Better TCO for Virtualization

High density virtualization with the HPE ProLiant DL325 Gen10 Server

Whitepaper

The right technology empowering people to do great work.

Enterprise-class servers that provide greater VM densities and 34% lower total cost of ownership[2]

At a glance

- The HPE ProLiant DL325 Gen10 is a game changer for virtualization. Based on the AMD EPYC SoC, the HPE ProLiant DL325 Gen10 Server delivers 13% higher core density per CPU[1], and 34% lower TCO.[2]
- The HPE ProLiant DL325 Gen10 offers greater core and memory density allowing you to run 3000+ VMs per rack.
- HPE ProLiant DL325 servers support 2048 GB of memory on 16 DIMM slots, which is 25% more than a similar, Intel®-based 2P server.[3]

Virtualization is an integral part of an optimal infrastructure that adapts quickly to changing business requirements. As more business-critical applications are virtualized, high performance virtual machines (VMs) are required.

HPE ProLiant DL325 Gen10 servers with AMD EPYC™ processors offer 13% more vCPUs per processor.[1] This translates to higher VM density per processor, and when you factor in the better price performance of the AMD EPYC system on chip (SoC), it translates to 34% lower TCO with 72% savings in software license costs (see figure 1).[2]

HPE ProLiant DL325 Gen10 Server

The HPE ProLiant DL325 server delivers a lower total cost of ownership (TCO) for server virtualization, and excels in server consolidation. An HPE ProLiant DL325 with an AMD EPYC 7551P processor offers up to 32 cores, and up to 2 TB of memory in a configuration to achieve 3000 VMs per rack. When using 128 GB of memory, this translates to 96 VMs per server with 16–20 GB of RAM per VM.

In this evaluation, a mainstream configuration was used. The combined advantage of greater VM density and memory capacity is driving dense memory configurations for virtualization, and allows more than 1000 VMs to be hosted in a single rack with 32 servers.

To get to the same density in the Intel-based 2P server, it would require 43 similarly configured servers.

The memory in each configuration was determined based on the processor architecture. In the AMD server, the ideal configuration should be in multiples of 8 based on the available channels so 16 DIMMs were used. In the Intel server, the ideal configuration should be in multiples of 6 based on the available channels so 12 DIMMs were used. If the same number of DIMMs were used in both servers the TCO number would increase.

HPE ProLiant DL325 servers utilize the new AMD EPYC architecture which, because of its processor, memory, and I/O capabilities, enables workloads that once required a 2P server. You can achieve immediate cost savings from server consolidation, and significant savings per socket software license costs.

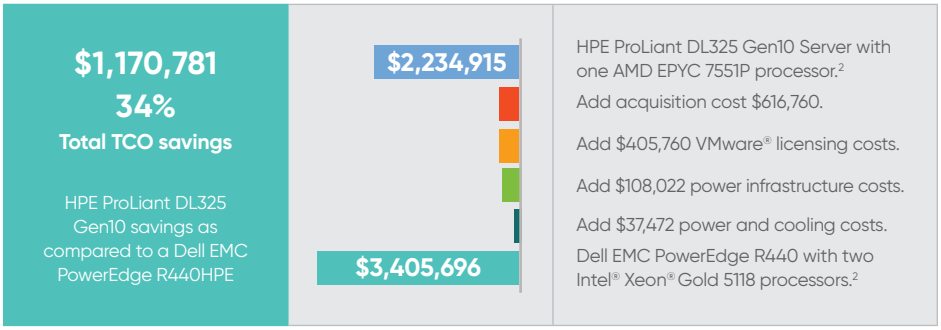

Figure 1. HPE ProLiant DL385 Gen10 as compared to a Dell EMC PowerEdge R440 to reach 1,000 VMs.

[1] When comparing AMD 32 core to 28 core Intel Xeon.
[2] Comparing pricing from hpe.com and dell.com for the following configurations: HPE ProLiant DL325 Gen10 Server with one AMD EPYC 7551P processor 16 x 32 GB memory 8 x 1.6 TB SAS SSD drive and a Dell EMC PowerEdge R440 with two Intel Xeon Gold 5118 processors 12 x 32 GB memory 8 x 1.6 TB SAS SSD drive. License savings are seen when comparing 32 single-socket VMware licenses versus 43 dual-socket VMware vSphere® Standard Enterprise licenses.
[3] Compared to the Dell EMC PowerEdge R440 server.

Rack-scale virtualization solution with HPE ProLiant DL325 Gen10 Server configuration

Rear

Compute	HPE ProLiant DL325 Gen10 server. 1 x AMD EPYC 7551P processor, 180W, 32 cores.
Memory	16 x HPE Smart Memory 32 GB dual rank DDR4, up to 2666 MHz (2 TB max).
Storage controller	HPE Smart Array P408i-a Gen10.
Storage drives	8 x 1.6 TB SAS 12G mixed use SFF SSD.
Networking	2 x 10GbE 2-port.
Security	HPE Silicon Root of Trust. Chassis intrusion detection (optional). TPM 2.0.
Embedded management	HPE iLO 5 4 GB NAND includes: • Embedded iLO physical serial port CLI. • Active Health System tracking. • Dedicated iLO NIC port.
Warranty	3/3/3.

HPE Racks

HPE's G2 Advanced and Enterprise Series Racks are designed for low- to high-density IT configurations deployed in a diverse set of environments—from the data closet to the data center. A single 42U cabinet supports a maximum of 32 1U HPE ProLiant DL325 servers, providing 2048 vCPUs, which can be configured into 3072 VMs (assuming a CPU over commitment ratio of 3).

Get started today

Together, HPE and AMD give you powerful, cost-effective solutions to your virtualization challenges.

Contact an OnX expert to learn more today at 1.866.587.2287.

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a00059243ENW, February 2019.

Resources: *HPE ProLiant DL325 Gen10 QuickSpecs, AMD EPYC 7000 Processors.*

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