrive through agility and efficiency, and stay competitive in an ever-evolving marketplace. IT modernization via the cloud is critical in the financial services industry, as it enables organizations to meet evolving customer expectations and adopt innovative technologies to improve operations and services. Cloud infrastructure enables greater efficiency and agility, and as such is expected to grow at a rate of 16.4% CAGR from 2022 to 2031 for financial services.¹ However, successful initiatives require that new solutions be seamlessly integrated into existing systems — as well as partnering with technology providers to access specialized expertise.

ONE OF THE WORLD'S LARGEST FINANCIAL INSTITUTIONS IS BUILDING THEIR CLOUD WITH LIGHTBITS ON AWS

One such financial services organization is embracing IT modernization with a cloud-first approach. This company is migrating all new high-performance database workloads (e.g., NoSQL) to AWS. Having familiarity with Lightbits in their on-premises data center, they relied on our expertise to help architect a hybrid scheme. Their requirement was a storage platform that would deliver a similar experience between their on-premises environment and AWS. They sought a modern, flexible, software-defined storage system that could deliver high performance, low latency, and scalability to enable the migration of their Tier 1 database workloads to AWS.

THE CHALLENGE: STANDARDIZE STORAGE ARCHITECTURE ACROSS ON-PREMISES AND AWS ENVIRONMENTS

This company's primary requirement was to have a cost-efficient data platform that delivered equivalent functionality with high performance and low latency on AWS — just as it did on-premises — to enable their client-facing cloud services. More specifically, they were seeking a solution that delivered:

- exceptional performance with consistently low latency on AWS
- cost efficiency and lower TCO
- agility to run in either VMs or containerized environments
- data resiliency and durability.

The company already had 1.5PB on AWS io2.bx for different use cases, and they were already utilizing the Lightbits cloud data platform in their on-premises architecture, so they were familiar with both solutions capabilities. With these requirements in mind, they embarked on a series of proof of value test scenarios of both solutions — with storage-intensive database workloads. If the price/performance capabilities weren't suitable for either solution, they would repatriate the workloads back to be on premises.

Industry

Financial Services

Environment & Workloads

- Storage-optimized bare metal instances on AWS
- Database workloads (e.g., NoSQL)

Business Requirements

- Hybrid implementation: a storage system that delivered a similar experience on AWS as it does on-premises.
- High performance, low latency, scalable software-defined storage for Tier 1 workloads.
- Migrating from VMs to containers.

Solution

Lightbits cloud data platform on storage-optimized i4i bare metal instances on AWS.

Business & Technical Benefits

- Lightbits improves cloud storage TCO by up to 3X; increases ROI.
- Provides a better cloud experience.
- Customer meets or exceeds SLAs.
- Hybrid cloud implementation schemes.
- Reduces operational risk.

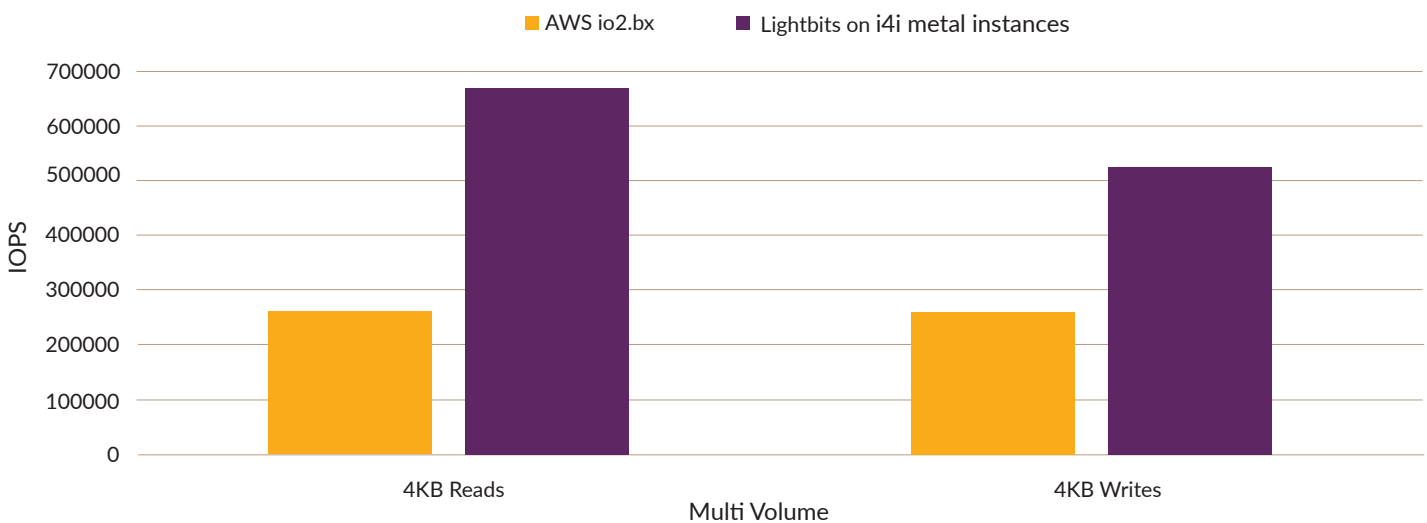
¹ Allied Market Research, [Fintech Cloud Market Research, 2031](#)

