



Get quicker insights and save over the next five years by consolidating your Oracle AI Database 26ai workloads on the Dell PowerEdge R7725 with 5th Generation AMD EPYC processors

Compared to a legacy HPE ProLiant DL380 Gen10, the new Dell PowerEdge R7725 delivered faster analytics performance for Oracle Database, enabling consolidation for a lower 5-year TCO

Putting off an investment into new database servers to the next quarter or year could be more costly than refreshing your infrastructure now. Because modern server infrastructure can dramatically enhance database analytics performance, making the move now could allow you to consolidate multiple legacy servers onto a single, more efficient system. Fewer, more powerful systems can mean savings in areas such as licensing, data center space, power and cooling, and maintenance.

Principled Technologies compared the Oracle® Database analytics performance of a new Dell™ PowerEdge™ R7725 server with AMD™ EPYC™ 9175F processors with PERC13 to that of a PowerEdge R7725 with PERC12 and a five-year-old HPE ProLiant DL380 Gen10 server with Intel® Xeon® Gold 6242 processors nearing end of life. The PowerEdge R7725 with PERC13 supported 7x the number of Oracle Database VMs while delivering 20.4% faster data analysis speeds vs. the older system, which would allow organizations to consolidate seven older systems into one—saving on licensing and other costs while improving performance overall. The PowerEdge R7725 with PERC12 also performed strongly, supporting 3x the number of VMs with 23% faster analysis speeds vs. the older HPE ProLiant server.

We also compared the 5-year TCO of two equivalent-performing solutions: 1x Dell PowerEdge R7725 with PERC12 to 3x HPE ProLiant DL380 Gen10. We estimate that replacing three HPE servers with a single Dell server could save as much as \$2.1M, a savings of 64 percent (see Table 1)—which would free up funds for investment in other strategic areas. Moving to a Dell PowerEdge R7725 with PERC13, which can replace seven older servers, could deliver even larger savings.

Dell™ PowerEdge™ R7725

+ AMD EPYC™
9175F

+ Oracle®
Database

+ VMware®
vSphere®
Foundation



Product images provided by Dell Technologies

**Save up to \$2.1M over 5 years
(a 64% reduction in TCO)**

**Replace up to 7 legacy servers
with one Dell PowerEdge R7725**

**Get insights from data faster
with 20.4% better data
analysis speeds
(in a one-to-one server comparison)**

Why server consolidation matters

Server consolidation offers numerous benefits for organizations seeking to optimize their IT infrastructure. By reducing the number of physical servers and centralizing workloads onto fewer, more efficient machines, businesses can significantly lower licensing, maintenance, and power and cooling costs. Streamlining data center operations also simplifies management and enhances reliability, as fewer new servers mean less complexity and reduced risk of hardware failure. This frees up admins for other, strategic tasks.

Plus, server consolidation can shrink your data center footprint and all the costs related to storing, cabling, and running your IT infrastructure. All these benefits allow organizations to operate more efficiently, respond to changing business demands more quickly, and invest resources in innovation rather than maintenance.

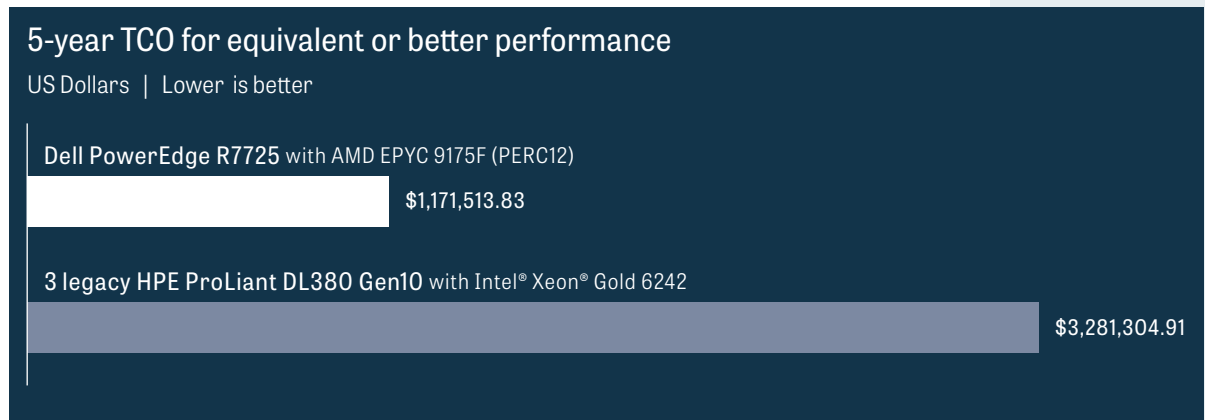


Figure 1. 5-year TCO, in USD, for solutions with near-equivalent database performance: 3 legacy HPE ProLiant DL380 Gen10 servers and a single Dell PowerEdge R7725 server with AMD EPYC 9175F processors with PERC12. Source: PT.

