



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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