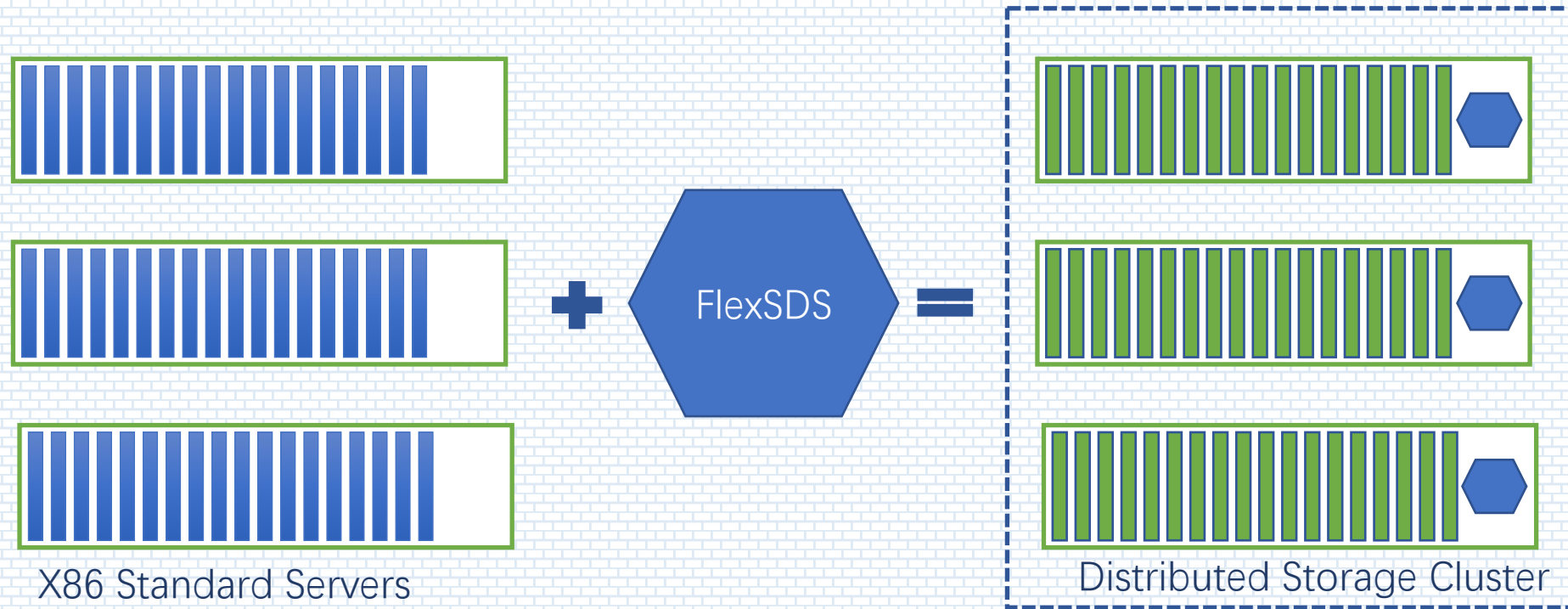


FlexSDS All Flash Storage

FlexSDS Inc.

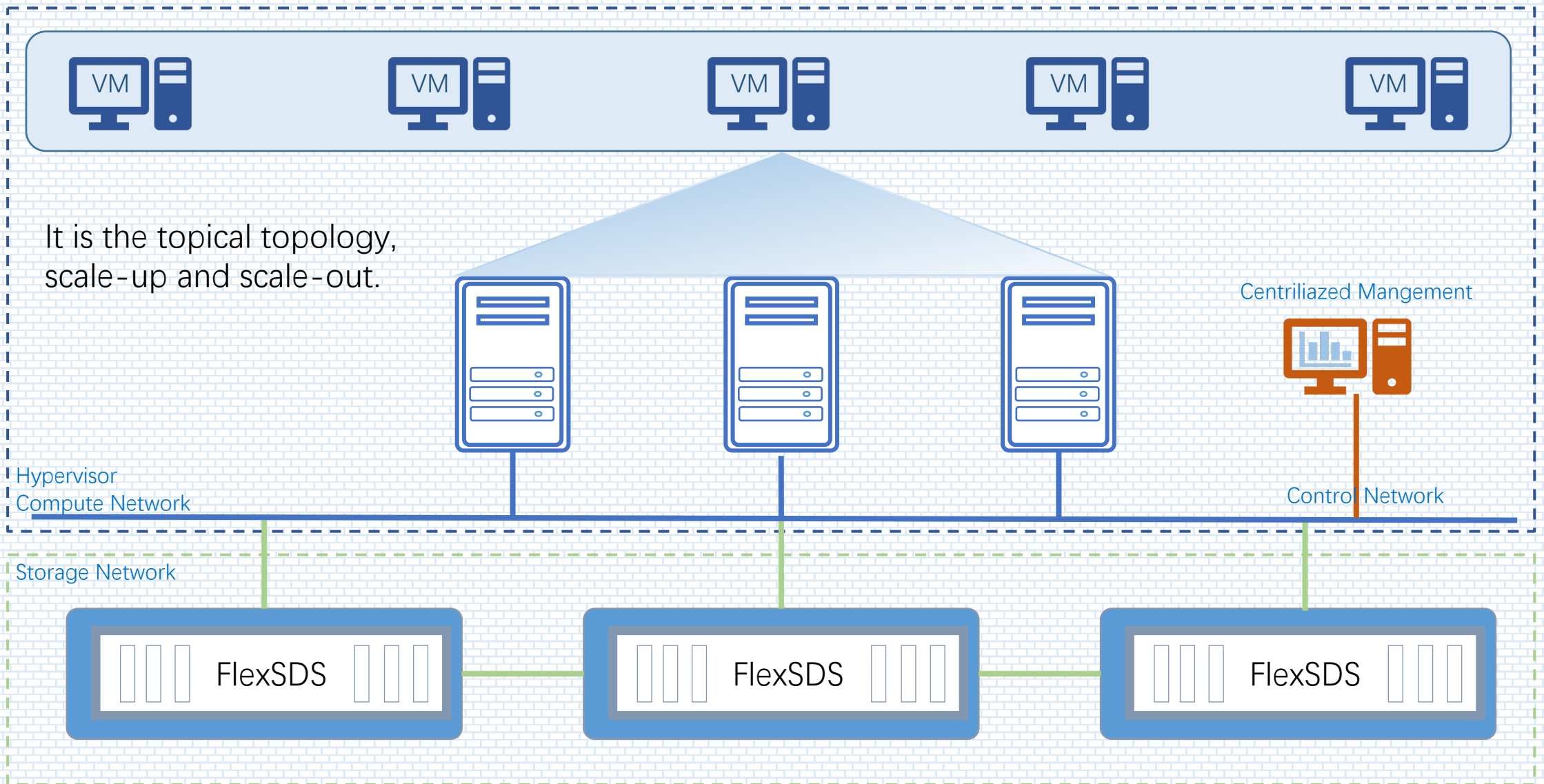
<https://www.flexsds.com/>

What is FlexSDS?