Cut costs over the next 5 years

Using data from our database analytics testing, we evaluated the 5-year TCO of two near-equivalent performing solutions. The Dell PowerEdge R7725 with PERC12 can do the work of roughly three legacy HPE ProLiant DL380 Gen10 servers, so we estimate that this Dell PowerEdge solution could reduce costs over the next 5 years by \$2.1M, or 64 percent.

While we didn't calculate TCO for the newer Dell PowerEdge R7725 with PERC13, its ability to consolidate seven legacy servers per new server suggests that savings could be significantly greater.

About the AMD EPYC 9175F processor

The AMD EPYC 9175F is a 16-core processor with 32 threads and a 5 GHz boost clock speed. Part of the 5th Generation of AMD EPYC processors, the 9175F features 512MB L3 cache, 320W TDP, 12 memory channels, and 614 GB/s per-socket memory bandwidth. According to AMD, processors from the EPYC 9005 series "can match integer performance of legacy hardware with up to 86% fewer racks, dramatically reducing physical footprint, power consumption, and the number of software licenses needed – freeing up space for new or expanded AI workloads."¹

To learn more, visit the [AMD EPYC 9175 processor product page](#).

Table 1 breaks down our 5-year cost calculations for both solutions. For further details, including the specific assumptions we made to arrive at these calculations, see the [science behind the report](#). Note: As with any TCO estimate, your cost savings will vary based on your specific environment.

Table 1. 5-year TCO summary for near-equivalent-performing legacy servers and the Dell PowerEdge R7725 server with AMD EPYC 9175F processors with PERC12. Source: PT.

	3x Legacy HPE ProLiant DL380 Gen10 server with Intel Xeon Gold 6242 processors	1x Dell PowerEdge R7725 server with AMD EPYC 9175F processors with PERC12
Number of systems required for equivalent performance	3	1
Total system cost (includes Dell ProSupport and Next Business Day Onsite)	\$0 (existing)	\$74,484.98
Hardware support (legacy servers)	\$13,059.66	\$0
Software costs (after discounts)	\$3,177,680.25	\$1,062,801.75
Power and cooling	\$8,943.20	\$7,019.80
Datacenter space	\$60,000.00	\$20,000.00
Maintenance/administration	\$21,621.80	\$7,207.30
Total 5-year TCO	\$3,281,304.91	\$1,171,513.83
5-year savings with Dell		\$2,109,791.08
Percentage savings		64.2%

How we tested

First, we evaluated both the servers' data analysis performance and power consumption while running an Oracle Database workload using a TPC-H-like data analytics workload from HammerDB called TPROC-H. For the HPE ProLiant DL380 Gen10 and PowerEdge R7725 with PERC12, we used Oracle Database 19c. For testing the Dell PowerEdge R7725 with PERC13, we used Oracle AI Database 26ai. To do this, we measured how long it took the servers to complete query sets and how much power they consumed while doing so. We determined the maximum number of VMs each server could support by increasing the workload until we reached a system resource bottleneck. In both cases, we observed constraints in storage controller bandwidth and relatively high CPU utilization (75%+). We used the legacy server's TPROC-H query times as a baseline standard, ensuring that the VMs on the Dell PowerEdge R7725 delivered equivalent or better performance.

Then, we used this data to determine a consolidation ratio moving from older servers to the Dell PowerEdge R7725 and determined 5-year costs for licensing, power and cooling, maintenance, and more. For details, see the [science behind the report](#).

Speed data analytics per server—and then consolidate for savings

The faster your data analytics workloads give you useable data, the sooner you can enact informed strategies for your business. Figure 2 shows the head-to-head analytics performance, in completed query sets per hour, from our TPROC-H testing. The new PowerEdge R7725 with PERC13 completed 7x as many query sets per hour as the HPE legacy server did, supporting 14 VMs running workloads compared to just two. It not only handled 7x the query sets, but also completed each query set an average of 20.4 percent faster. In a scenario with a one-to-one swap of servers, the PowerEdge R7725 could give organizations ample resource headroom to meet business demands well into the future.

