

The LightOS™ Storage Solution

Lightbits™ revolutionizes cloud and data center storage infrastructures with software-only or software with hardware acceleration solutions for disaggregated flash platform and provides private clouds the storage experience of hyperscaler clouds .

Installed on standard servers in large scale data centers, LightOS is optimized for I/O intensive compute clusters such as Cassandra, MySQL, FDB, MongoDB and Time Series Databases. It delivers high performance and consistently low latency based on patent-pending multi NVMe SSD management and innovative NVMe over TCP (NVMe/TCP) storage communication protocol that does not require changes to networking infrastructure or application server software.

Lightbits LightOS is ideal for containerized environments such as Kubernetes that require large scale clusters with persistent storage for rapid node migration, workload rebalancing, and recovery from failures without copying data over the network.

LightOS provides rich storage services like data reduction, Thin Provisioning for best utilization of SSD capacity and Erasure Coding protection from SSD failures to ensure service and data availability. Using optional LightField™ hardware accelerator, LightOS can improve network processing, IOPs, and reduce latency.

LightOS unlocks the potential of a disaggregated high-performance NVMe solution to maximize resource utilization and flexibility. It enables data centers to move from an inefficient direct-attached SSD model to a shared model in which compute and storage are independently scaled.

LightOS Key Benefits

Software Defined Storage

- Runs on standard servers with optional hardware acceleration
- Storage server (Target) only solution: no change in the host (Initiator, Client)
- Optimized for I/O intensive applications such as MySQL, Cassandra, MongoDB, FDB and Time Series Databases
- Persistent storage for containerized environments: Kubernetes, Mesos, etc.
- Designed for multi-tenant workloads

High Performance and Low Latency

- 200 Gbps bandwidth to SSDs storage via data striping across SSDs
- Up to 5M IOPS (4K random I/O) in a dual socket 2U server x86 (Intel/AMD) server
- Consistently low read average and tail latency
- Ultra-low write latency with persistent write buffer

SSD Fault Tolerance

- Elastic Erasure Coding (EC) at wire speed
- No interruption of services on SSD failure and EC rebuild

Storage Level Services

- Thin provisioning for best utilization
- Wire-speed compression/decompression
- QoS SLA configuration per volume
- Auto capacity scale at SSD failure/addition