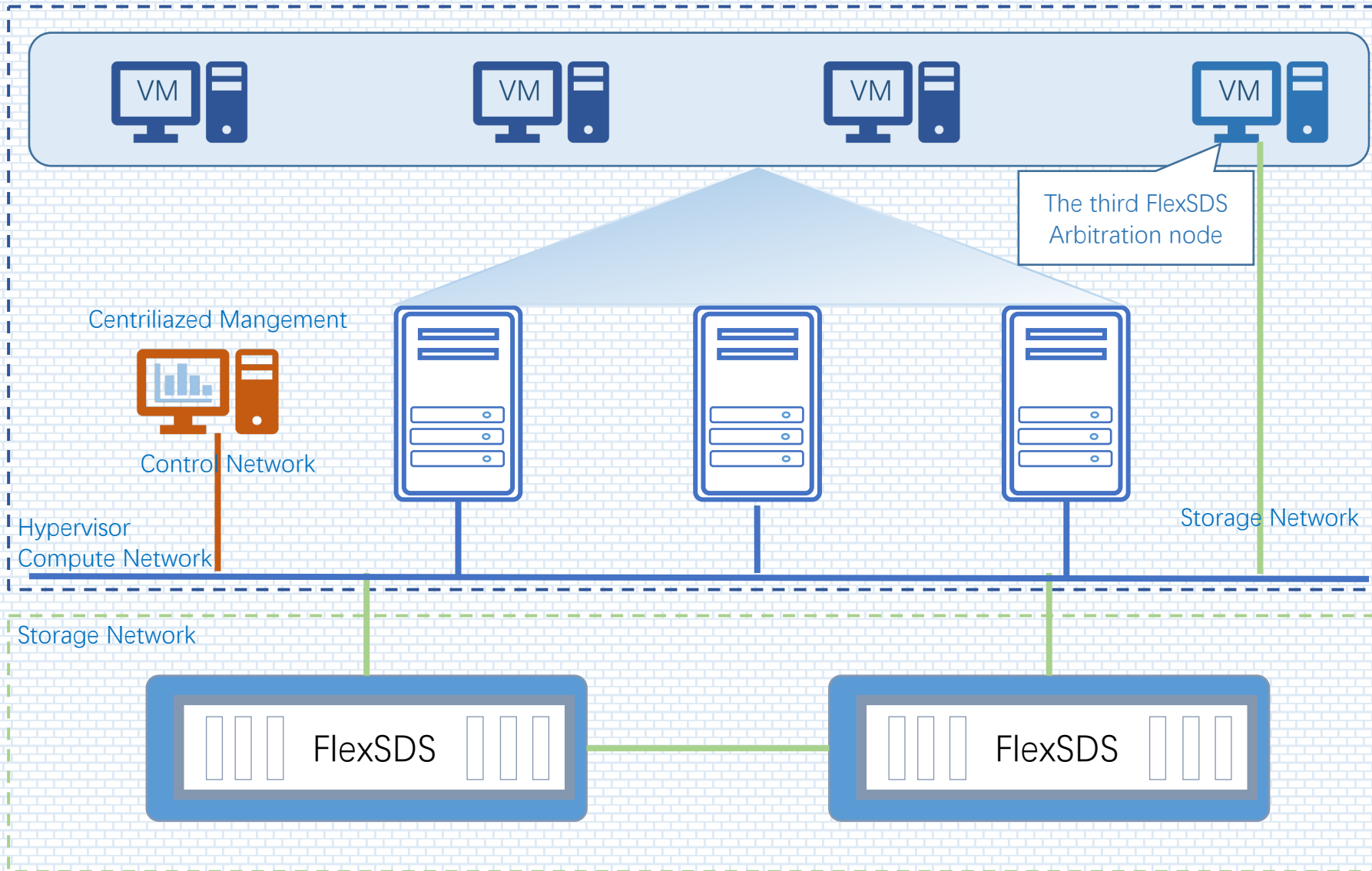


- FlexSDS is software only scale-out storage stack for all-flash, hybrid, HDD arrays
- Convert any x86 based machine into a scale-up, scale-out, software defined storage clustering.
- Providing storage service over IP SAN protocol like iSCSI, iSER and NVMe-oF.

Topology: 3(+)nodes scale-out

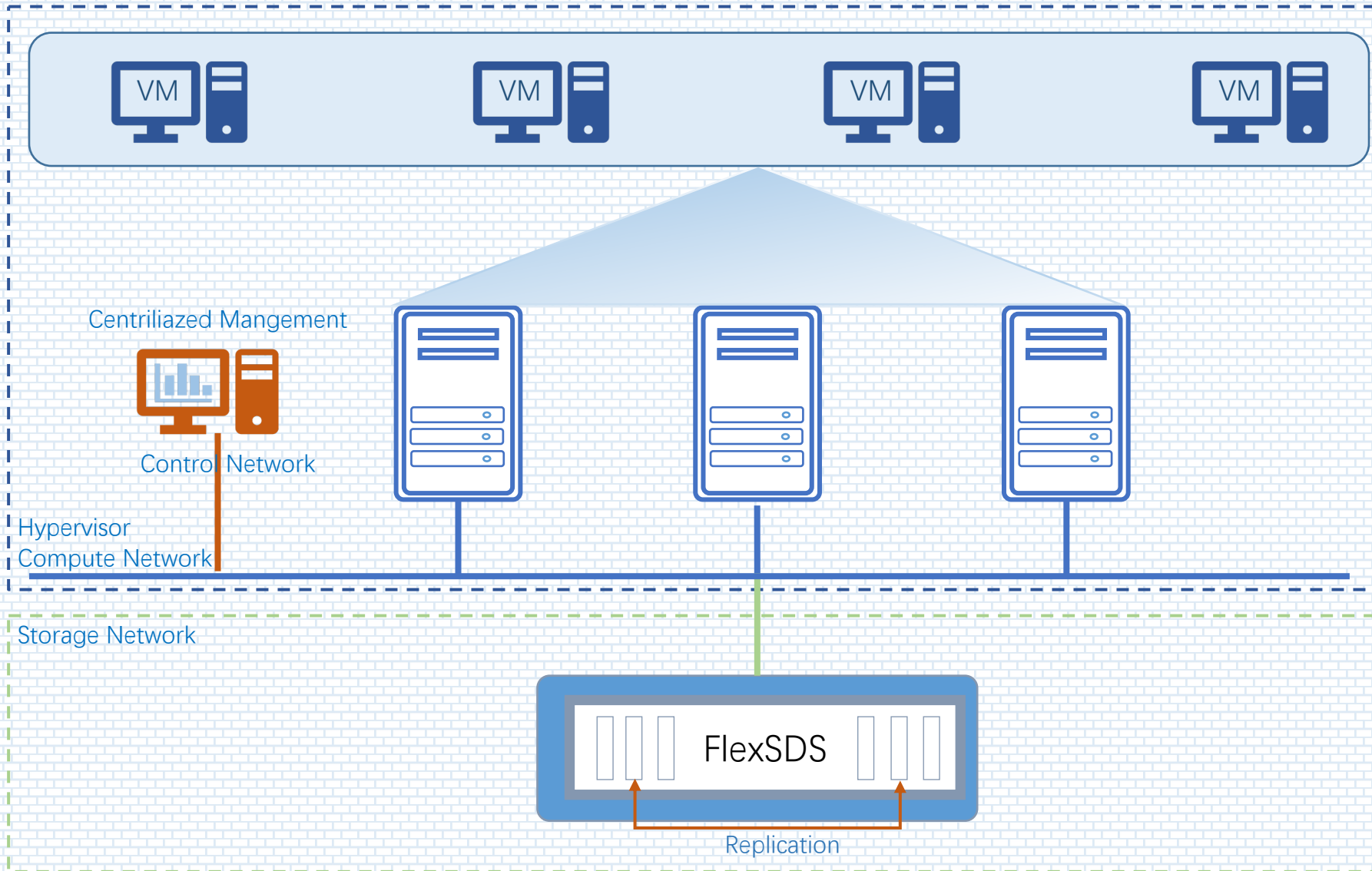


Topology: Two nodes HA



- Using only two storage nodes.
- Using thin machine as the thrid (sic) node for arbitration.
- Lowest TCO.
- No storage requires in arbitration node.