THE SOLUTION: LIGHTBITS CLOUD DATA PLATFORM ON AWS

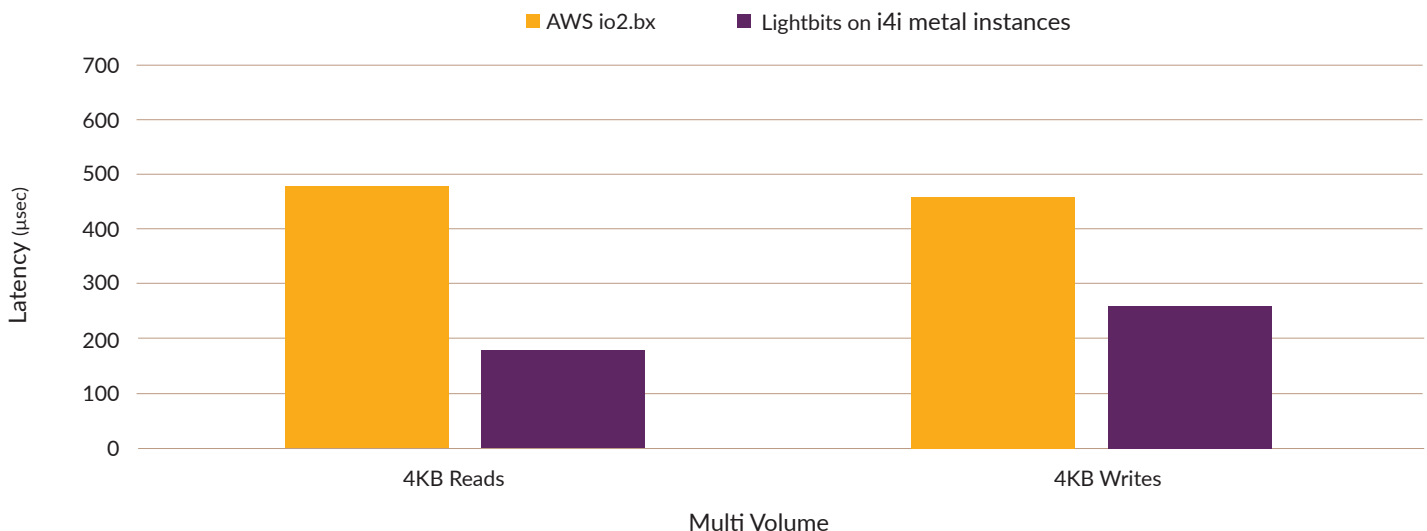
In this company's evaluation, they compared Lightbits on AWS to other third-party storage providers and native cloud block storage solutions. They desired the highest-performing solution, while also delivering an attractive price/performance scenario. They found their solution with Lightbits, inventors of the NVMe® over TCP (NVMe/TCP) standard. Lightbits is a robust data storage platform for any cloud — with unmatched speed, flexibility, and efficiency. It facilitates the shift of IO-intensive workloads to the cloud without any compromises. It fills a gap that native cloud storage solutions cannot deliver for these workloads — delivering the best and highest performance with consistently low latency, enterprise-grade features, high availability with multi-zone capability, hybrid and multi-cloud models in one scheme, and predictable and lower costs. The solution is built from the ground up, to deliver SAN capabilities for the public cloud era.

This company's evaluation demonstrates that with the most demanding 4K random read/write workload, Lightbits delivered 95-195% improvement in IOPS and up to a 300µs reduction in latency over native cloud storage. The results of other tests (not shown here) - using large block size and sequential workloads of <256k - revealed that Lightbits delivered a 155% throughput improvement and up to 150µs reduction in latency. Lightbits demonstrated the ability to push higher levels of IOPS compared to the native storage solution, while maintaining consistently low latency — nearly half the latency of the alternative when deployed on AWS bare metal instances.

