

Global E-Commerce Leader Scales Transactions and Performance

trendyol

Trendyol: a High-Velocity eCommerce Platform at Hyperscale

As one of the world's most ambitious eCommerce platforms, Trendyol operates a large ecosystem serving millions of active users through its platform. The data infrastructure demands are immense: supporting millions of real-time transactions alongside data-hungry GPU farms to run AI-driven personalization engines. To maintain its position as a global leader, Trendyol required an infrastructure capable of handling explosive growth and intense traffic surges without compromising the user experience.

Storage that Scales with eCommerce Peaks

Trendyol's growth quickly outpaced legacy storage paradigms. The team recognized the need for a disaggregated, cloud-native approach that could scale horizontally without friction. Traditional SAN-based storage lacked the dynamic elasticity required for seasonal spikes like Black Friday, where storage performance becomes the primary engine for business continuity. The ambition was to transition to a software-defined, multi-purpose block storage environment that seamlessly integrated with OpenStack and Kubernetes, moving away from rigid hardware limitations toward a flexible architecture.

From Bottlenecks to Business Acceleration

With Lightbits, Trendyol transformed its infrastructure into a resilient and high-velocity platform purpose-built for transaction-heavy workloads.

- **Performance Density:** >13X increase in Transactions Per Second (TPS) realized through a condensed server hardware infrastructure, significantly reducing the physical footprint while increasing throughput.
- **Resilience & Hardware Efficiency:** 2X replication improved data protection while reducing the overall NVMe investment required to maintain high-availability clusters.
- **Optimized Latency & Scale:** Leveraging NVMe/TCP allowed for ultra-low latency and simplified horizontal scaling.
- **Simplicity:** Simplified scaling with better flash optimization.
- **Operational Efficiency:** Faster recovery, improved SLAs, and less operational overhead.
- **Workload Enablement:** The new architecture successfully removed IOPS bottlenecks, enabling more intensive AI analytics and real-time data processing across the cluster.

Strategic Technology Partnership

The collaboration between Trendyol and Lightbits is a strategic technology partnership focused on meeting hyperscale requirements. Lightbits' NVMe/TCP architecture was chosen specifically for its ability to meet Trendyol's stringent latency, throughput, and elasticity demands. By aligning technology infrastructure with business demand, Trendyol ensured that its platform could scale performance instantly to meet the needs of its massive global user base.

Outcome: a Cloud Modernization Leader

- **13X performance improvement**
- **Transaction capacity protected during seasonal spikes.**
- **More than 50% lower cost per transaction**
- **Smaller footprint with reduced power and cooling costs**

This data infrastructure now serves as a future-proofed foundation for Trendyol's broader ambitions. By moving to a disaggregated, high-performance, NVMe-direct block storage model, Trendyol has cemented its identity as a technology-first operator. The eCommerce platform is uniquely positioned to support high frequency transactions, complex AI inference, real-time data pipelines, and multi-region scale with ease. Trendyol continues to set the benchmark for how a modern digital platform can leverage high-performance software-defined storage to maintain a competitive edge in a global market.

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/>