

DUG'20

# Platform Performance Evolution - Learning from Reference Storage Platform

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# Agenda

- Reference Storage Platform
- Performance evolution over time
  - Bandwidth and IOPS
  - Read QoS(quality of service)
  - Read QoS in presence of writes

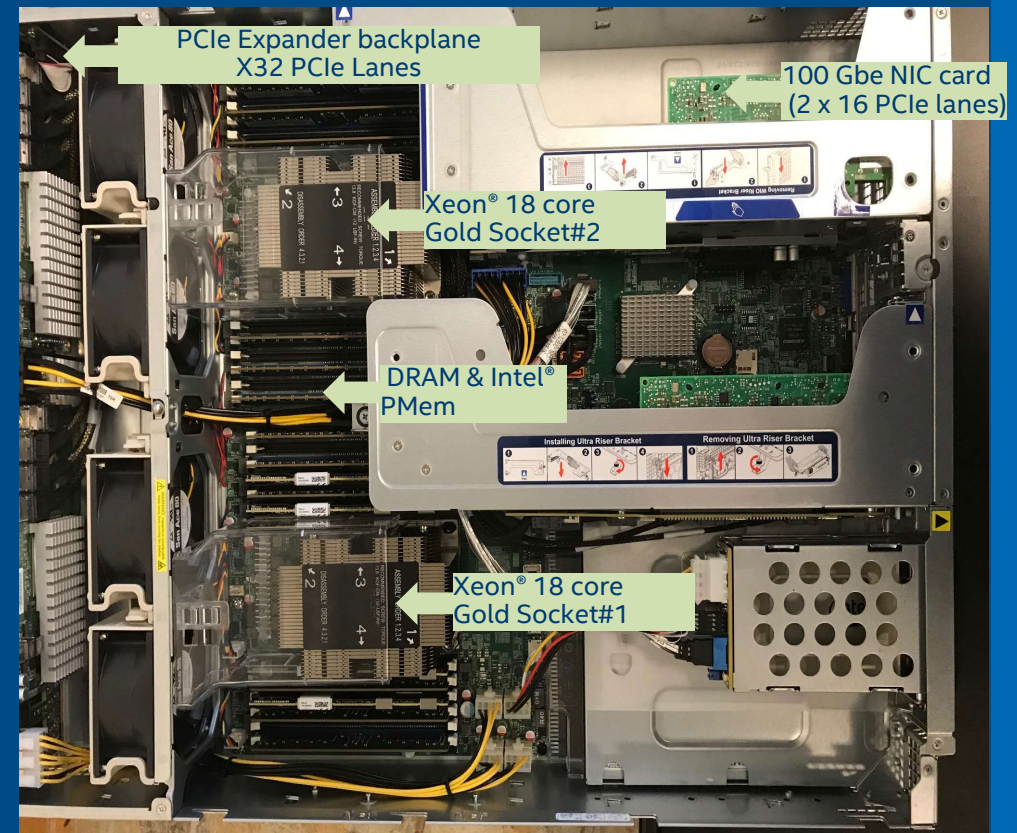
# Reference Storage Platform – A Learning Vehicle

