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Executive summary

A single-socket Dell EMC PowerEdge R7515 solution delivered better value on a transactional database use case than a dual-socket HPE ProLiant DL380 Gen10 solution
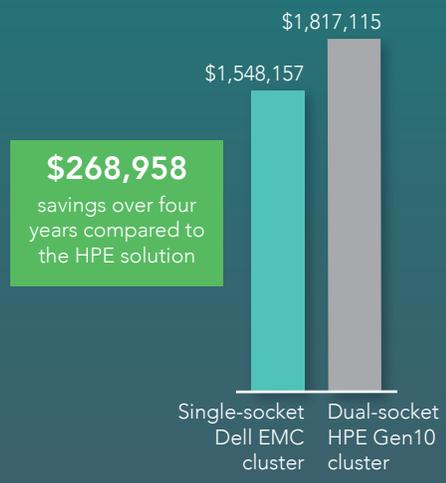
In a VMware vSAN environment, the Dell EMC solution performed more transactional database work for each dollar spent on hardware and software

When companies are shopping for new data center hardware, price and performance are both important. Determining the value of a server requires understanding how well it can run your critical workloads, as well as its upfront and ongoing costs.
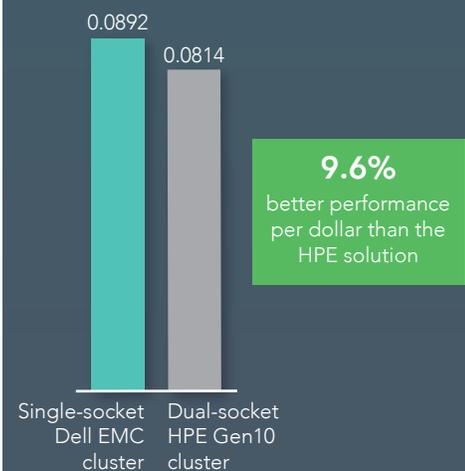
Principled Technologies conducted hands-on transactional database testing of two VMware vSAN™ clusters: one with three single-socket Dell EMC™ PowerEdge™ R7515 servers powered by AMD EPYC™ 7502P processors and one with three dual-socket HPE ProLiant DL380 Gen10 servers powered by Intel® Xeon® Gold 6240 processors. As a baseline, we tested a vSAN cluster with three five-year-old legacy servers. For the current-generation clusters, we also calculated hardware and four-year software costs, which were $268,957 lower for the Dell EMC cluster.

Both current-generation vSAN clusters outperformed the legacy cluster, with the Dell EMC PowerEdge R7515 cluster delivering 93.4 percent of the database orders per minute (OPM) that the HPE ProLiant DL380 Gen10 cluster achieved, despite having half the number of physical processors and four fewer cores per server. When we combined performance results with hardware and software costs, the single-socket Dell EMC cluster delivered 9.6 percent more OPM per dollar spent than the dual-socket HPE cluster did.

Lower hardware and software costs*

$1,817,115

$1,548,157

$268,958
savings over four years compared to the HPE solution

Single-socket Dell EMC cluster Dual-socket HPE Gen10 cluster

Greater performance for each dollar spent on hardware and software

0.0892

0.0814

9.6%
better performance per dollar than the HPE solution

Single-socket Dell EMC cluster Dual-socket HPE Gen10 cluster

*For more details on our data, read the full report.

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Our findings

We compared the following current-generation VMware vSAN clusters:

Dell EMC cluster (3 servers)

- PowerEdge R7515 server
- Single-socket
- 32 cores
- AMD EPYC 7502 processor

HPE cluster (3 servers)

- ProLiant DL380 Gen 10
- Dual-socket
- 36 cores
- Intel Xeon Gold 6240 processor

We also tested a legacy vSAN cluster equipped with three five-year-old dual-socket HPE ProLiant DL380 Gen9 servers powered by Intel Xeon E5-2680 v3 processors as a baseline.

Hardware and software costs

A company that invests in the Dell EMC PowerEdge R7515 configuration we tested would save money on hardware and licensing and support costs for software that uses a per-socket or a per-core pricing model. The table below presents the combined hardware and four-year software costs for the two clusters. The Dell EMC cluster would save a total of $268,957.71 over the HPE cluster. For more information on our pricing data, see the full report.

