lightbits

CASE STUDY

Global eCommerce Leader Boosts Transactions and Cuts Costs in OpenStack and Kubernetes

Breaking free from Ceph limitations to achieve >13x performance gains and >60% lower costs.

A leading global eCommerce platform faced the challenge of cost-efficiently scaling its OpenStack and Kubernetes environments to handle explosive growth and intense traffic surges. Its incumbent vSAN and Ceph-based storage consumed significant rack space, created high operational costs, and were underperforming.

Storage that Scales with eCommerce Peaks

The company needed **modern, high-performance, software-defined storage multi-purpose block storage solution with seamless OpenStack and Kubernetes integrations** to ensure business continuity and customer satisfaction during peak demand events like Black Friday. During these critical periods, storage performance is essential to handle the surges in demand.

When comparing solutions, Lightbits illustrated the value of measuring Transactions Per Second (TPS), a crucial metric of how well the infrastructure supports business operations and growth. TPS directly impacts customer satisfaction, operational efficiency, and a company's top and bottom lines which must be aligned with current and future business demands to avoid issues and seize opportunities.

From Bottlenecks to Business Acceleration

With Lightbits, the eCommerce leader transformed its infrastructure into a **scalable, resilient, and cost-efficient platform** purpose-built for high-velocity transaction workloads.

- **Performance:** Lightbits delivers >13x more TPS.
- **Replication Efficiency:** Lightbits requires only 2X replication vs. 3X for Ceph contributing to a reduction in server and NVMe SSD investment
- **Cost Savings:** 68% reduction in hardware, 86% reduction in cost per transaction.
- **Simplicity:** Ceph sizing is complex and often leaves "stranded" capacity; Lightbits avoids this with better flash optimization.
- **Operational Efficiency:** Faster recovery, improved SLAs, and less operational overhead.

Final Outcome

- **13x performance improvement**
- **Transaction capacity protected** during seasonal spikes.
- **68% hardware cost savings**
- **86% lower cost per transaction**
- **Smaller footprint with reduced power and cooling costs**

The company now operates with greater flexibility, lower costs, and the ability to scale performance instantly.

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

Comparative Analysis

Performance Comparisons

	CEPH	Lightbits
Measured TPS Mixed	35,000	45,000
# of Storage Servers	40	4
# of SSDs per Server	24	9
# of NVMe SSDs	960	36
TPS Per Storage Server	875	11,250

PostgreSQL database measured Transactions Per Second (TPS)

Performance-Based Cost Comparison

	CEPH	Lightbits
# of Storage Servers	40	4
Total 5Y Investment in HW	$1,393,920	$139,392

Capacity-Based Cost Comparison

	CEPH	Lightbits
# of Storage Servers	141	26
Total 5Y Investment in HW	$6,204,000	$1,950,000

Based on 10PB project capacity

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/

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