



ONTAP Select 9.5 performance: Premium HA direct-attached SSD storage

ONTAP Select

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ONTAP Select 9.5 performance: Premium HA direct-attached SSD storage

ONTAP Select 9.5 performance with premium HA direct-attached SSD storage.

Reference platform

ONTAP Select 9.5 (Premium) hardware (per node):

- Cisco UCS C240 M4SX:
 - Intel Xeon CPU E5-2620 at 2.1GHz
 - 2 x sockets; 16 x CPUs per socket
 - 128GB RAM
 - VMware ESXi 6.5
 - Drives per host: 24 900GB SSD

Client hardware:

- 5 x NFSv3 IBM 3550m4 clients

Configuration information:

- 1,500 MTU for data path between clients and Select cluster
- No storage efficiency features in use (compression, deduplication, Snapshot copies, SnapMirror, and so on)

The following table lists the throughput measured against read/write workloads on an HA pair of ONTAP Select Premium nodes using both software RAID and hardware RAID. Performance measurements were taken using the SIO load-generating tool.

Performance results for a single node (part of a four-node medium instance) ONTAP Select 9.5 cluster on DAS (SSD) with software RAID and hardware RAID

Description	Sequential Read 64KiB	Sequential Write 64KiB	Random Read 8KiB	Random Write 8KiB	Random WR/ RD (50/50) 8KiB
ONTAP 9.5 Select Medium instance with DAS (SSD) hardware RAID	1,714MiBps	412MiBps	391MiBps	1251MiBps	309MiBps
ONTAP 9.5 Select Medium instance with DAS (SSD) software RAID	1,674MiBps	360MiBps	451MiBps	223MiBps	293MiBps

64K sequential read

Details:

- SIO direct I/O enabled
- 2 nodes
- 2 x data NIC per node
- 1 x data aggregate per node (2TB hardware RAID), (8TB software RAID)
- 64 SIO procs, 1 thread per proc
- 32 volumes per node
- 1 x files per proc; files are 12000MB each

64K sequential write

Details:

- SIO direct I/O enabled
- 2 nodes
- 2 x data NIC per node
- 1 x data aggregate per node (2TB hardware RAID), (4TB software RAID)
- 128 SIO procs, 1 thread per proc
- volumes per node 32 (hardware RAID), 16 (software RAID)
- 1 x files per proc; files are 30720MB each

8K random read

Details:

- SIO direct I/O enabled
- 2 nodes
- 2 x data NIC per node
- 1 x data aggregate per node (2TB hardware RAID), (4TB software RAID)
- 64 SIO procs, 8 threads per proc
- volumes per node 32
- 1 file per proc; files are 12228MB each

8K random write

Details:

- SIO direct I/O enabled
- 2 nodes
- 2 x data NIC per node
- 1 x data aggregate per node (2TB hardware RAID), (4TB software RAID)

- 64 SIO procs, 8 threads per proc
- volumes per node 32
- 1 file per proc; files are 8192MB each

8K random 50% write 50% read

Details:

- SIO direct I/O enabled
- 2 nodes
- 2 x data NIC per node
- 1 x data aggregate per node (2TB hardware RAID), (4TB software RAID)
- 64 SIO procs, 20 threads per proc
- volumes per node 32
- 1 file per proc; files are 12228MB each

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