## ■ Goal:

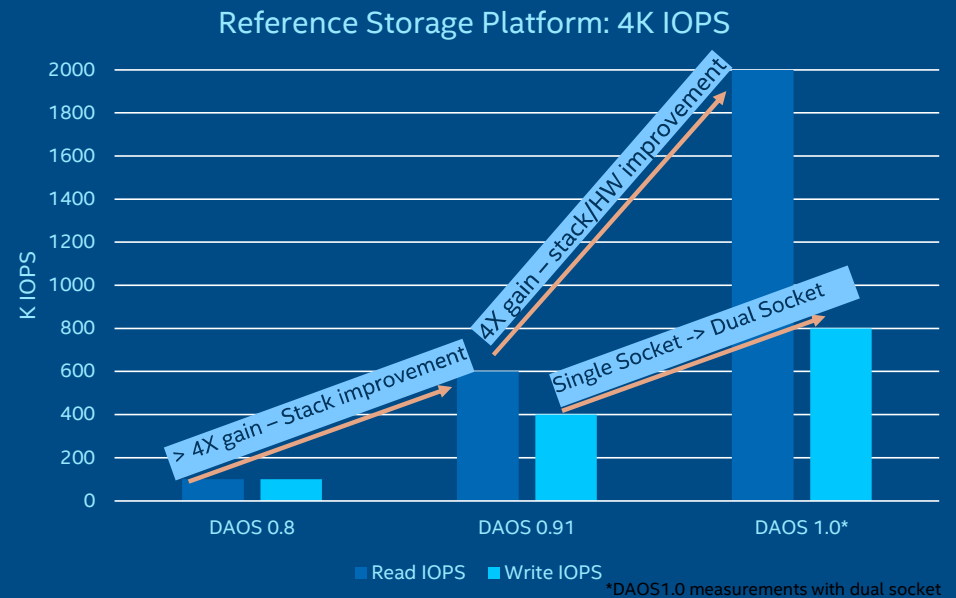
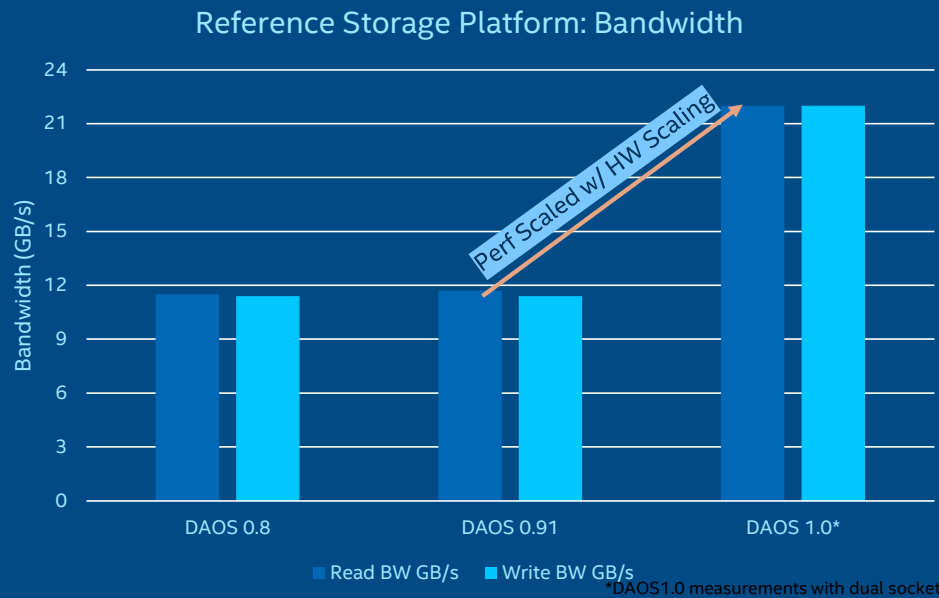
- Identify storage performance bottlenecks and optimizations
- Understand workloads with platform changes
- Verify hypotheses/assumptions of improved ingredients at the platform level (cost/performance)

## ■ Configuration:

- DAOS 
- 100GbE RoCE v2
- Intel® Xeon® Gold 6240 CPU @ 2.60GHz
- Intel® Optane™ Persistent Memory 768GB (6x128GB)
- Intel® SSD D5-P4326/ Intel® SSD D5-P5316
- Test application - FIO