Ideally, organizations could take this significant increase in performance and number of supported VMs to consolidate the workloads of multiple older servers onto fewer new servers, with the savings compounding with larger infrastructures (see Figure 3).



Figure 2. Oracle Database analytics performance, in number of VMs and average query sets per hour in each VM, for the solutions. Source: PT.

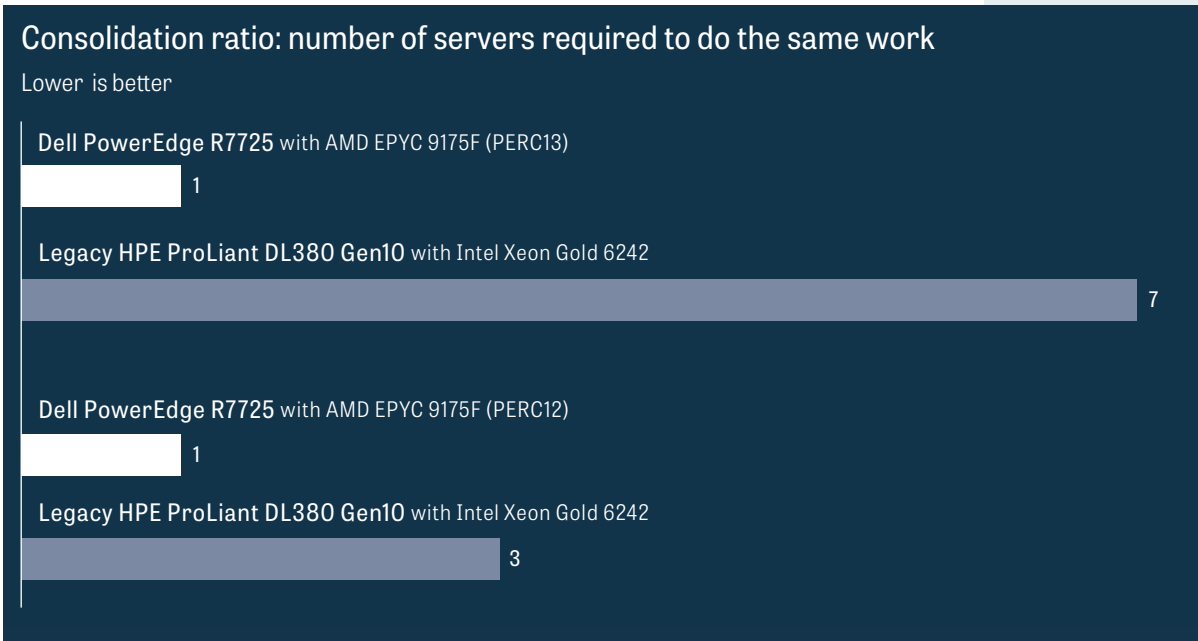


Figure 3. Consolidation ratios based on HammerDB TPROC-H performance, with each comparison normalized to the PowerEdge system. Source: PT.

An additional important benefit of consolidation is reducing data center energy costs related to power and cooling. While running our database workloads, we also captured both active and idle power utilization per VM to help determine the 5-year operating costs for both solutions. The new Dell PowerEdge R7725 with AMD EPYC 9175F processors and PERC13 had significantly greater power efficiency than the legacy server, offering 117.4 percent better performance per watt (see Figure 4). To determine this, we took the queries per hour each server performed and divided it by kilowatts consumed.

Another way to look at power efficiency is power consumption that solutions with equivalent performance would consume. The new Dell PowerEdge R7725 does more work, and so it consumes more power per server—but with the strong consolidation ratio, the PowerEdge R7725 with PERC13 consumes significantly less power than the near-equivalent-performing seven legacy HPE servers, reducing power consumption by 54.0 percent (see Figure 5). The PowerEdge R7725 with PERC12 reduced power consumption compared to three legacy servers by 31.1 percent.

