Hewlett Packard Enterprise

Performance brief

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REDUCE COST OF ORACLE DATABASE IN-MEMORY ANALYTICS SOLUTION USING **INTEL® OPTANE™** PERSISTENT MEMORY 100 SERIES FOR HPE WITH DRAM-LIKE PERFORMANCE

Comparison of Intel Optane PMem 100 series for HPE vs. DRAM analytical query completion time of In-Memory Column Store for Oracle Database 18c

Key takeaways

Intel Optane PMem 100 series for HPE for an OLAP workload achieved the following result:

- 2S HPE Synergy 480 with Intel Optane PMem 100 series for HPE provided 96% of the performance at less cost compared to a 4S HPE Synergy 660 with DRAM

Configurations for HPE Synergy Gen10 Compute Modules

In-Memory Column Store in DRAM:

HPE Synergy 660 Gen10 with 4 x Intel® Xeon® Platinum 8280 (2.7 GHz, 28-core) processors with hyper-threading enabled; Red Hat Enterprise Linux Server release 7.6; Oracle Database 18c; 48 x 64 GB HPE DDR4 RDIMMs; HPE Synergy D3940 4 x RAID1 LUNs using 8 x 1600 GB SSDs

Baseline test: 22 Query Set with degree of parallelism=56 and 1 user on 2 TB Scale Factor

In-Memory Column Store in Intel Optane PMem 100 series for HPE in Memory Mode:

HPE Synergy 480 Gen10 with 2 x Intel Xeon Platinum 8280M (2.7 GHz, 28-core) processors with hyper-threading enabled; Red Hat Enterprise Linux Server release 7.6, Oracle Database 18c; 12 x 64 GB HPE DDR4 RDIMMs; 12 x Intel Optane 256 GB persistent memory 100 series for HPE; HPE Synergy D3940 4 x RAID1 LUNs using 8x 1600 GB SSDs

Memory Mode test: 22 Query Set with degree of parallelism=56 and 1 user on 2 TB Scale Factor

EXECUTIVE SUMMARY

Database analytical compute platforms often need multi-terabyte (TB) memory capacity for Oracle In-Memory (IM) analytics workloads. Sometimes this requires a server with more compute capacity than necessary, and the overall solution cost can be staggering. Intel® Optane™ persistent memory 100 series for HPE, available in 128, 256, and 512 GB capacities, supports a cost-effective alternative. Hewlett Packard Enterprise conducted a performance comparison that demonstrated the capabilities of a two-socket (2S) HPE Synergy 480 Gen10 Compute Module with an In-Memory Column Store based on Intel Optane PMem 100 series for HPE versus a four-socket (4S) HPE Synergy 660 Gen10 Compute Module with DRAM for In-Memory Column Store.[1]

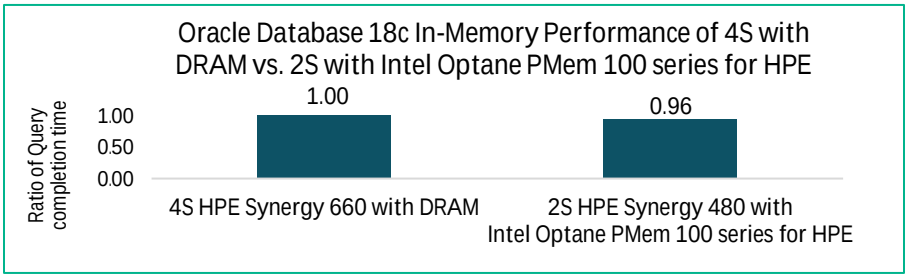

FIGURE 1. **Oracle 18c OLAP performance with IM Column Store in Intel Optane PMem 100 series for HPE vs. DRAM.**

RESULTS

Advantage with Intel Optane PMem 100 series for HPE. The use of Intel Optane PMem 100 series for HPE allows for a larger capacity memory configuration in a 2S server, providing the opportunity to utilize a 2S server where otherwise a 4S system would be needed due to memory requirements.

Performance comparison. The Intel Optane PMem 100 series for HPE configuration with two sockets achieved similar performance and reduced cost compared to the DRAM configuration with four sockets.

CUSTOMER VALUE WITH HEWLETT PACKARD ENTERPRISE

Powerful enterprise technology. Intel Optane PMem 100 series for HPE approaches the speed of traditional DRAM, having high capacity and ongoing data safety.

HPE Synergy 660 Gen10 Compute Module. The 4S, full-height compute module is ideal for demanding, enterprise data-intensive workloads.

HPE Synergy 480 Gen10 Compute Module. The 2S, half-height compute module delivers efficiency and flexibility to support demanding workloads. Synergy Compute Modules are designed to create a pool of flexible compute capacity within a composable infrastructure and have the power to support demanding Oracle Database workloads.

[1] HPE internal lab testing.

BOTTOM LINE

The results showcase a high-performance, lower-cost HPE solution using Intel Optane PMem 100 series for HPE with Memory Mode for an Oracle Database 18c In-Memory OLAP workload. HPE performance engineering solutions are poised to accelerate customer success.

LEARN MORE AT

Intel Optane PMem 100 series for HPE Documents webpage

HPE Synergy 660 Gen10 Documents webpage

HPE Synergy 480 Gen10 Documents webpage

Server Performance Benchmarks

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