

LightOS on the Lightbits SuperSSD Storage Appliance

Lightbits Labs LightOS™ is simple, flexible, software-defined, highly performant storage that accelerates applications in private and edge clouds running in bare metal, containerized, or virtual environments. It's a clustered, NVMe-based, scalable, block storage system that runs on standard TCP/IP networks. LightOS delivers composable, scale up or scale-out, redundant NVMe/TCP storage that performs like local flash.

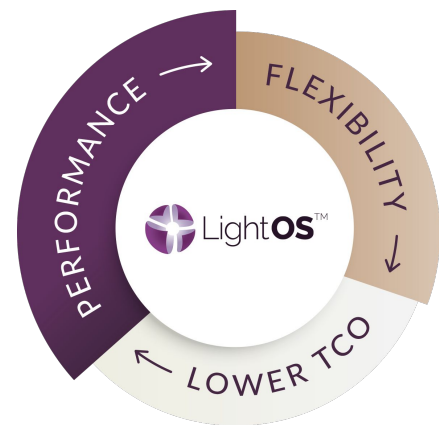
For the ultimate in scalability, performance and convenience, LightOS is available pre-installed and pre-configured on the Lightbits SuperSSD™ appliance. This plug-and-play solution enables fast deployment of scalable, high performance cloud-native storage.

HIGH PERFORMANCE WITH RICH DATA SERVICES

Lightbits SuperSSD offers rich data services such as compression, snapshots and clones while delivering performance equivalent to local NVMe flash. A single SuperSSD target server, with drive and target server redundancy enabled, can serve up to 3.7 million random 4K read IOPs and up to 680,000 random 4K write IOPs. The same server can provide up to 20GB/s of read bandwidth and up to 3GB/s of write bandwidth.

Lightbits SuperSSD performs at local NVMe latencies even under load. SuperSSD delivers 4K IO response time averages of 200µs at over 1 million read IOPs and 400µs at nearly 600,000 write IOPs.

WHY LIGHTBITS?



Cloud-native storage for cloud-native applications. Simple, high performance, low latency, scalable storage that accelerates application performance while lowering TCO.



Lightbits SuperSSD comes in 1U 8/10 drive or 2U 12/24 drive form factors and with various pre-configured capacities. It presents the fastest and easiest way to get LightOS deployed, backed by world-wide warranty and support services.

SUPERSSD KEY FEATURES

Unmodified Software on Clients

- Standard NVMeoF 1.1
- ANA multipathing support
- Clients can connect to multiple clusters

Clustered/Failover Storage Solution

- Distributed cluster management with fast failover and no single point of failure
- Cluster size: 3-16 servers
- 64K Volumes per cluster

SuperSSD Cluster Performance

- 59 Million 4K Random Read IOPs
- 10.8 Million 4K Random Write IOPs
- 320GB/s Read Bandwidth
- 48GB/s Write Bandwidth

SuperSSD Cluster Latency

- $\leq 200\mu\text{s}$ average 4K Random Read @16 Million IOPs
- $\leq 400\mu\text{s}$ average 4K Random Write, 2X Replication @9.6 Million IOPs

Storage Services

- Data reduction: Thin provisioning and Compression
- Space efficient Snapshots and Clones
- Elastic RAID for drive failure protection
- Per-Volume replication (1x, 2x or 3x)

SuperSSD Cluster Capacity (15.36TB drives)

- 4.6PB Usable (2x replication, Elastic RAID, 2:1 compression)

Node Management

- Replication and failover handling
- Dynamic data rebalancing (fail-in-place)
- Network failures handling using NVMe/TCP multipath and link aggregation
- Non-disruptive (for 2x and 3x replicated volumes) cluster upgrades

