

ACCELERATING WARM DATA MANAGEMENT WITH PURE STORAGE® DIRECTMEMORY™ CACHE

All-flash storage with DirectMemory™ Cache from Pure provides a powerful combination to unleash the potential of data tiering in the SAP HANA® platform.

DirectMemory™ Cache for SAP HANA from Pure Storage

It's the end of the quarter and you have to analyze 3 to 4 months of data that you haven't touched for a while. Do your systems find it difficult to keep up with demand during end-of-quarter or end-of-year operations? Or perhaps your data has outgrown your system's memory, but you can't take the system down or expand its memory in time. You could use SAP HANA Native Storage Extension to move some data out of memory, but how do you keep the performance where you need it to be?

You run high-performing databases like SAP HANA to handle the increased load during these periods; but when data is growing faster than expected, you don't want a linear increase in costs to go along with the growth.

With DirectMemory Cache, Pure Storage handles those periodic slowdowns and data expansions. This means you can focus on what's important to you, and you don't have to buy all that expensive memory—you can get comparable performance with the Pure solution.

Pure Storage DirectMemory Cache Resolves the Cost-Performance Dilemma

Because your SAP systems never sleep, an ever-larger data footprint is a reality you have to deal with every day. But it's hard to plan capacity for growing data volumes and burst periods because, for example, if you plan for coverage using conventional means, you end up over-provisioning memory and spending too much during non-peak times. DirectMemory Cache can help address those short-term data-capacity requirements by adding more read cache instead of more memory, which helps you defer additional infrastructure purchases and the associated costs.

What Are Storage Class Memory and DirectMemory Cache?

Despite the fast performance of flash media and, more recently, NVMe Express® (NVMe™) drives, external storage systems are still orders of magnitude slower than server memory (DRAM). Storage class memory (SCM) is a new class of memory technology that bridges the performance gap between DRAM and flash solid-state drives (SSDs), with latency measured in the tens of microseconds (compared to hundreds of nanoseconds for DRAM and hundreds of microseconds for flash drives). SCM is persistent, has higher density, and is less costly than DRAM.

Pure Storage's SCM implementation is called DirectMemory Cache. It is a non-volatile, read-only memory cache inside FlashArray™ products that lies between traditional memory and storage in terms of performance and cost. Composed of Intel® Optane™ DC SSDs, DirectMemory Cache delivers exceptional performance for warm data with SAP HANA Native Storage Extension for scale-up configurations and SAP HANA extension nodes for scale-out configurations.

With SAP HANA extension nodes, you can move data to a specific node, which is treated as part of the entire scale-out landscape. Extension nodes are currently supported by SAP HANA native applications and SAP® Business Warehouse running on SAP HANA.

With SAP HANA Native Storage Extension, there is no need to move data: warm data is accessed from disk rather than from memory. This approach can reduce your memory footprint, which helps reduce costs.

As an SAP HANA administrator, you have a choice. You can pay a lot for a large system with a significant amount of memory, or you can implement warm data management to reduce the costs of ever growing data. DirectMemory Cache is a cost-effective way to accomplish this. It enables:¹

- Up to 8x reduction in the amount of memory required to manage data, compared to all the data residing in memory
- Savings on in-memory-based SAP HANA licenses
- Reductions in total cost of ownership (TCO)
- Cost-effective and highly responsive warm data management
- Extremely low latency for warm data

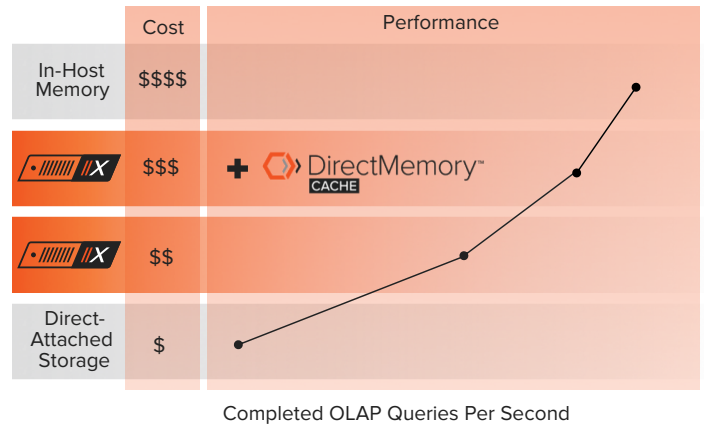


Figure 1. A FlashArray solution with DirectMemory Cache and SAP HANA Native Storage Extension achieves 90 percent of the performance of an in-memory configuration for less than half the cost.¹

Gain Performance Comparable to In-Memory Configurations while Lowering Costs

When measuring online analytical processing (OLAP) queries per second, a FlashArray solution with DirectMemory Cache running with SAP HANA Native Storage Extension achieves 90 percent of the performance of an in-memory configuration (see Figure 1).¹ That's just a 10-percent performance penalty with a solution that can enable up to 65 percent reduction in costs.

Using SAP HANA Native Storage Extension Compared to an In-Memory Configuration¹



With warm data in direct-attached storage (DAS):
40 percent slower, large physical footprint to manage



With warm data on a FlashArray product:
15–20 percent slower, with up to 75 percent reduction in costs



With warm data on a FlashArray product with DirectMemory Cache:
only 10 percent slower than an in-memory configuration, with up to 65 percent reduction in costs

Explore Your Options

DirectMemory Cache fills the performance and cost gap between NAND SSDs and DRAM, and it promises to revolutionize data center architecture. It enables you to cost-effectively work with larger datasets by creating a new, higher-performing tier for warm data.

Call your Pure Storage representative today to learn how DirectMemory Cache can help you get the most from your data and the most value from your SAP HANA deployment.

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¹ Based on internal Pure Storage testing. Your results may vary as differences in system configuration might affect actual performance.