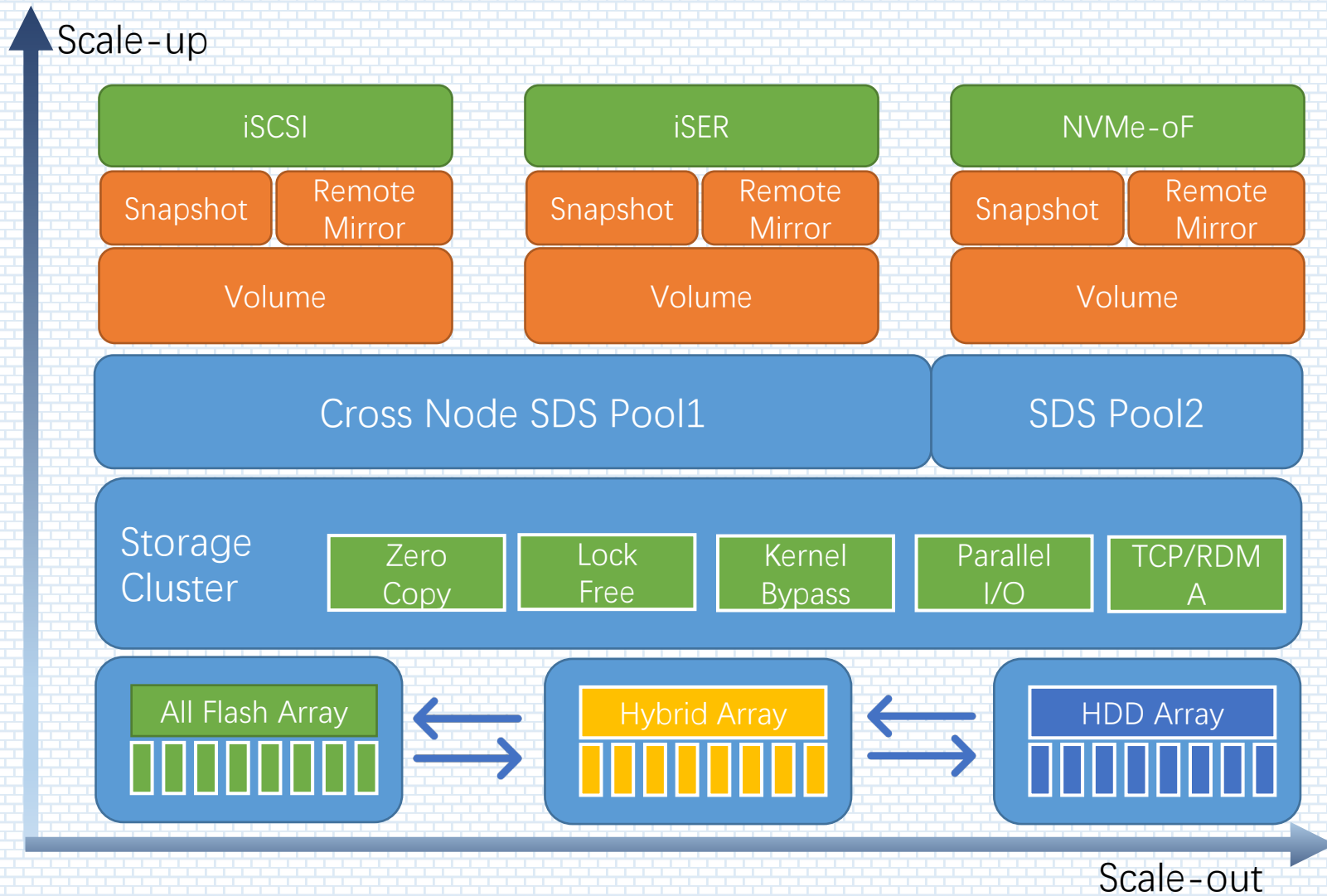
Topology: Single node SDS with replication



Single node only, with:

- data redundancy
- Auto-recovery without High Availability.

The FlexSDS Software Stack



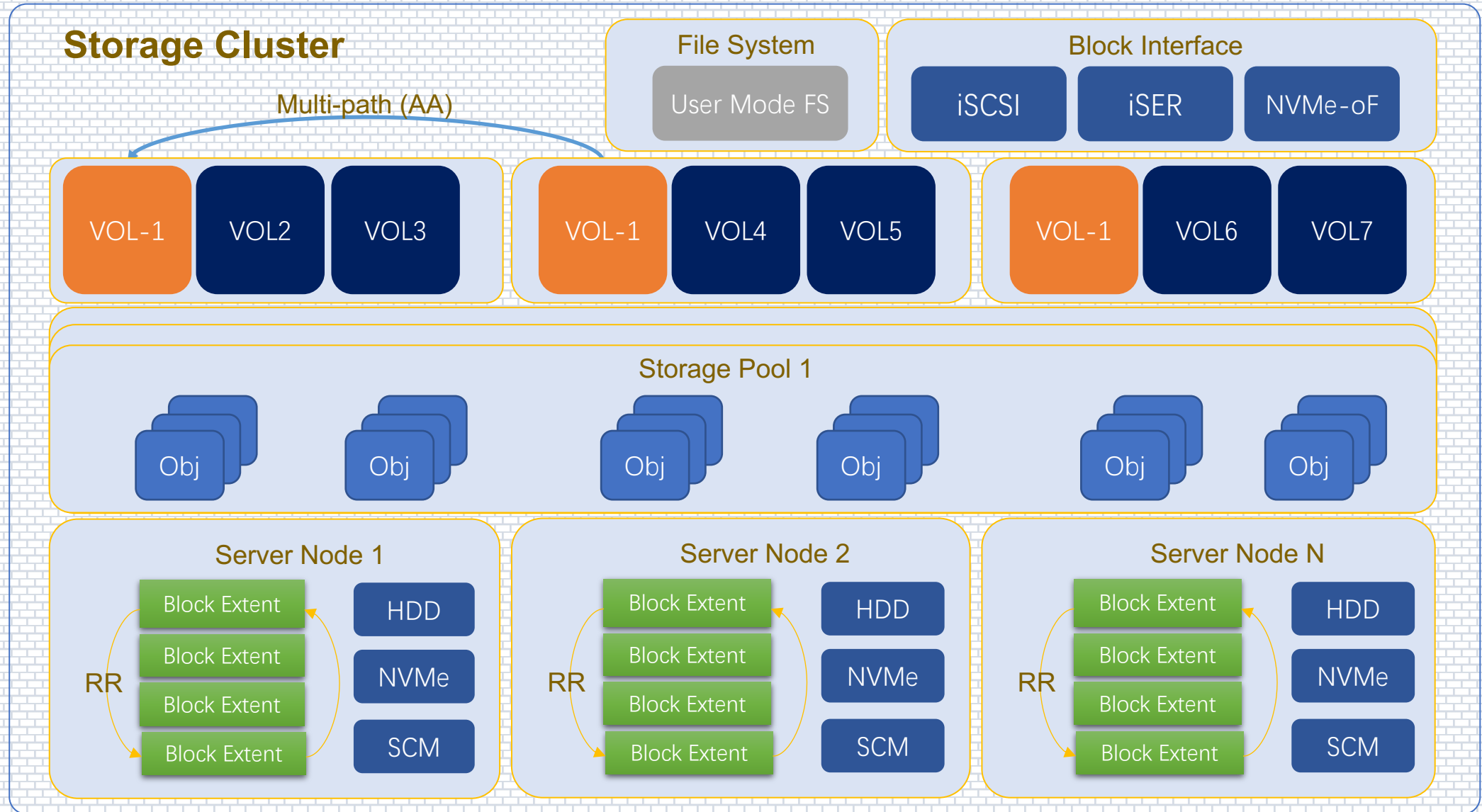
Completely redesigned, optimized for All-Flash systems, also support for hybrid and HDD systems, the stack performance features:

