Software and Hardware Innovation Combine for Our Fastest Ceph Architecture Yet

Do you need high performance and scalability? It's a combination rarely found in open-source computing — before now. With the availability of Ceph® Community version, Luminous 12.2.8 and the Micron® 9200 MAX SSD with NVMe™, you can have both. Micron's unique hardware and Ceph's recent performance improvements using the BlueStore storage engine combine to challenge traditional storage architectures.

Micron's scalable, performance-optimized Accelerated Ceph Luminous 12.2.8 + BlueStore and NVMe™ SSD Solution enables you to better manage rapidly growing storage demands. Built on standard server platforms with the Micron 9200 MAX enterprise U.2 SSDs with NVMe, this solution offers an ultra-performing, ultra-dense all-flash Ceph storage infrastructure you can count on — today and tomorrow.

Key Features

Our precision-tuned, SSD-optimized Ceph Luminous 12.2.8 storage platform includes these features:

Easy-to-scale base configuration with nearly 2.3 million read IOPS to meet your growing needs — 1U (and 64TB) at a time.

Built on a foundation of industry-standard server platforms, open software and blazing-fast NVMe storage.
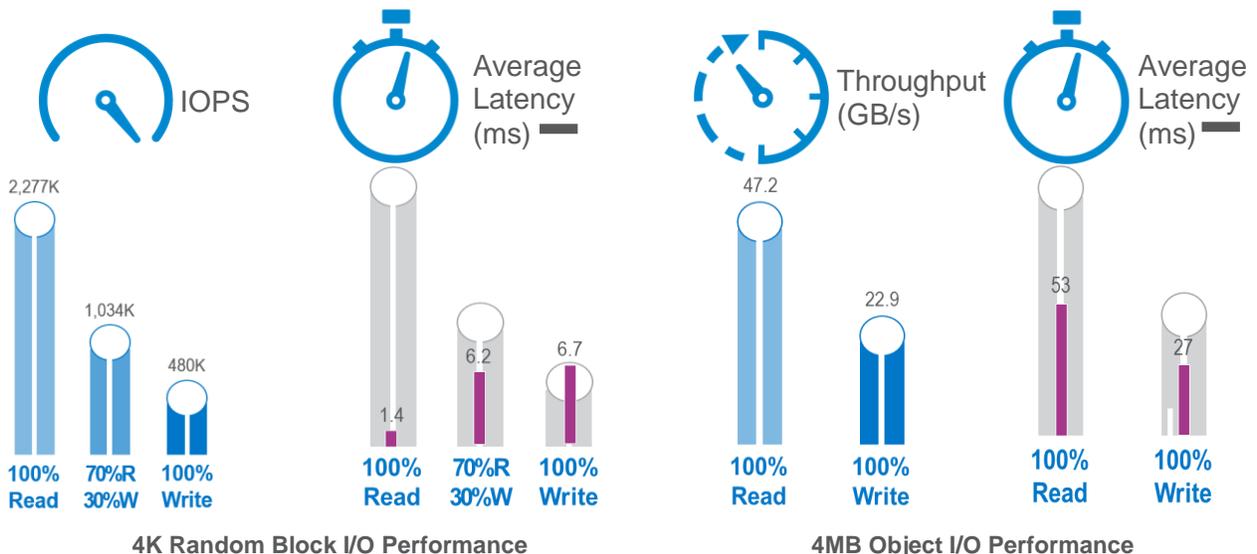
Pre-engineered to optimize compute, networking and storage into a highly compact, efficient design that delivers.

Ideal for web-scale active archives, media content repositories, OpenStack® cloud storage and content distribution.

4U Storage Deployment Performance

4K Random Block I/O Performance

IOPS
- 2,277K — 100% Read
- 1,034K — 70%R 30%W
- 480K — 100% Write

Average Latency (ms)
- 1.4 — 100% Read
- 6.2 — 70%R 30%W
- 6.7 — 100% Write

4MB Object I/O Performance

Throughput (GB/s)
- 47.2 — 100% Read
- 22.9 — 100% Write

Average Latency (ms)
- 53 — 100% Read
- 27 — 100% Write

Solution Overview

The Micron 9200 MAX SSDs with NVMe used in this design offer tremendous performance with low latency. Capacity per rack unit is maximized with ten 6.4TB NVMe SSDs per 1U node. These storage nodes occupy just 4U (the entire Micron reference architecture occupies seven rack units including three monitor notes) and can easily be scaled up 1U at 64TB at a time.
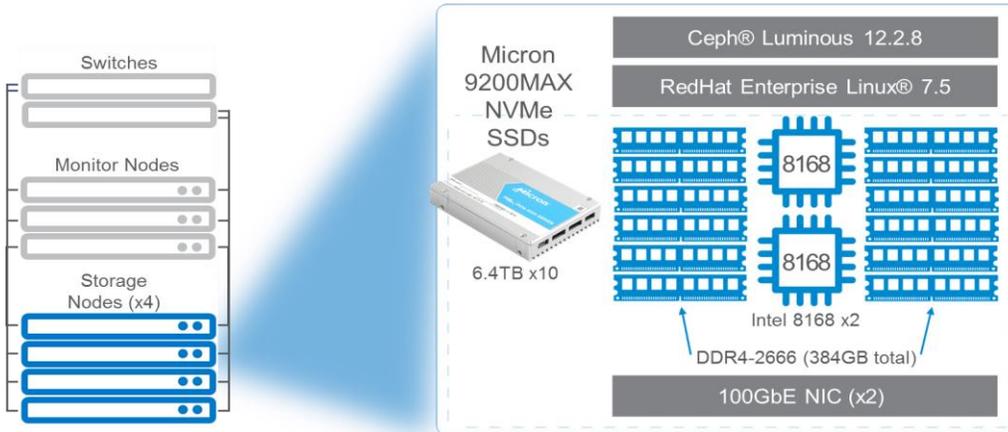
Ceph best practices indicate that at least three storage nodes should be present in a Ceph cluster. With four nodes, the provided reference architecture supports 256TB of total storage. Ten storage nodes are recommended for an enterprise Ceph cluster.

Micron Reference Architectures Deliver

Micron's 9200 MAX NVMe SSDs + Ceph Luminous 12.2.8 + BlueStore reference architecture describes the hardware and software building blocks and tuning parameters you need to construct a performance-focused, scalable block and object Ceph storage platform. This all-NVMe solution is optimized for block performance while also providing very high object performance in a compact, rack-efficient design to enable:

- **Faster deployment**: The configuration has been pre-validated and is thoroughly documented to enable faster deployment.
- **Balanced design**: The right combination of NVMe SSDs, DRAM, processors and networking ensures subsystems are balanced and performance-matched.
- **Broad use**: Complete tuning and performance characterization across multiple I/O profiles enables broad deployment across multiple uses.

Learn More

- Get started today by downloading the reference architecture — complete with layout, networking, testing and performance details.
- Read Micron Storage Solutions Engineer Ryan Meredith's blog for a hands-on perspective from the lab on what this Micron Ceph solution can really do.

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