



*BY Developers FOR Developers*

**Storage Developer Conference**  
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# **Zoned Storage Track Overview**

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# Traditional Storage vs. Zoned Storage

## Traditional Storage

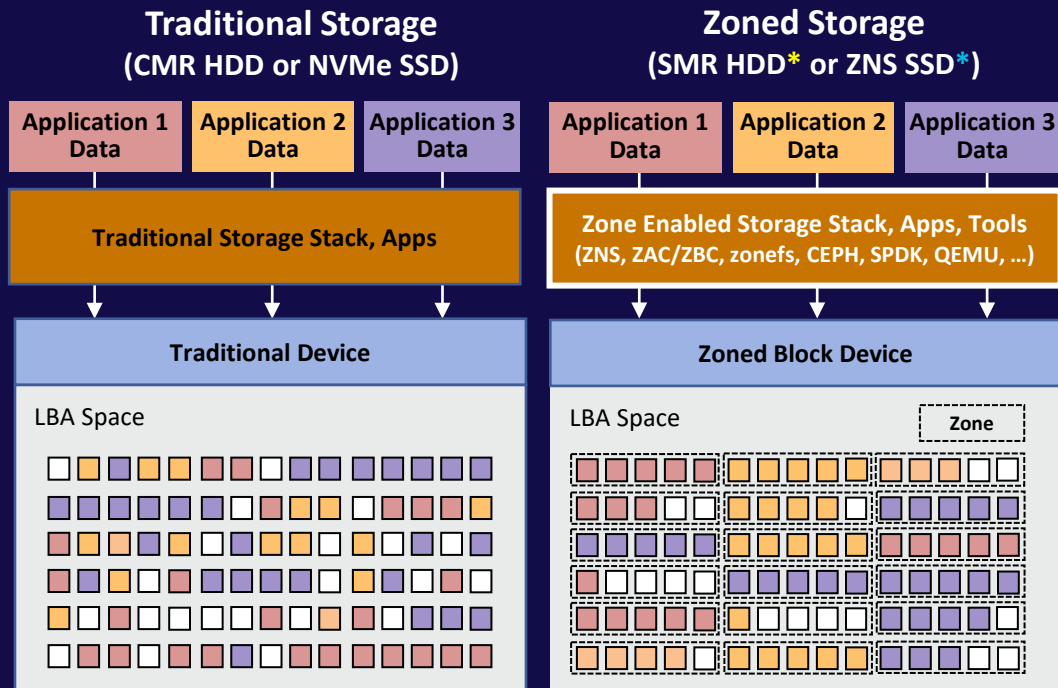
- Random or sequential writes, anywhere in LBA space
- Device manages data placement

## Zoned Storage

- Sequential writes only, within predefined Zones
- Host/Device co-manage data placement

## Benefits of Zoned Storage

- Devices with higher performance, better capacity utilization, lower cost
- And, w/ addition of ZNS, SW synergy across host-managed zoned HDDs and SSDs



\* T13/T10 approve ZAC/ZBC for ATA/SCSI SMR HDDs in 2014

\* NVMe® ZNS spec released Jun-2020

## NVMe® ZNS Architecture and Host Model

- Zoned Namespaces (ZNS) SSDs: Disrupting the Storage Industry (Matias Bjoerling, WDC)
- File System Native Support of Zoned Block Devices: Regular vs Append writes (Naohiro Aota, WDC)
- ZNS: Enabling in-place updates and transparent high queue-depths (Javier Gonzales, Samsung)

## Optimizing the Storage Stack and Applications for Zoned Storage

- End To End Data Placement For Zoned Block Devices (Marc Acosta, WDC)
- zonefs: Mapping POSIX File System Interface to Raw Zoned Block Device Accesses (Damien Le Moal, WDC)
- Zoned Block Device Support in Hadoop HDFS (Shin'ichiro Kawasaki, WDC)
- ZenFS, Zones and RocksDB - Who likes to take out the garbage anyway? (Hans Holmberg, WDC)
- Improve Distributed Storage System TCO with Host-Managed SMR HDDs (Albert Chen, Kalista IO)
- High-performance SMR drives with dm-zoned caching (Hannes Reinecke, SUSE)

## Tools for Zoned Storage

- Reviving The QEMU NVMe Device - from Zero to ZNS (Klaus Jensen, Samsung)
- Getting Started with NVMe ZNS on QEMU (Dmitry Fomichev, WDC)
- xNVMe: Programming Emerging Storage Interfaces for Productivity and Performance (Simon Lund, Samsung)



- At the show
  - Use chat windows during sessions
  - Please rate each session you watch (box under the video)
  - Check out BoFs
- Get involved w/ Zoned Storage
  - Standards
  - Linux enabling
  - Application enabling
  - Tools

**Making the world safe for Sequential IO!**