- Zero-copy I/O stack
- Kernel (OS) Bypass
- Lock Free (not using system lock)
- Fully support RDMA, TCP
- Fully concurrent, parallel I/O
- 100% SDS Pool, Dynamic objects
- RAW, Thin, Logged Volumes
- Zero-data-copy snapshot
- Sync, async remote mirror
- iSCSI, iSER and NVMe-oF
- Single Node SDS and Multiple Nodes Scale-out

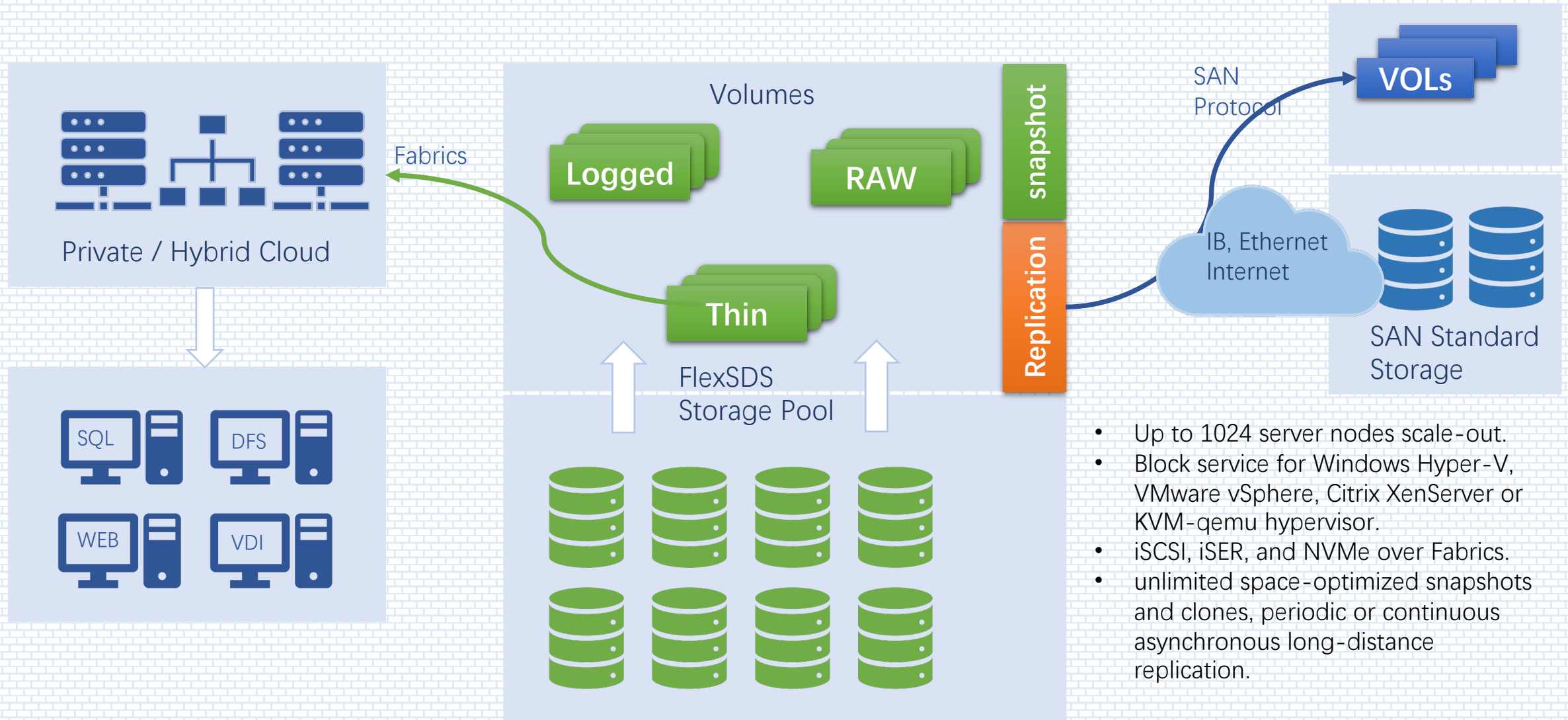
FlexSDS Cluster Architecture

RAW Vol

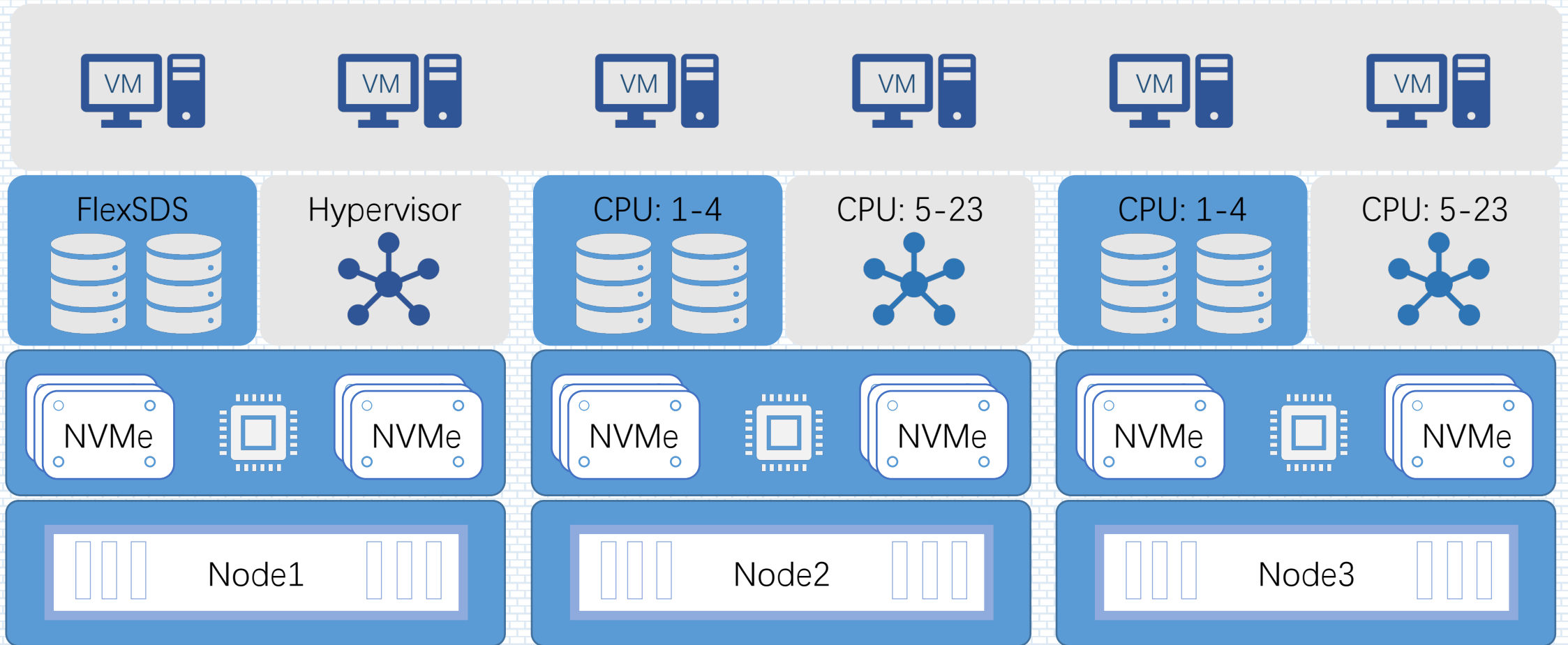
Float Vol



FelxSDS Storage for Cloud Infrastructure

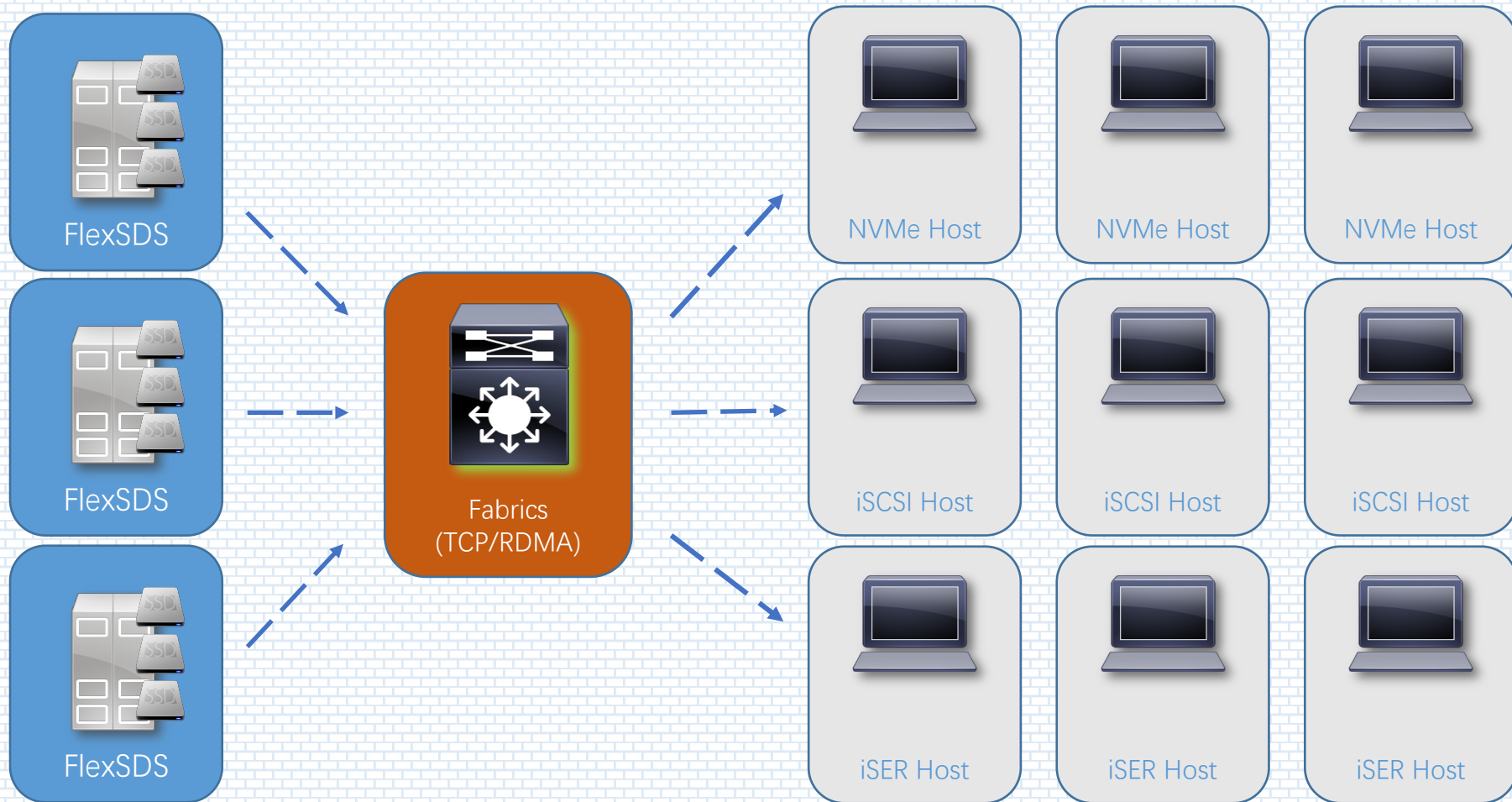


FelxSDS Storage for HCI



Block service for Windows Hyper-V, VMware vSphere, Citrix XenServer or KVM-qemu hypervisor.

