White paper



The Business Case for Infrastructure Modernization

How Dell PowerEdge R470, R570, R670 and R770 servers with Intel® Xeon® processors deliver ROI for growing businesses

Executive summary

For growing businesses, every investment in technology must deliver clear, measurable value. Modernization needs are often weighed against immediate operational costs. Yet holding on to aging hardware creates a “technical debt” that quietly erodes profitability through higher energy bills, escalating licensing costs and expensive downtime.

This white paper outlines the compelling financial and operational arguments for modernizing your server infrastructure. We will explore how the latest Dell PowerEdge R470, R570, R670 and R770 servers with Intel® Xeon® 6 processors address the core challenges of IT complexity and rising costs. By analyzing total cost of ownership (TCO), performance density and energy efficiency, you will see how a strategic refresh is more than just a capital expenditure, it’s an investment that delivers a strong return, reduces risk and transforms IT from a cost center into a strategic driver of business growth.

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The high cost of doing nothing

In the digital age, your server infrastructure is the foundation of your business. Yet, many growing businesses delay server refreshes, viewing them as a large capital expense that can be deferred. The reality is that this approach often costs significantly more than modernizing.

Legacy servers — typically those over four years old — struggle to keep pace with modern workloads. They consume more power, require more cooling and occupy more physical space than their modern counterparts. As warranties expire and failure rates increase, the risk of catastrophic failure grows, potentially leading to data loss and significant business disruption. Dell PowerEdge R470, R570, R670 and R770 servers with Intel Xeon 6 processors are engineered to deliver enterprise-class performance and security at a scale and price point that creates a compelling business case for change.

The ROI of modernization: A financial breakdown

A modern server delivers savings across multiple facets of your IT budget. To understand the full value of a server refresh, it's necessary to look beyond the initial purchase price and evaluate the potential savings over a three-to-five-year period.



Reduced operational expenses (OpEx)

Modern server architectures cut operational expenses through improved power efficiency and simpler management.

- **Reduce power and cooling requirements:** Old hardware is hungry for energy. A server that's only five years old delivers a fraction of the performance-per-watt compared to today's PowerEdge models with efficient Intel Xeon 6 processors. These servers utilize advanced thermal designs and intelligent power management tools that significantly reduce electricity consumption. This directly lowers utility bills, for consistent and predictable savings.
- **Increase management efficiency:** With integrated tools like Dell Remote Access Controller (iDRAC), administrators can automate routine tasks, updates and monitoring. This reduction in manual "keeping the lights on" labor translates to cost savings, allowing your IT talent to focus on strategic initiatives that drive the business forward.

Consolidation and licensing optimization

By consolidating systems and aligning licenses to actual usage, you can reduce unnecessary infrastructure and software costs.

- **Buy fewer servers:** The latest Intel Xeon 6 processors offer significantly higher core counts and architectural efficiency. This allows you to consolidate workloads from multiple legacy servers onto a single, modern PowerEdge server. For example, workloads that previously required four or five legacy servers might now run comfortably on a single PowerEdge R670.[1]
- **Optimize licensing costs:** Software licensing often represents a larger portion of the IT budget than the hardware itself. Many applications and virtualization platforms are licensed per core or per socket. Better performance enables you to reduce your physical server and core count, reducing the number of operating system and virtualization licenses required. These savings are substantial and can often offset a significant portion of the initial hardware investment.



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Minimized downtime and maintenance costs

Unplanned downtime erodes profitability. Industry research shows that, as servers age beyond their primary support lifecycle, failure risk and unplanned downtime increase, raising operational costs compared to modern platforms.

- **Reduce support costs:** Extending warranties on legacy gear is expensive and offers diminishing returns. Modern servers lower support expenses through improved reliability, longer standard coverage and reduced maintenance complexity.
- **Maintain productivity:** When an aging server delays a critical report or crashes a customer-facing application, employee productivity halts and customer trust can be damaged. Modern PowerEdge servers are built for resilience, featuring predictive maintenance capabilities that alert you to potential issues before they cause failure.

Spotlight on the solutions: Right-sizing your refresh

The Dell PowerEdge portfolio delivers high value for growing businesses, allowing you to choose the right tool for the job.



