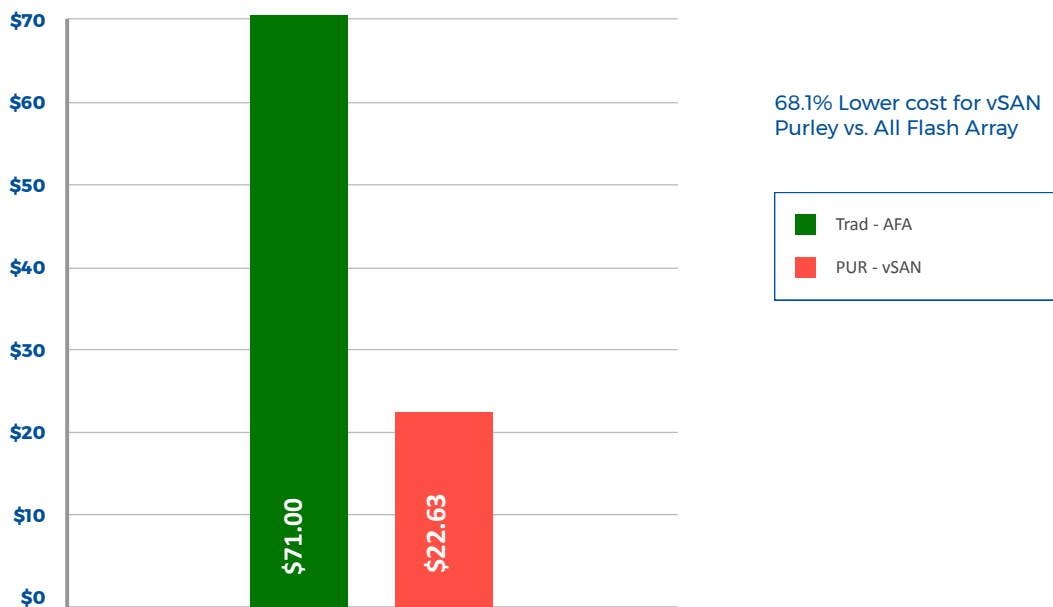


vSAN Can Replace an All-Flash Array in a Database Environment

This is the finding of a TCO study conducted by Evaluator Group. In it we looked at two database environments, shown in graph directly below, generating 8 million transactions per minute, based on the TPC-C On-Line Transaction Processing (OLTP) benchmark. A cluster of servers with the Xeon Scalable CPU (“Purley”) running vSAN on internal SSDs was found to be about one-third the cost of the same servers connected to an all-flash array (AFA). The graph at the bottom shows exactly where this cost differential comes from.

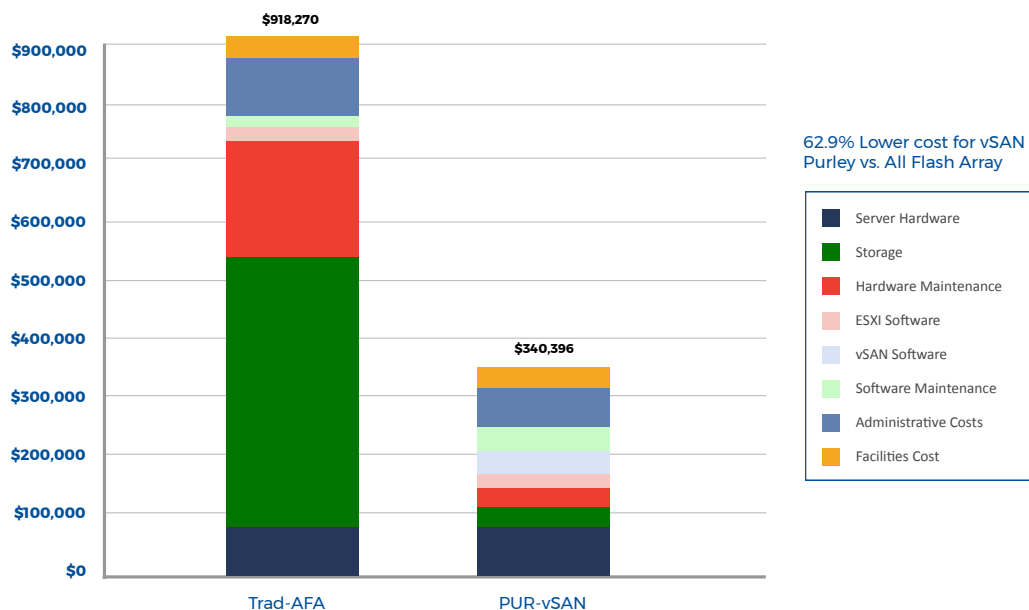
All Flash Array vs vSAN Purley CapEx- Cost / 1000 Transactions



Storage Costs are the Key

The Server Hardware is the same for both environments, but the storage cost in the graph below tells the story. The large green segment on the left represents the cost of the all-flash arrays which are more than the entire vSAN cluster.

All Flash Array vs vSAN Purley 3 Year TCO for Database



TCO CALCULATIONS

Infrastructure to support 8 million transactions per minute

SYSTEM	MAX TPMC*	SYSTEMS REQ'D	SYSTEM COST	TOTAL COST
Purley with vSAN	2.28M	4	\$85,099	\$340,396
Purley without vSAN	2.35M	4	\$62,191	\$248,764
AFA	4.27M	2	\$334,753	\$669,506

vSAN + SSDs is Much Less than AFAs

Adding vSAN + SSDs to a 4-node cluster is less than half the cost of the same servers with AFA

↓
= \$918,270

*TPC-C Transactions Per Minute

SYSTEMS REQUIRED TO SUPPORT 8M TRANSACTIONS PER MINUTE

Purley with vSAN	Purley without vSAN	All-Flash Array (AFA)
<ul style="list-style-type: none"> Intel 2U server Intel Platinum 8168 CPU (24 cores) 768GB RAM, 9.6TB SSD (Storage) 400GB Optane (Cache) 	<ul style="list-style-type: none"> Intel 2U server Intel Platinum 8168 CPU (24 cores) 768GB RAM, 960GB SSD (boot) 	<ul style="list-style-type: none"> 12 TB raw storage capacity Deduplication and compression (2:1 effective) 12 NFS mount points



4 Servers



4 Servers



2 AFAs

vSAN ON PURLEY WITH INTERNAL SSDs:

- Matches storage performance of AFA**

The vSAN software-defined storage has abstracted the storage controller function and moved it into software running in the CPU of each node. This is enabled by the processing power available in Purley, which can match the storage performance of an all-flash array.

- Delivers Hyper-scale economics**

While the servers supporting the VMware hosts are ~\$20,000 less than those running vSAN, the cost of buying the storage array more than cancels out any savings. These are the economics that have driven the hyper-scale web and cloud companies for a decade or more.