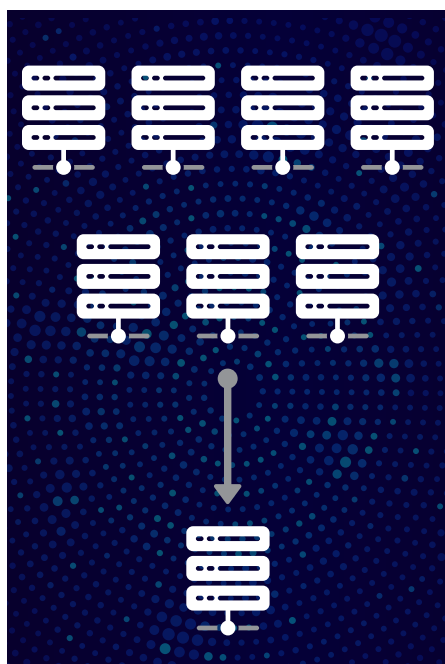PROWESS

AI-Driven Innovation and TCO Savings with Updated Servers

Research by Prowess Consulting shows that current-generation Dell™ PowerEdge™ servers can help unlock performance, efficiency, and sustainability for modern data centers.

As data center operations grow more complex, organizations require solutions that deliver cutting-edge performance, efficiency, and scalability without escalating costs or environmental impact. At the same time, enterprises face growing challenges with modernizing their server infrastructures to meet the demands of AI-driven workloads, rising licensing costs, and sustainability goals. Security, manageability, and infrastructure assessment tools are also critical considerations when modernizing.

Because servers from Dell Technologies are found in a variety of data centers of all sizes, Prowess Consulting evaluated the cost-optimization, efficiency, and performance benefits of deploying current-generation Dell™ PowerEdge™ servers powered by 5th Generation AMD EPYC™ processors. Our study, sponsored by Dell Technologies, evaluated critical IT priorities, such as AI readiness, cost optimization, and sustainability. We found that PowerEdge servers offer up to a 7:1 consolidation ratio compared to five-year-old legacy systems; this consolidation can significantly reduce hardware footprints and operational costs and potentially save as much as 42% in VMware licensing costs.[1] And compared to competing solutions, PowerEdge servers provide up to 47% higher performance than the latest-available competing servers.[1]

This leap in compute power is driven by advancements like PCIe® Gen 5 connectivity, DDR5 memory, up to 192 CPU core, and support for up to three double-wide GPUs. These enable enterprises to process complex workloads, including AI inference and training, with greater speed and responsiveness. Support for Compute Express Link® (CXL®) 2.0 enables seamless adoption of next-generation workloads without costly upgrades.

For AI-driven and mission-critical workloads, PowerEdge servers provide a versatile foundation that scales across all phases of AI adoption— from data preparation and model training to inference and real-time analytics. Benchmark results highlight world-record performance in AI tasks, including leading scores in the TPCx-AI benchmark and SPECstorage® AI_IMAGE tests.[1]

Latest-generation Dell™ PowerEdge™ servers, powered by 5th Generation AMD EPYC™ processors, deliver:

Up to
7:1
consolidation ratio when replacing legacy servers running virtualized workloads[1]

More than
42%
reduced per-core VMware licensing costs compared to legacy servers in a 7:1 consolidation[1]

Up to
47%
fhigher performance than the competing latest-available servers[1]

As much as
65%
lower CPU power consumption per operation[1]

Current-generation PowerEdge servers can also contribute to long-term cost savings and sustainability goals, achieving up to 65% lower power consumption per operation.[1] Support for Multi-Vector Cooling 2.0, direct liquid cooling, and high-efficiency fans helps optimize energy use and thermal performance. Silver certification by the Global Energy Council's Electronic Product Environmental Assessment Tool (EPEAT®) highlights Dell Technologies' sustainability commitment.

Learn More

As our study shows, modernizing server infrastructure with PowerEdge servers powered by 5th Gen AMD EPYC processors can significantly enhance cost-optimization, efficiency, and performance for enterprise data centers. For complete study details, visit "**AI-Ready Performance and TCO Savings**."

Endnotes
[1] Prowess Consulting. "**AI-Ready Efficiency and TCO Savings.**" April 2025.

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