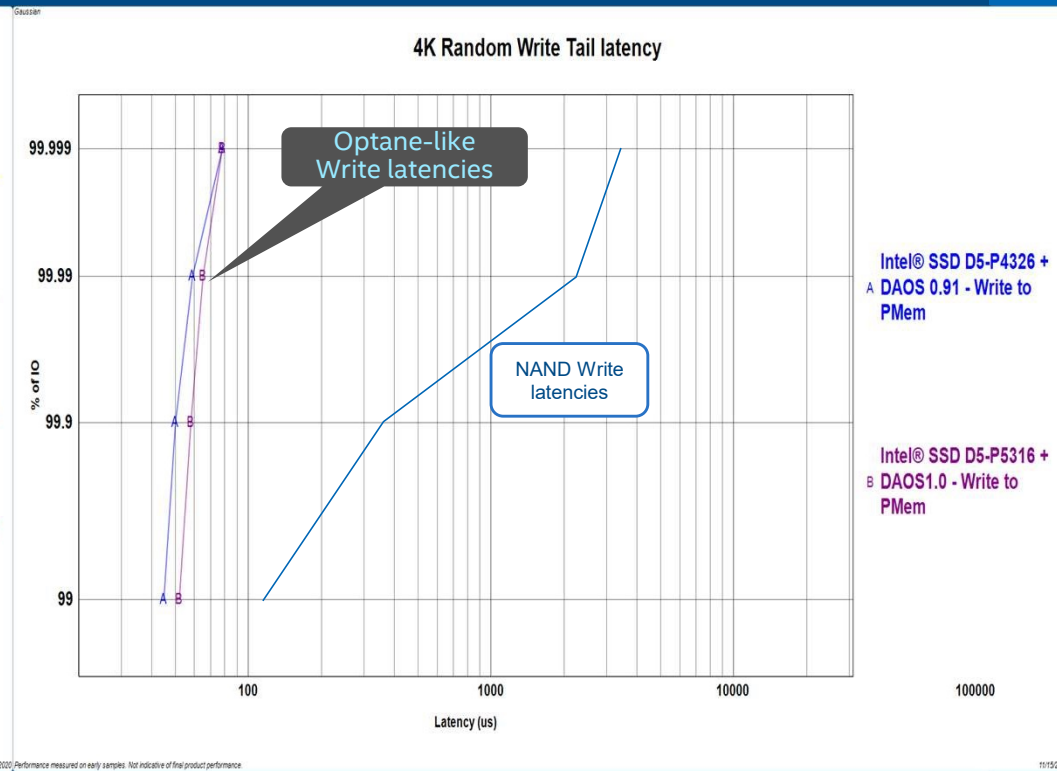
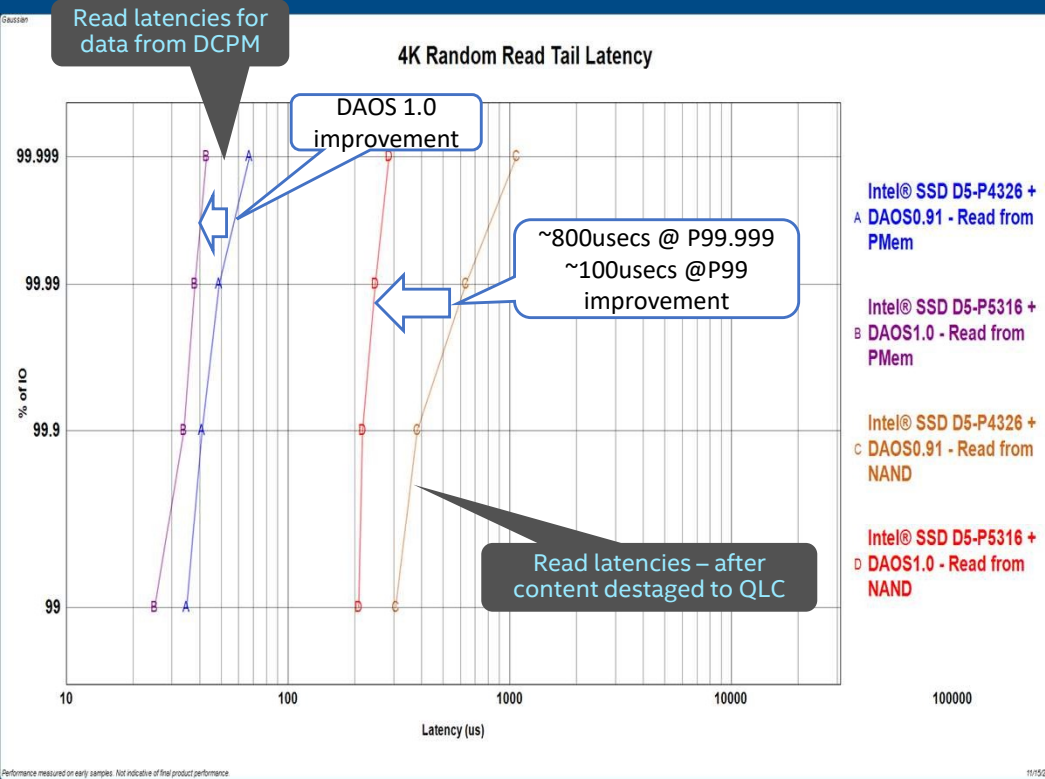
# Performance Improvements Over Time



100GbE Network link saturated for bandwidth and 4K Read IOPS.  
Write stack improvements in progress to improve 4K Write IOPS.

Performance measured with early samples and is not indicative of final product performance.

