A New Generation of NVMe All-Flash-Array

KALRAY

FLASHBOX
by Kalray & Viking Enterprise Solutions

Performance
- Up to 12 MIOPS per Flashbox
- Up to 72 GB/s bandwidth
- Low latency - 30 µs

Ease of Use
- Industry standard protocols: NVMe/TCP, NVMe-oF over RoCE
- Passthrough mode and Logical Volume Management mode with Enterprise Data services (RAID, thin provisioning, snapshots)

High Availability/Durability
- Multiple data paths and fully redundant power and cooling
- Enterprise-grade data services to run mission-critical applications

Scalability
- 2 or 6 Storage Target Controllers
- Up to 24 hot-swappable NVMe SSDs
- Scale out by adding NVMe devices/ controllers or additional Flashbox

Rich Data Services
- Layered data services such as thin provisioning, snapshotting and cloning.
- Flexible data protection, data services

Unleash the Full Potential of your NVMe SSDs

Flashbox is a high performance **disaggregated NVMe storage array** designed from the ground up to leverage the full potential of NVMe flash devices at massive scale, while ensuring the **lowest storage Total Cost of Ownership (TCO)**. Flashbox disaggregates NVMe SSDs while maintaining the same performance of local NVMe or direct-attached devices. This eliminates the siloed approach in traditional server-based storage solution. The result is QoS optimized storage for each individual application. Flashbox offers a wide variety of standard data services and is fully programmable for unique data center computational applications.

Built on an off-the-shelf appliance, the solution addresses the key challenges of scale-out NVMe storage: **scalability, performance, cost-efficiency, openness, and ease of use.**

3to5 TIMES Better IOPS/W

15x Better IOPS/$ vs traditional solutions

DPUs at the Heart of a New Generation of All-Flash-Array

Flashbox is powered by a new class of fully programmable data-centric processor: the **Kalray MPPA® DPU (Data Processing Unit)**. It runs all the critical functions of a disaggregated storage appliance on one single chip without the power, cost, and performance penalties of an x86. Kalray's DPU gives the end user the options to use pre-defined data services, Built Your Own (BYO) data processing applications or a combination of both. There has never been such a highly flexible storage solution

THE BEST PERFORMANCE PER WATT & PER DOLLAR

At the core of the Flashbox

Kalray K200-LP™

Thanks to Kalray's K200-LP™ Storage Target Controller, powered by MPPA® DPU, deploy NVMe with the ease-of-use and efficiency of traditional storage array architectures, without performance or durability trade-offs.

2 or 6 K200-LP™ each containing:

- 2x100GbE per card, x16 PCIe Gen4, DDR4 @3200Mhz
- Fully programmable control & data paths
- Supports Linux OS

Kalray AccessCore® Storage

A SPDK-based open software environment with standard APIs and tool chain:

- MPPA® DPU-optimized software modules such as network (ODP) and storage (SPDK) functions.
- Based on NVMe-oF industry standard. Supports TCP and RoCE protocols
- Standard Management APIs

Viking Enterprise Chassis

A fully resilient VDS2249R system chassis:

- Versatile, 2U high, enterprise-class storage solution
- Multitude of features for customizing data storage

Technical Specifications

Hardware

2RU, 19" EIA rack support with rails

Dual I/O modules with independant BMCs

Two or six K200-LP™ per chassis

4 or 12 100GbE ports

2 x 1GbE Ethernet BMC ports

24x U2 dual-ported NVMe SSDs

Up to 364 TB raw capacity in 2U with support for 15.2 TB SSDs. Supports all capacities of NVMe SSDs

3-year built-in support

Software

SPDK-based storage suite

RAID 0, 1, 10 and 6
(Derived from Erasure Coding algorithms)

Logical Volumes

Thin provisioning

Snapshots

Clones

NVMe-oF (RoCEv1/v2)

NVMe/TCP

Active/active or active-standby, highly available configuration

Configurable In-band or out-of-band system management

Power & Cooling

Power Supplies: Dual redundant 1600W power modules with independent AC power inputs

Power Usage: 455W(peak) and 420W(Avg.) for a 2 – K200-LP, 8 SSD configuration

Cooling: N+1 redundant hot swappable cooling fans

Operating temperature: 0°C to 35°C

RoHS compliant

Dimensions:
87mm H x 438mm W x 697mm D
3.43 in H x 17.2in. W x 27.44 in. D

Weight: 25.5 kg

THE POWER OF MORE