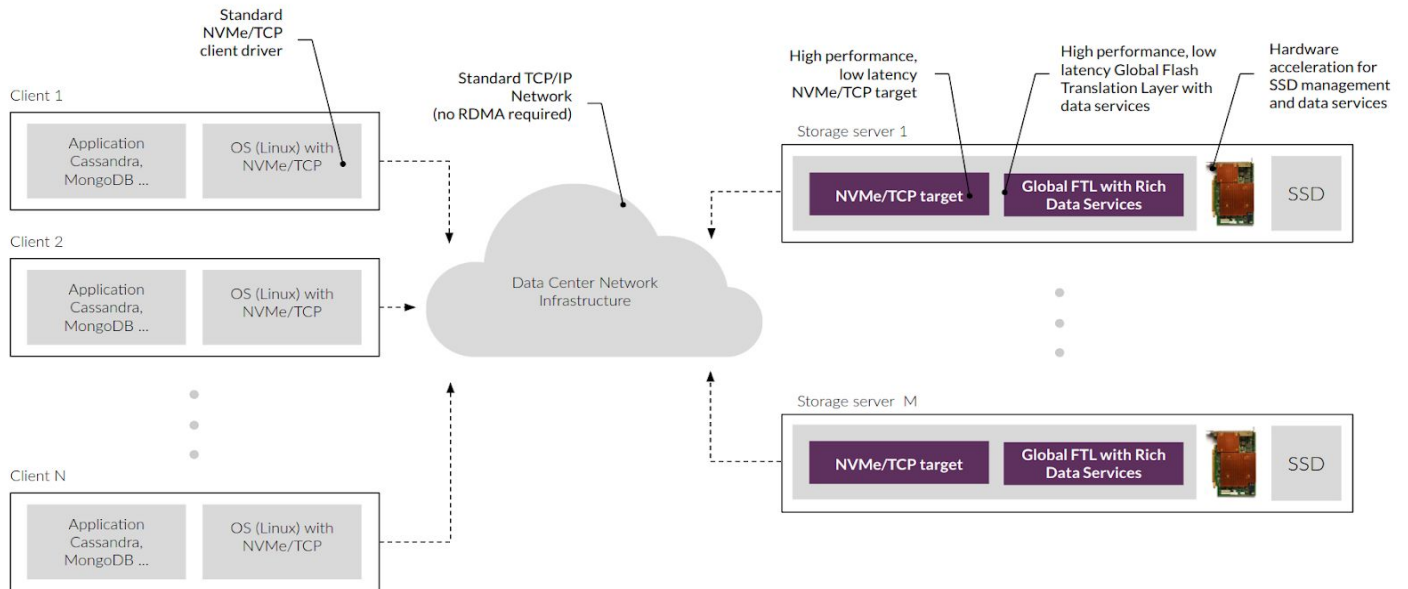
High Capacity SSD

- Scale-up capacity with high capacity SSDs
- Reduce TCO by supporting DC and QLC SSDs grades

Designed for Cloud Management

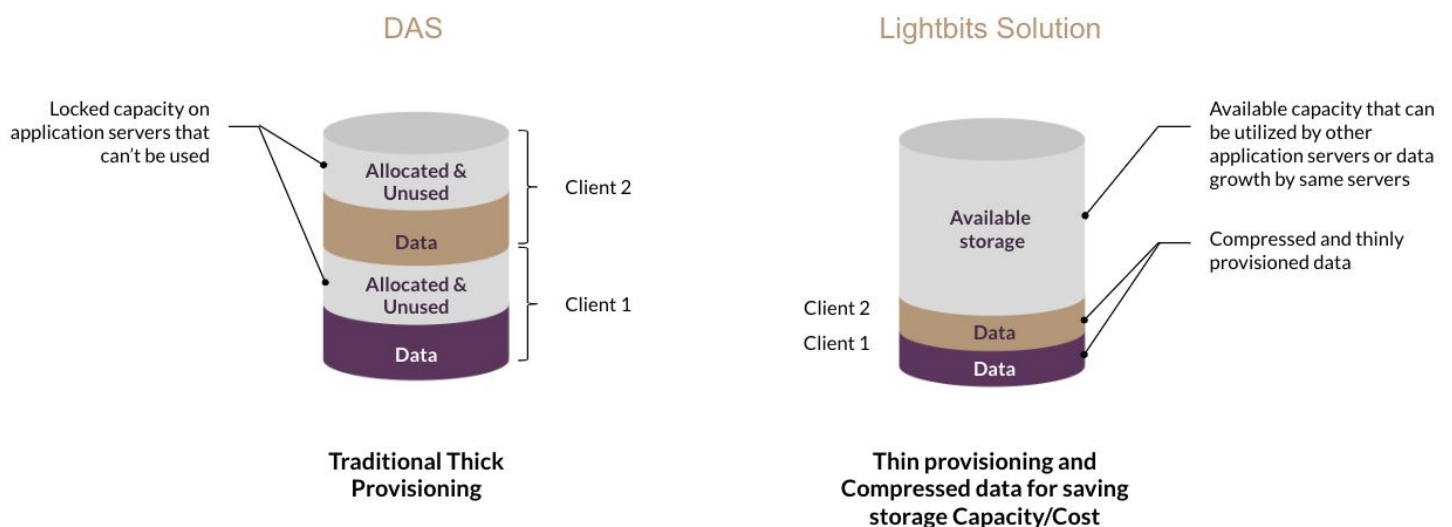
- RESTful API provides a standard HTTPS-based interface
- CLI support for scripts and monitoring
- Metrics and Alerts based on Prometheus

Finally a simple and scalable storage solution that capitalizes the opportunity created by combining newly available affordable Flash technology with high-performance standard networks.



Applications are becoming more data-driven, and to be effective they must process higher volumes of data at higher performance and low latency. With LightOS, total Cost of Ownership (TCO) is dramatically reduced through the use of Thin Provisioning – purchase the capacity that you need only.