FelxSDS ServerSAN

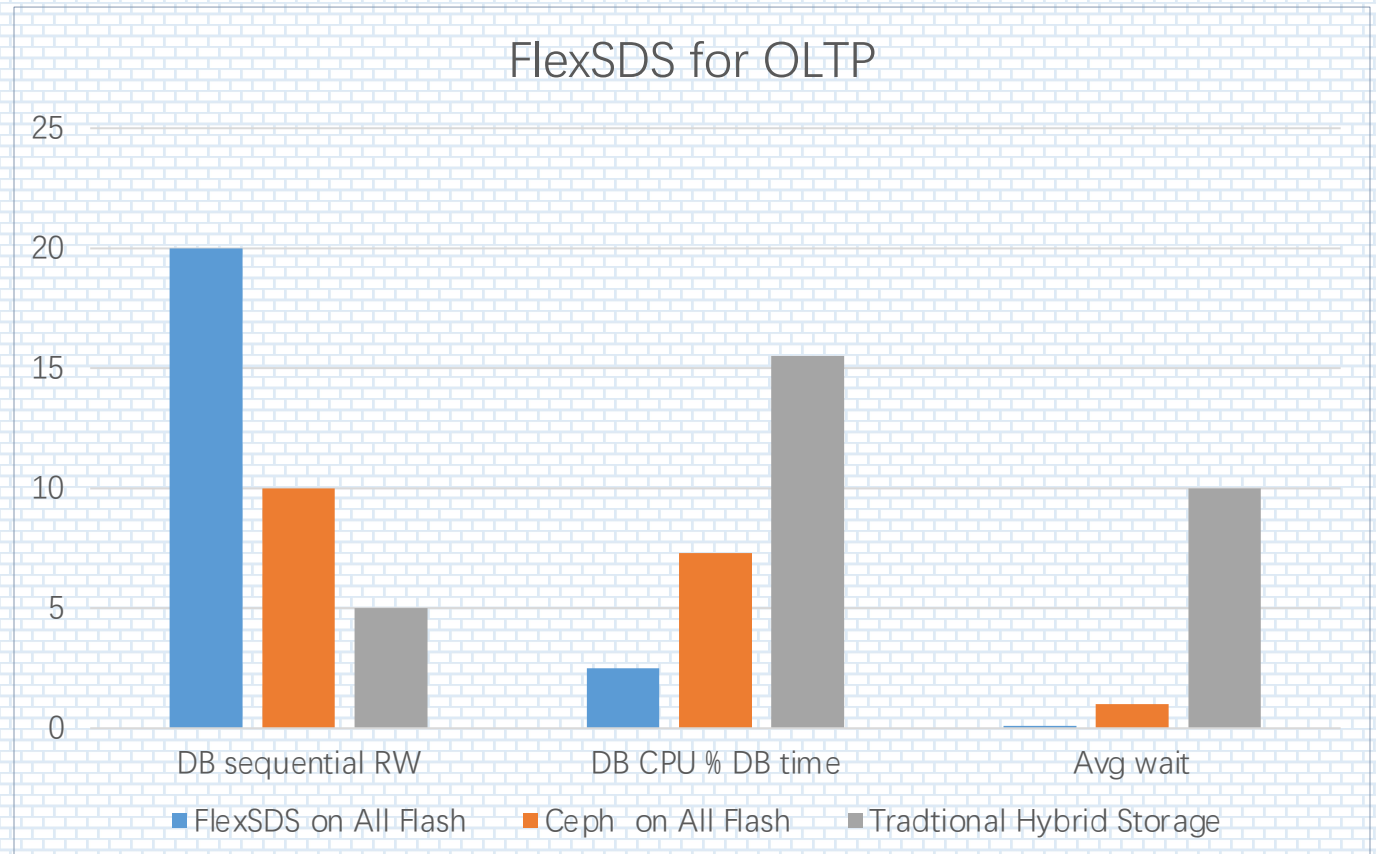


Exporting snapshot enabled volume over iSCSI, iSER, and NVMe over Fabrics (NVMe-oF).

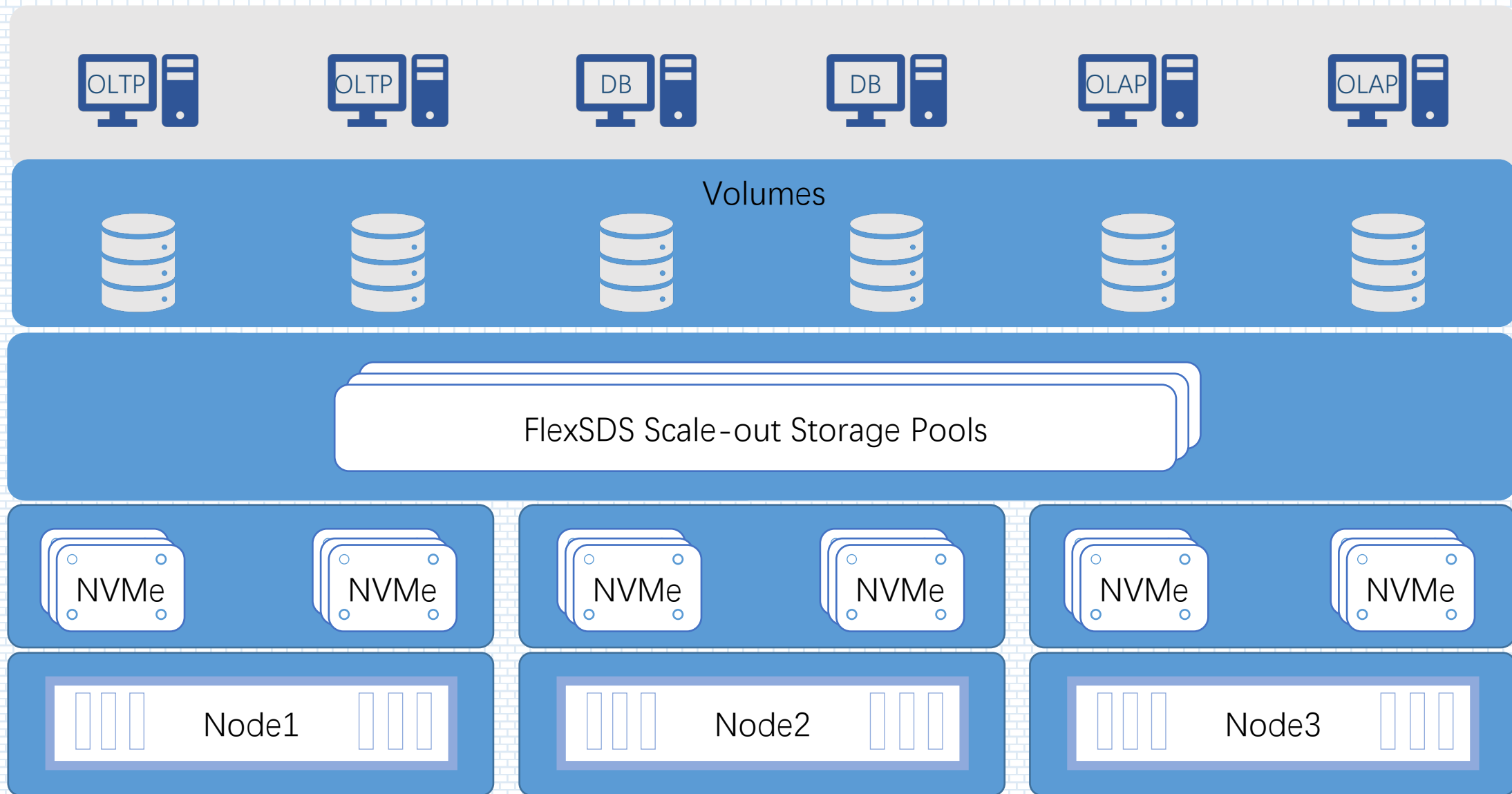
FelxSDS Storage for OLTP

In OLTP services, it is unlikely for a database to cache all data in the buffer. Therefore, the calculations and data access operations are performed in alternating orders, and the CPU have to frequently wait for I/Os to be completed before it can compute data, therefor OLTP much care about latency.

- Run any application at any scale, fast time-to-value, and non-disruptive scale-up or scale-out.
- Lock-free model, zero-mem-copy, high CPU cache optimize to provide extreme low latency.
- Designed for next generation hardware, kernel-bypass, Parallel and high concurrent I/O technology and high utilization of storage and network resources.
- Multiple node and data copies, high availability and auto-recovery.
- Low total cost of ownership (TCO)



