Executive summary

Watch your transactional database performance climb with Intel Optane DC persistent memory

Dell EMC PowerEdge R740xd servers with Intel Optane DC persistent memory handled more transactions per minute than configurations with NAND flash NVMe drives or SATA SSDs

While enterprises offer different goods and services, they're on the same quest to deliver speedy performance to end users and increase profits by making the most out of their resources. Organizations that need exceptional transactional database performance should take note of a new memory technology that could help them meet their goals: Intel® Optane™ DC persistent memory. This new technology looks like memory and offers quick reads and writes, but the 256GB capacity of each DCPMM lets it act like traditional storage and store entire databases on a DCPMM stick.

Through our tests in the Principled Technologies data center, we found that using Intel Optane DC persistent memory in a Dell EMC™ PowerEdge™ R740xd server delivered 2.2 times the Microsoft® SQL Server® 2019 performance of a two-NVMe™ drive configuration and improved performance even more significantly over SATA SSDs—delivering an impressive 11.3 times the transactions per minute. As your data center approaches its peak database performance capabilities, consider adding Intel Optane DC persistent memory—our tests suggest that it might help transactional database performance.

2.2x the transactions per minute of a configuration with two NVMe drives alone

11.3x the transactions per minute of a configuration with 12 SATA SSDs alone

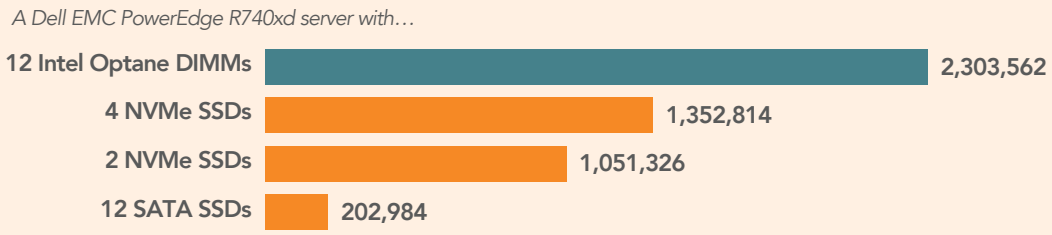
Storage choice factors into transactional database performance

Processors aren't the only server component that affects database performance—the amount and type of memory and storage also have a large impact on how many transactions a server can handle. Older solutions relied on hard drives, until SSDs came along with faster database reads and writes. Next came NVMe SSDs, which offered capabilities beyond traditional SSDs. Now, Intel offers Intel Optane DC persistent memory, which can deliver greater transactional database performance than these traditional storage types while offering flexibility as well.

A Dell EMC PowerEdge R740xd server with 12 Intel Optane DC persistent memory DCPMMs delivered 1.7 times the SQL Server 2019 transactions per minute (TPM) of a four-drive NVMe configuration, 2.2 times the TPM of a two-drive NVMe configuration, and 11.3 times the TPM of a 12-drive SATA SSD configuration. This boost in transactional database performance could help your organization meet performance demands at peak times.

Database transactions per minute

Higher is better



What is Intel Optane DC persistent memory?

Straddling the line between memory and more traditional storage devices like NAND flash NVMe SSDs, Intel Optane DC persistent memory DIMMs are a new memory technology that can accelerate some data-intensive applications. So, is it memory, or is it storage? The answer is both—or either, depending on the strategy that works best for your particular workload. Use Optane in Memory Mode to increase your memory footprint, or choose App Direct Mode, which lets the OS and applications see Intel Optane DIMMs as a separate persistent type of memory.

Read the report at http://facts.pt/gkuc7nc

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