

TEST SETUP

Windows edition

Windows Server 2012 R2 Datacenter

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System

Processor: Intel(R) Core(TM) i7-4700EQ CPU @ 2.40GHz 2.40 GHz

Installed memory (RAM): 16.0 GB (15.8 GB usable)

System type: 64-bit Operating System, x64-based processor

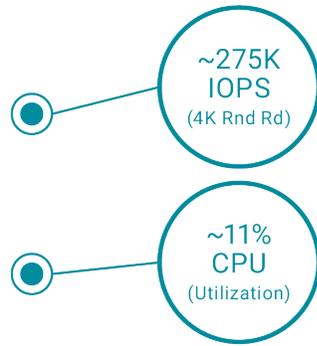
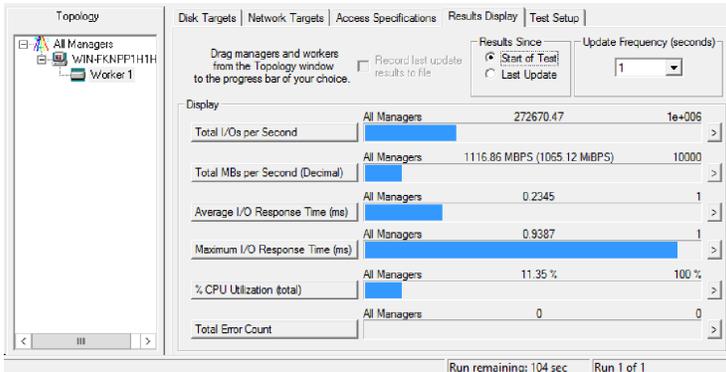
Pen and Touch: No Pen or Touch Input is available for this Display

Application: IOMeter, Rev 1.1.0 (Access Pattern Tested: 4KB Rnd Rd)

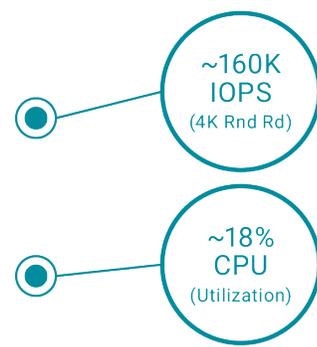
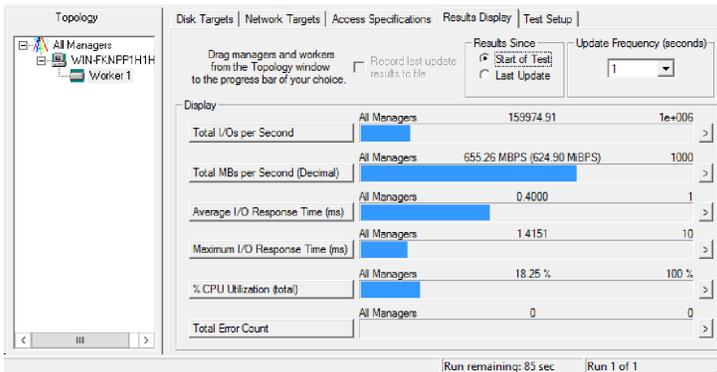
AHCI Drives: Vendor A
AHCI SSD
Gen2x4
~160K IOPS

NVMe Drives: Toshiba XG3
NVMe SSD
Gen3x4
~275K IOPS

Toshiba XG3 NVMe SSD:



Vendor A AHCI SSD:



CPU SELECTION

There are several end user net benefits enabled by NVMe – as less CPU cycles are utilized for the same amount of data transfer, excess CPU resources are available for other system level applications. Less demand is placed on the CPU for storage services, and more of the CPU cycles can be used to increase application performance. Additional benefits are related to the CPU selection per workload, NVMe can enable lower power and lower cost CPUs to service workloads previously reserved only for higher end processors. The NVMe protocol enable system designers to select CPUs with lower power and reduced cost and still deliver increased levels of application performance.

SUMMARY

Testing revealed a clear differentiation in the NVMe protocol resulting in higher performance while maintain lower CPU utilization and lowering latency when compared to AHCI. The benefits of NVMe on performance are clear, illustrating up to a 1.7x improvement in IOPS and a 40% reduction in CPU utilization rates at the system level. As the performance benefits to NVMe become more well-known, there will be a greater migration away from legacy protocols. NVMe will enable higher levels of efficiency for next generation data centers.

ABOUT LIQID

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