# Optane like write latencies, NAND like Read latencies

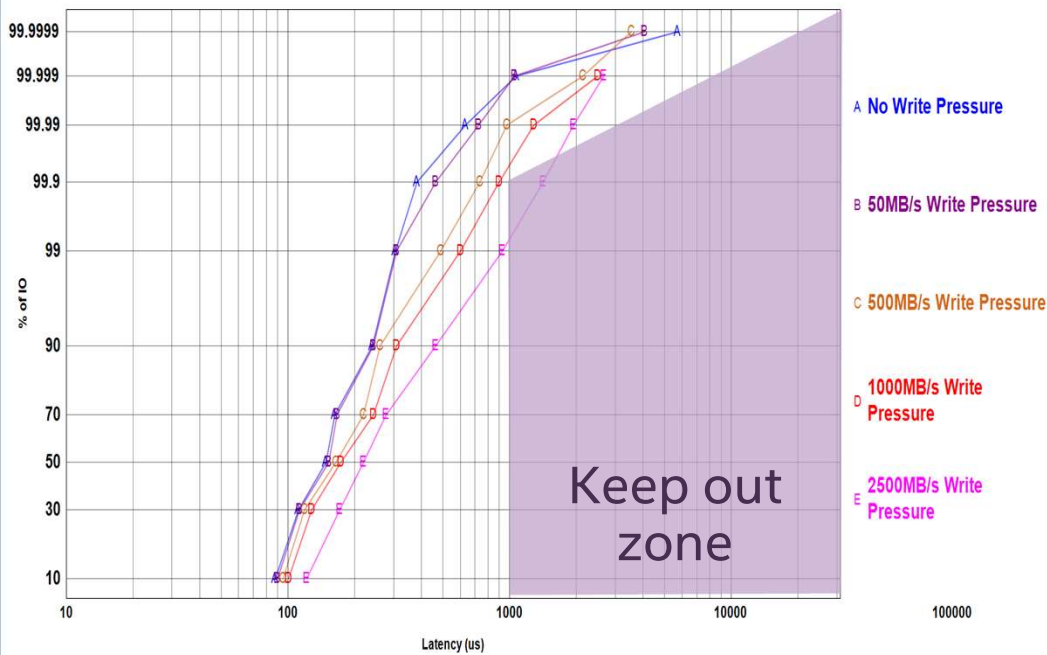


Significant improvement in Read tail latencies with DAOS 1.0 and Intel® SSD D5-P5316

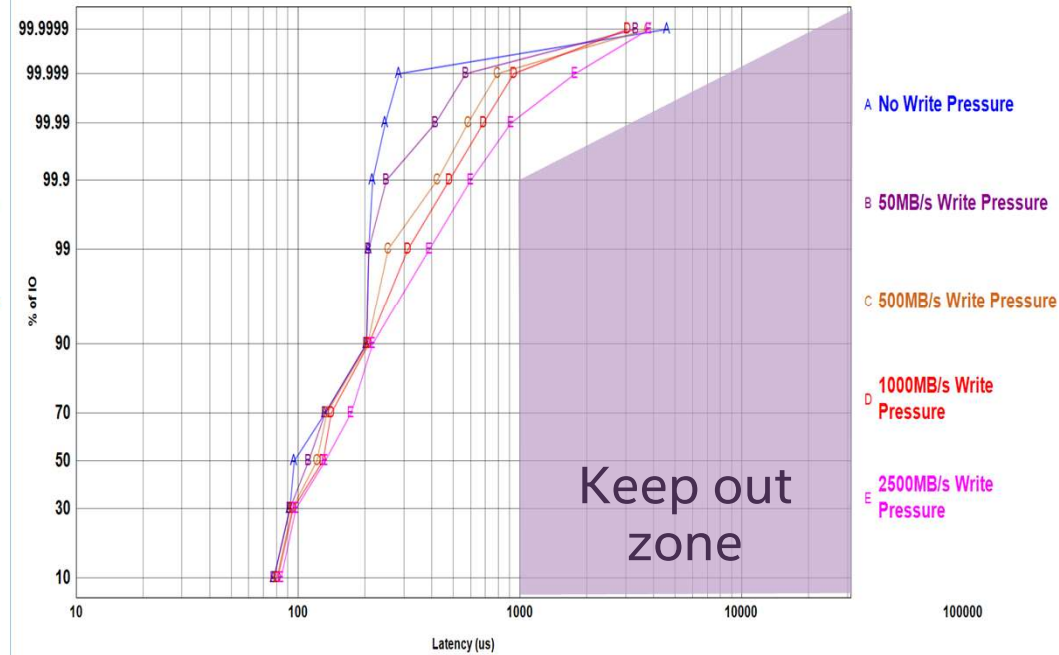
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# Responsivity is key for apps to consume IOPS/TPS

4K Random Read Tail Latencies in presence of Writes (Intel®SSD D5-P4326, QD=1, DAOS 1.0)



4K Random Read Tail Latencies in presence of Writes (Intel®SSD D5-P5316, QD=1, DAOS 1.0 + Patches)



Improved transactions per second from 500MB/s to 2500+ MB/s

Performance measured with early samples and is not indicative of final product performance.

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