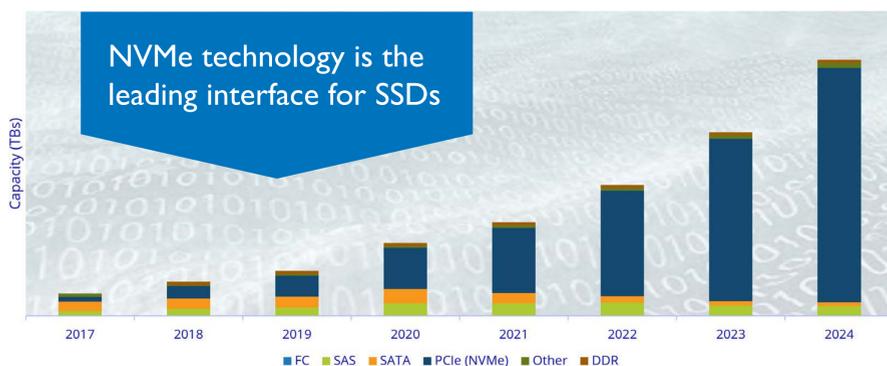


NVMe[®] 2.0 Specifications -

THE NEXT GENERATION of NVMe Technology

NVMe technology has evolved into the new language of storage.

Enterprise SSD Capacity Shipment Forecast by Interface



IDC, Worldwide Solid State Drive Forecast Update, 2020-2024, Doc #US45909420, December 2020

Since its inception in 2011, NVMe technology has seen explosive growth from SSDs into large data centers.

NVMe Technology Is Everywhere:



Solid State Disks



Disaggregated Storage Architectures



Cell Phones



Servers



Mobile Computing



Storage Arrays



Data Centers

Specification Development

NVM Express, Inc. developed multiple specifications to deliver high bandwidth and low latency storage in all types of computing environments.

NVMe Base Specification

NVMe Command Set Specifications

- NVM Command Set specification
- Zoned Namespaces Command Set specification
- Key Value Command Set specification

NVMe Transport Specifications

- PCIe Transport specification
- RDMA Transport specification
- TCP Transport specification

NVMe-MI Specification

NVMe 2.0 Refactored Specifications

- ✓ A simplified format, easing the development of NVMe technology and allowing for rapid innovation.
- ✓ NVMe architecture can continue to enable the natural evolution of the flash technology ecosystem, so that NVMe technology can continue to shape emerging markets
- ✓ Introduce new features that continue to expand the limits of NVMe technology

NVMe 2.0 technology has been rearchitected to meet the demands of the future of storage.

New Features for NVMe 2.0 Specifications



Zoned Namespaces (ZNS)

Permits data to be aligned to the physical media of the SSD, improving overall device performance and cost while increasing the media capacity that can be made available to the host.



Key Value (KV)

Provides access to data on an NVMe SSD controller using a key rather than a block address. NVMe-KV allows applications to directly communicate to the drive using key-value pairs, avoiding the overhead of translation tables between keys and logical blocks.



Endurance Group Management

Enables media to be configured into Endurance Groups, exposing granularity of access to the SSD and improving control.



Rotational Media

Enables support for Hard Disk Drives (HDDs) on NVMe technology with updates to features, management capabilities and other enhancements required for HDD support.