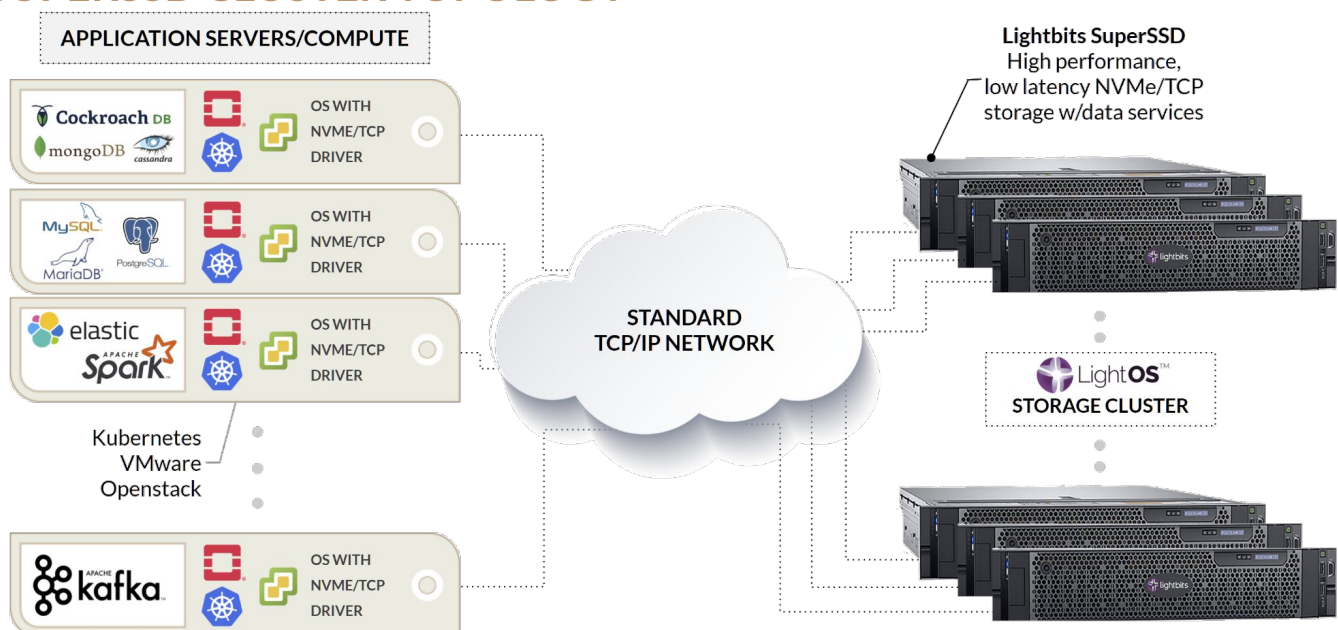
Application Environment Support

- Fully certified for VMware ESXi 7.0U3, with in-box NVMe/TCP support
- Kubernetes v1.16 through v1.21 via CSI
- Openstack releases Q through T via Cinder
- Bare Metal
- Ansible playbooks for RPM based Linux distributions

Management

- RESTful API
- CLI support for scripts and monitoring
- Prometheus Metrics and Alerts
- Pre-configured Grafana dashboards
- vCenter plugin

SUPERSSD CLUSTER TOPOLOGY



Overview of a cloud-native database deployment utilizing SuperSSD NVMe/TCP targets for database storage

LIGHTBITS SUPERSSD BENEFITS



Composable: Simple
Scaling and Deployments



Fast Application
Deployment and Load Balancing



Improved Utilization
And Lower TCO

LIGHTBITS SUPERSSD APPLICATIONS



Visual Effects and Video
Processing



Latency and
Performance Sensitive
Databases



Latency Sensitive
High Transaction
Workloads



Cloud Services
IaaS, PaaS, SaaS

| | | |
|----------------------|---|--|
| Platform | Lightbits SuperSSD 1U | Lightbits SuperSSD 2U |
| Server Configuration | Dell PowerEdge R650, 1U, 10x NVMe | Dell PowerEdge R750, 2U, 24x NVMe |
| CPU | Dual Intel Xeon 6336Y @2.4GHz | Dual Intel Xeon 6338 @2.0GHz |
| Capacity Options | 38.4, 76.8 or 153.6 TB of RAW NVMe flash | 92.16, 188.64 or 368.64 TB of RAW NVMe flash |
| SSD Storage | 10 NVMe 2.5" drives | 12/24 NVMe 2.5" drives |
| Connectivity | 1 x Dual Port 100 Gb Ethernet | 2 x Dual Port 100 Gb Ethernet |
| Protocol | NVMe/TCP | |
| Support/Maintenance | Perpetual license with 3 years hardware and software warranty, extendable | |

To learn more, please visit our website, www.lightbitlabs.com

To contact our team, email us at info@lightbitlabs.com

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