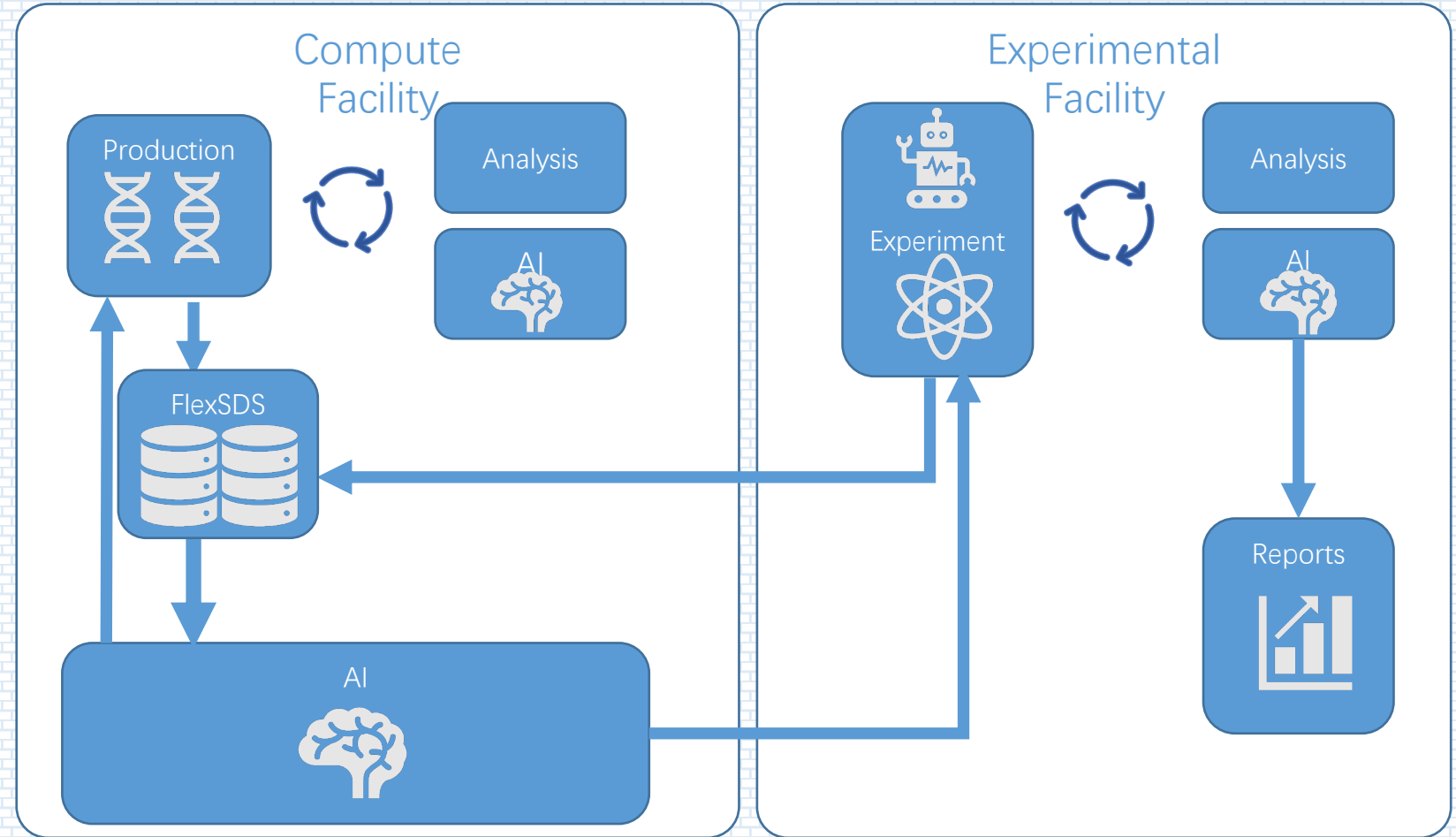
FelxSDS Storage for OLTP & DB



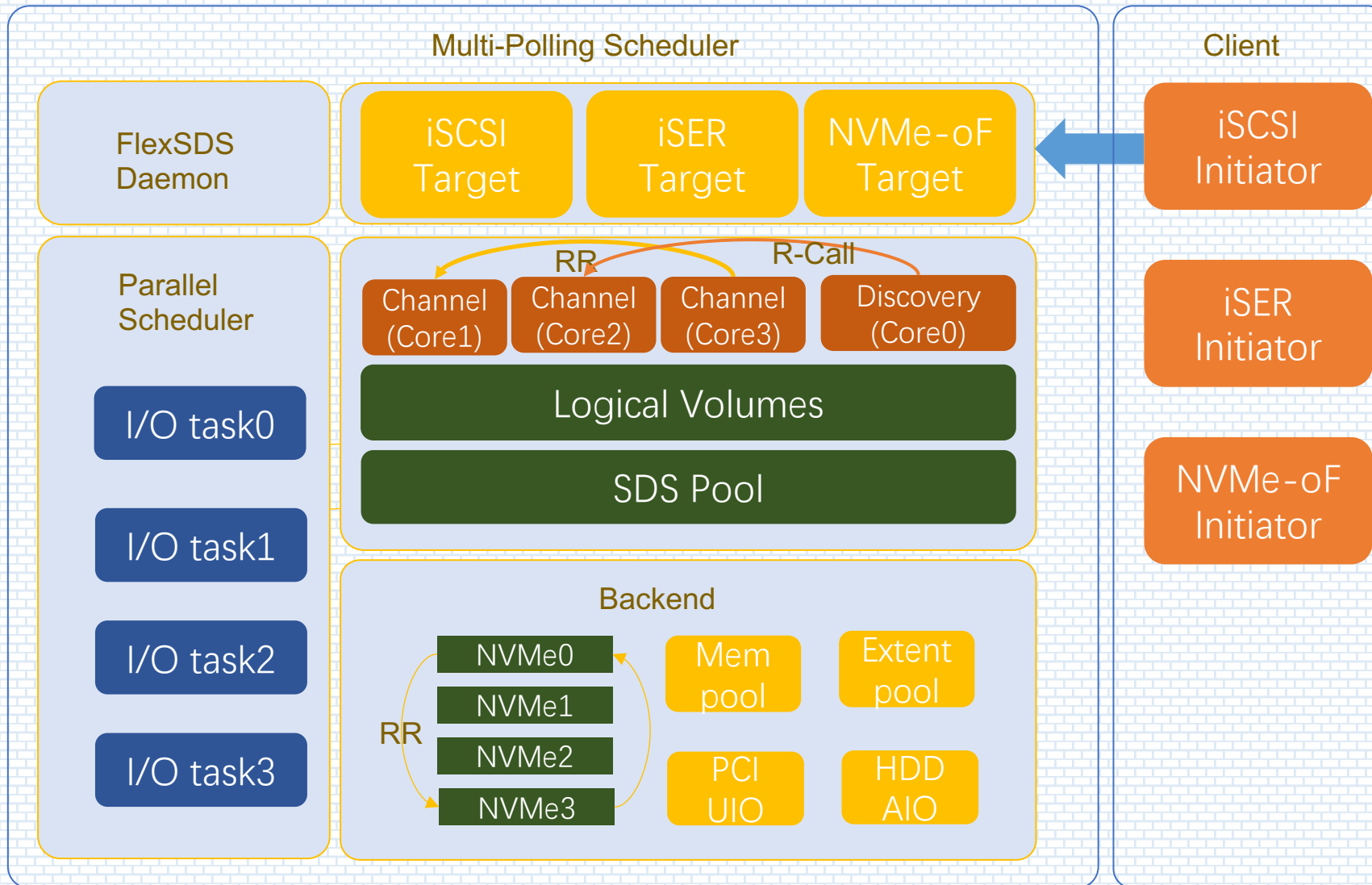
FlexSDS Storage for AI & BigData

Accelerating a data analytics project is critical for storage vendors that sell storage systems designed for big data analytics, artificial intelligence (AI), and machine learning (ML). Speed is hugely important when it comes to AI.