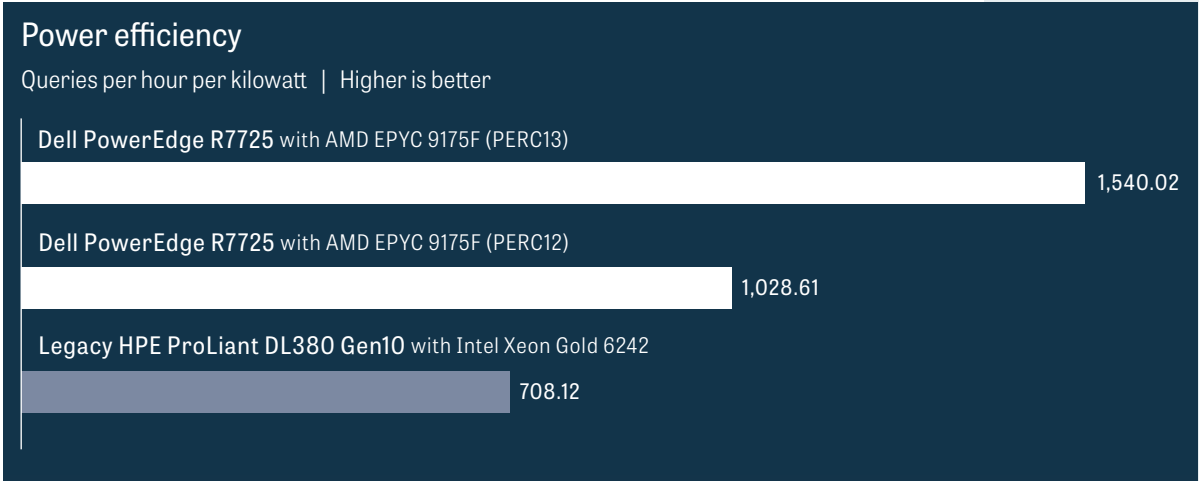


Figure 4. Power efficiency, in queries per hour per kilowatt, for the solutions. Source: PT.

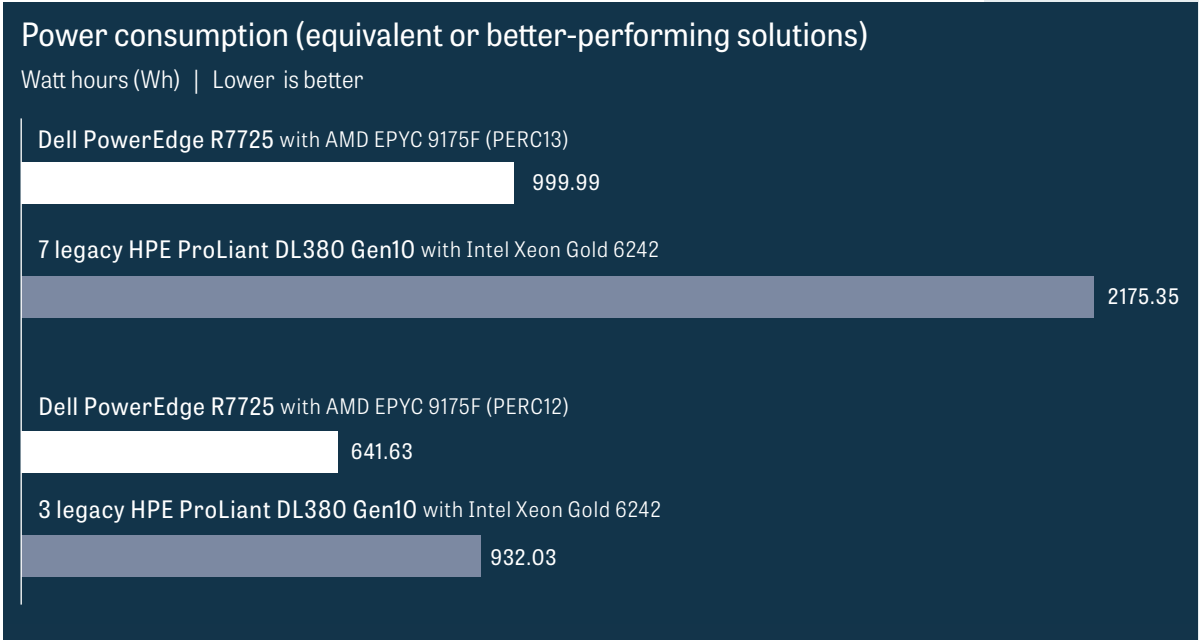


Figure 5. Power consumption, in watt-hours, for equivalent or better-performing solutions. Source: PT.