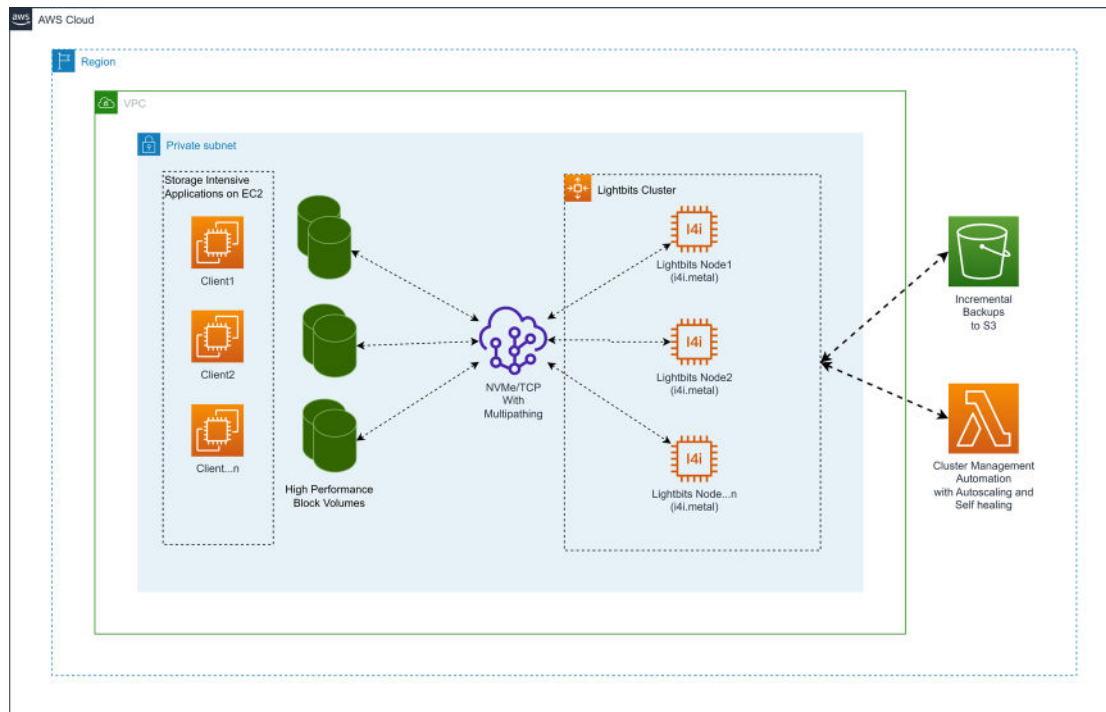
Lightbits vs. IO2BX - Higher IOPS is Better



Lightbits vs. IO2BX - Lower Latency is Better



Lightbits delivers more than 2X the IOPS and less than half the latency of IO2BX.



The diagram above illustrates the customer environment. Here, the Lightbits cluster presents volumes to clients using NVMe over TCP with cluster management automation and backups, using AWS services.

THE ADVANTAGES OF USING LIGHTBITS

Lightbits can accelerate cloud migration for financial services, reduce TCO, increase ROI, and reduce operational risk in terms of over- or under-provisioning storage resources. For this company, leveraging Lightbits as a storage target on AWS i4i or i3en instances resulted in up to 80% cost reduction with >2X performance boost.

Lightbits can provide a lower TCO when considering cloud native storage volumes of 4TiB for any level of provisioned IOPS over 60K. When deployed on AWS reserved instances, the TCO is even lower — at 256K IOPS, Lightbits with reserved instances can reduce storage costs by 80% per 4TiB volume. And since Lightbits creates a pool of shared IOPS for the cluster, the storage cost stays consistently low as the required performance increases until the available IOPS for the number of nodes deployed is utilized. Once this occurs, customers can add another node to further increase the cluster performance and capacity.

Lightbits' own TCO analysis for this financial services customer revealed a potential storage savings of \$40.5M over a three-year term, for managing 10PB on AWS GP3, with 10,000 volumes of 1TB and 16,000 IOPS each. If a customer is using IO2BX, the savings could be significantly greater.

In addition, Lightbits delivers a seamless, cost-efficient and high-performance hybrid implementation between on-premises and AWS. The license is portable, so the same Lightbits software that runs on AWS can run in their on-premises environment, which standardizes their storage system across platforms.

Additional business and technical benefits realized by this financial services company include:

- Simplicity. Software-defined, API-driven architecture that runs on AWS.
- Efficiency. Higher performance with consistently low latency, resulting in increased ROI.
- Agility. To move, shift, and allocate storage on an as-needed basis and lift and shift transactional and analytical workloads to AWS.
- Data resiliency and durability. Multi-tenant.

For more information go to www.lightbitslabs.com.

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