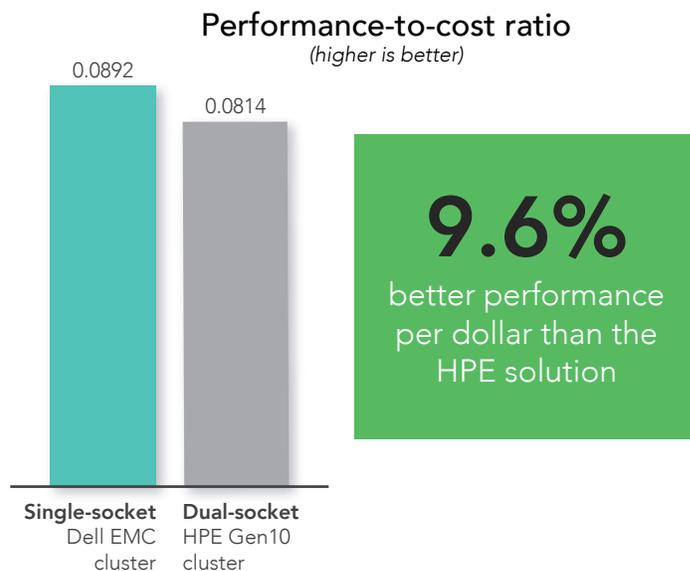|	Dell EMC cluster	HPE cluster
Hardware	$98,923.29[1]	$138,159.00[2]
Software[3]	$1,449,234.00	$1,678,956.00
Total	$1,548,157.29	$1,817,115.00

1. Pricing for the Dell EMC PowerEdge R7515 came in an August 30, 2019 quote we received from Dell EMC.

2. Pricing for HPE ProLiant DL380 Gen10 came in a July 16, 2019 quote we received from PCM.com.

3. Four-year software licensing and support costs for Dell EMC cluster include $73,920 for Microsoft Windows Server 2019 Datacenter (48 two-core packages @ $1,540 each), $1,319,808 for Microsoft SQL Server 2017 Enterprise (48 two-core packages @ $27,496 each), $21,573 for VMware vSphere 6.7 U3 Enterprise Plus (three single-socket licenses with production support @ $7,191 each), and $33,933 for VMware vSAN Enterprise (three single-socket licenses with production support @ $11,311 each).
   Four-year software licensing and support costs for HPE cluster include $83,160 for Microsoft Windows Server 2019 Datacenter (54 two-core packages @ $1,540 each), $1,484,784 for Microsoft SQL Server 2017 Enterprise (54 two-core packages @ $27,496 each), $43,146 for VMware vSphere 6.7 U3 Enterprise Plus (six single-socket licenses with production support @ $7,191 each), and $67,866 for VMware vSAN Enterprise (six single-socket licenses with production support @ $11,311 each).

Performance

In our performance testing using the DVD Store 3 benchmark, the single-socket Dell EMC PowerEdge R7515 cluster delivered 93.4 percent the average orders per minute the dual-socket HPE ProLiant DL380 Gen10 cluster delivered. Both current-generation clusters dramatically outperformed the legacy cluster, delivering more than 1.5 times the average number of orders per minute. This means that a company replacing their older cluster would see performance improvements of 60.6 percent with the single-socket Dell EMC cluster and 71.8 percent with the dual-socket HPE cluster. For more information on our performance testing, see the full report.

Value

We found that the Dell EMC cluster offered a better value than the HPE cluster in terms of cost and performance, achieving 93.4 percent of the performance at a lower cost. The graph below shows that the Dell EMC cluster offered a 9.6 percent higher performance-to-cost ratio than the HPE cluster (0.0892 versus 0.0814).

Performance-to-cost ratio
(higher is better)

0.0892 — Single-socket Dell EMC cluster
0.0814 — Dual-socket HPE Gen10 cluster

9.6% better performance per dollar than the HPE solution

Read the report at http://facts.pt/aebh0ay ▶

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