- Support NVMe SSD, RDMA (Infiniband, RoCE, and iWarp).
- End-to-End NVMe.
- Fast deployment and scaling of storage resources, and dynamic workload scaling and balancing.
- Designed to provide extreme low latency.
- Parallel and high concurrent I/O.
- High utilization of storage and network resources.
- Multiple node and data copies, high availability and auto-recovery.
- Efficient asynchronous replication.
- Supports up to 1024 server nodes.

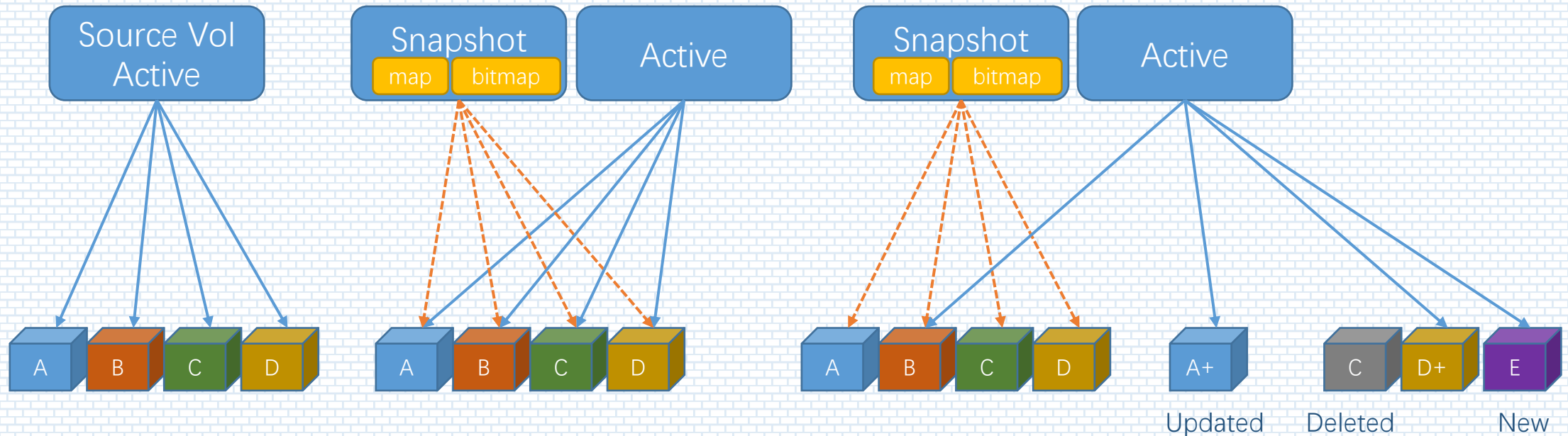


I/O Processing



- Main core for listening.
- Multi-cores round-robin.
- Redirect to a core when connection come.
- Parallel, async I/O tasks.
- Disks are served as RR mode.
- Full stack user mode, zero-copy, lock-free, os-bypass, zero-context-switch.

FlexSDS Snapshot

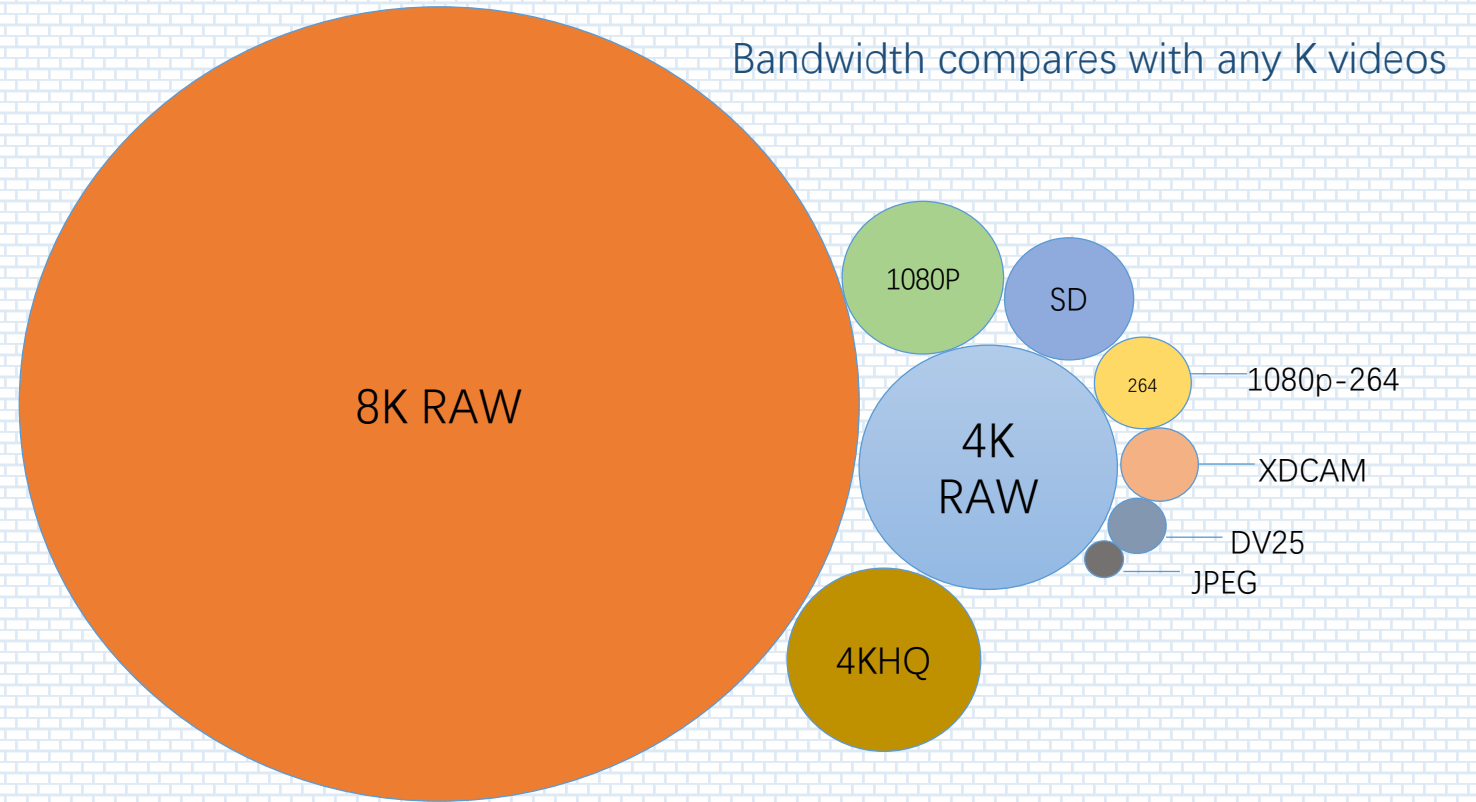


- Unlimited snapshots, read/write performance no related to the snapshot count.
- Zero data copy when creating snapshot, there are only small data of mapping table need to be copies, no user data need to be copied.
- Metadata usage rate is less than 1/200

FlexSDS Storage for 8K Video

Provide editors workstations with access to high bandwidth and low latency performance to accommodate streaming editing and reel presentation to any workstation at any time.

- Delivers full performance of NVMe over the network.
- Linearly scale performance and capacity
- High IOPS and high bandwidth.
- Extreme low latency.
- Supports current and future media workflows
- Low total cost of ownership (TCO)
- Provider block interface.



Q&A

THANKS

FlexSDS Inc.

<https://www.flexsds.com/>