Why run Oracle AI Database 26ai on Dell PowerEdge servers?

Oracle AI Database 26ai running on Dell PowerEdge R7725 servers delivers a powerful, modern data platform that combines AI-native database capabilities with high-performance infrastructure. Oracle 26ai introduces built-in AI features such as vector search, machine learning, and autonomous optimization, enabling faster insights and simplified operations. Paired with the R7725's high core-count AMD EPYC processors, large DDR5 memory capacity, and low-latency NVMe storage, organizations gain accelerated analytics and transaction processing at scale.

This combination also enables consolidation of multiple workloads onto fewer servers, reducing infrastructure footprint and delivering lower TCO over time. The result is a secure, scalable, and cost-efficient platform optimized for next-generation, AI-driven Oracle workloads. Beyond new AI features, reasons for upgrading to Oracle 26ai include:

- First AI-branded Oracle Database available on standard on-premises infrastructure without requiring Exadata.
- Deployment flexibility across on-premises, cloud, and hybrid environments.
- The ability to improve licensing and infrastructure economics by leveraging existing investments.
- Native AI capabilities integrated directly into the database.
- Strong security and future-ready architecture for long-term modernization.

About the Dell PowerEdge R7725 server

Part of the Dell AI Factory hardware portfolio, the Dell PowerEdge R7725 server powered by 5th Generation AMD EPYC processors is a 2U, dual-socket rack server. It supports up to 192 cores—50 percent more than the previous gen Dell PowerEdge R7625 with 4th Gen AMD processors.³ According to Dell, the server has a new data center modular hardware system (DC-MHS) chassis design that “enables enhanced air cooling and dual 500W CPUs, conquering tough thermal challenges for power and efficiency.”⁴ The server could be an excellent choice for big data analytics, AI/ML, and high-performance compute (HPC) with optional acceleration.

Equipping the R7725 with PERC 13 opens up performance potential because it removes much of the legacy SAS/SATA design baggage, adds PCIe Gen5 bandwidth, doubling the per-lane transfer rate bandwidth from 16GT/s to 32GT/s when paired with Gen5 NVMe, and uses a newer NVMe-native RAID architecture that can process substantially more I/O than PERC 12.

To learn more about the new Dell PowerEdge R7725, visit <https://www.dell.com/en-us/shop/cty/pdp/spd/poweredge-r7725>.



Conclusion

Our testing proves that the new Dell PowerEdge R7725, equipped with AMD EPYC 9175F processors, delivers substantial improvements in analytics performance and power efficiency compared to legacy HPE ProLiant DL380 Gen10 servers, resulting in consolidation potential that drives down operating costs. By enabling organizations to analyze data faster and support more VMs to consolidate multiple aging servers onto fewer, more capable systems, the PowerEdge R7725 with PERC12 can reduce 5-year TCO by as much as \$2.1M, or 64 percent, making the refresh to modern server infrastructure a smart investment. And, you get even better consolidation potential with PERC13, which could drive down costs further. Organizations seeking to optimize their data analytics environments and maximize operational savings should consider the new Dell PowerEdge R7725 featuring AMD EPYC 9175F processors for their next infrastructure refresh.

Resources

1. AMD, "5th Generation AMD EPYC™ Processors," accessed October 28, 2025, <https://www.amd.com/en/products/processors/server/epyc/9005-series.html>.
2. "What is TPROC-H derived from TPC-H?" accessed October 27, 2025, <https://www.hammerdb.com/docs/ch11s01.html>.
3. Dell Technologies, "Dell Technologies Expands Dell AI Factory with New PowerEdge Servers to Accelerate Enterprise AI Adoption," accessed October 27, 2025, <https://www.dell.com/en-us/dt/corporate/newsroom/announcements/detailpage.press-releases-usa-2024-10-amd-advancing-ai.htm>.
4. Dell Technologies, "Dell Technologies Expands Dell AI Factory with New PowerEdge Servers to Accelerate Enterprise AI Adoption."

In the science behind the report, we provide a detailed breakdown of the results, hardware configurations, methodologies, and any scripts we used to produce the results in this report.

Read the science behind the report ►



Primary contributors

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How we created this report

A PT team, which includes the contributors we've listed and others, created this report and performed the technical work behind it. We used AI to generate a script to begin test runs and collect test run output.

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