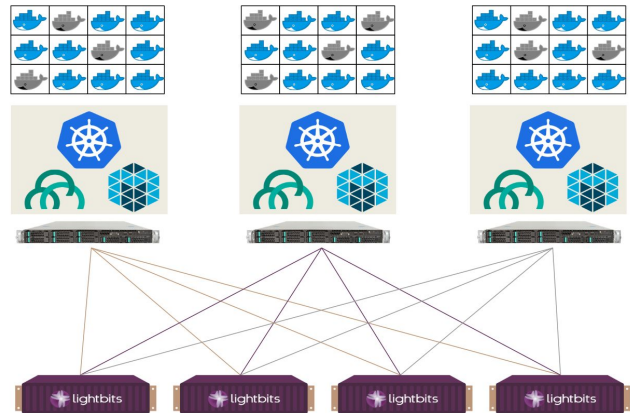
Combining this with in-line data reduction further increases your Return on Investment (ROI) – reduce the amount of data you write, maximizing utilization, reducing wear and extending the endurance of standard SSDs.



Lightbits Storage Solution in Containerized Data Centers

Understanding that scale matters and that NVMe and NVMe-oF are gaining momentum as critical enablers in meeting the demands of the modern data center, Lightbits came up with NVMe/TCP solutions. These solutions can be immediately deployed in data centers and enable a lightweight containerized environment backed by a scalable, high-performance disaggregated storage system.

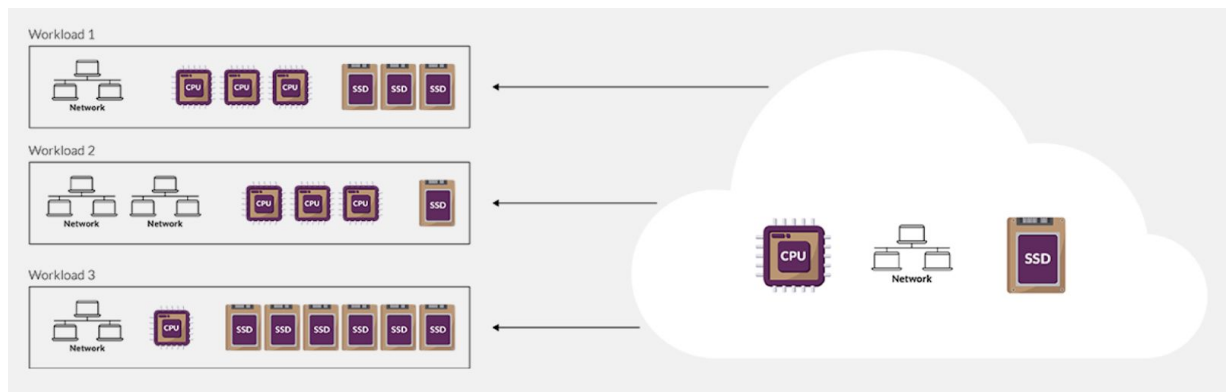
Running Cassandra cluster in a containerized environment using persistent volumes on LightOS shows achieves better service performance and high availability Direct Attached SSDs compared with Direct Attached SSD environment.



The Cassandra containers store their data in Persistent Volumes seamlessly on LightOS via a Container Storage Interface (CSI) plug-in to Kubernetes. Lightbits solution migrates containers in about one minute versus a slow migration of several hours in the Direct Attached SSD environment.

Composable storage infrastructure

LightOS Software-Define Storage solution is designed for composable infrastructure architecture supporting quick deployment of IT resources for different services and workloads. The fluid composable environment allows optimized resources (compute, storage, and network) allocation for different applications and service levels to reduce CAPEX and improve availability.



About Lightbits Labs™

Lightbits Labs, founded in 2016, is remaking modern cloud infrastructure on a global scale. The company's mission is to reinvent the way storage and networking are conducted in cloud data centers. As trailblazers in this field, its solutions are successfully being used in industry-leading cloud data centers around the globe. With strategic investors including DellEMC, Cisco, Micron, SquarePeg Capital and Walden International, Lightbits Labs is disaggregating storage and compute to improve clients' performance and latency.

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