PowerEdge R470
(1U rack server)

Role: The value-optimized performer

Best for: Web hosting, print/file serving and light virtualization

ROI factor: Low entry cost with sufficient power for essential business functions



PowerEdge R570
(2U rack server)

Role: The versatile storage workhorse

Best for: Mail servers, collaboration platforms and video surveillance storage

ROI factor: Balances compute with high-capacity internal storage, potentially eliminating the need for expensive external storage arrays



PowerEdge R670
(1U rack server)

Role: The high-density compute engine

Best for: High performance computing clusters and dense virtualization

ROI factor: Maximizes compute power per square foot of rack space, ideal for reducing server counts and colocation costs



PowerEdge R770
(2U rack server)

Role: The scalable powerhouse for future growth

Best for: AI inferencing, virtual desktop infrastructure (VDI) and large mission-critical databases

ROI factor: Massive scalability in memory, storage and accelerator support means the server remains useful for years, protecting your initial investment

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The Intel Xeon 6 advantage: Performance, efficiency and security

The new PowerEdge family with Intel Xeon 6 processors delivers a significant leap in capabilities that directly benefit growing businesses.

- **Exceptional performance:** With an advanced architecture and higher core counts, these processors accelerate the applications you rely on every day. Databases become more responsive, analytics run faster and employees can multitask without performance degradation.
- **Greater efficiency:** The Intel Xeon 6 processor delivers outstanding performance-per-watt. This means you get more computing power from every kilowatt of energy used, directly lowering your operational costs and supporting consolidation efforts.
- **Robust security:** Intel Xeon processors are foundational to the PowerEdge cyber-resilient architecture. They include hardware-level security features that help protect your data from the silicon up. Capabilities like Intel® Software Guard Extensions (SGX) create secure enclaves to protect sensitive code and data while in use, providing a level of protection that software-only solutions cannot match.

Performance density: Doing more with less

The concept of performance density is critical for growing businesses, especially those with limited physical office space or colocation budgets. The latest PowerEdge lineup redefines what is possible in 1U and 2U form factors.

- **Processor power:** Intel Xeon 6 processors provide the power to handle complex calculations, data analytics and virtualization far more efficiently than previous generations.
- **Memory and storage:** With support for faster DDR5 memory and high-speed NVMe® storage, data moves faster between storage, memory and the CPU. This reduces latency, so applications are more responsive.



Reduced latency



Key insight:

The compute you need in 80% less rack space

One Dell PowerEdge R770 server can potentially do the work of five or more legacy servers. This consolidation ratio frees up valuable rack space, reduces switch port usage and simplifies cabling complexity, further lowering TCO.[1]

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Sustainability as a business strategy

Sustainability is no longer just a corporate ideal; it's a business imperative and often a requirement for vendor partnerships. Modernizing your infrastructure is one of the most effective ways to lower your organization's carbon footprint.

- **Energy efficiency:** Dell PowerEdge R470, R570, R670 and R770 servers, combined with the efficiency of Intel Xeon 6 processors, are designed for optimal airflow and power management.
- **Cost synergy:** The overlap between sustainability and cost savings is significant. Using less power lowers your utility bill while simultaneously helping you meet your environmental, social and governance (ESG) goals. A modern, efficient infrastructure is a smart investment for both your bottom line and the planet.



83% reduction in energy intensity since 2013[3]

Innovate with confidence

The evidence is clear: Refreshing your server infrastructure with Dell PowerEdge R470, R570, R670 and R770 servers with Intel® Xeon® processors is a financially sound decision. It's an investment that reduces immediate and ongoing operating costs, mitigates security and operational risks and unlocks the productivity potential of your workforce. By moving to a modern, efficient and secure platform, you are empowering your business to move faster and more efficiently.

Take the next step

Contact your Dell Technologies representative or authorized partner to run a custom TCO analysis for your environment. Together, we can build a business case that drives your organization forward.

Learn More

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[1] Based on Dell analysis comparing the SPECint® and SPECFP® scores of the Intel 6th Gen Xeon 6787P (2GHz, 86C, 350W) in a Dell R770 (1550 and 1560) with the same scores for an Intel Xeon 8280 (2.7GHz, 28C, 205W) in a Dell PowerEdge R740xd (375 and 296). The ratio of the scores shows that 5 of the R740xd servers would give a total score similar to that for the single R770 as configured above. The CPUs in 14 R770 would have a total TDP of 9800W (14x2x350W). The CPUs in 70x R740xd would have a total TDP of 28700W (70x2x205) where each Intel Xeon 8280 has a TDP of 205W. This represents a CPU power reduction of 66%. Each of these servers have a height of 2RU. Cost of CPU power used calculated using CPU power and 8760 hours in a year with cost of electricity at $0.14 per kWh. Data accurate as of 03/10/2025. Actual performance will vary.

[2] Comparing Dell iDRAC9 vs Supermicro® IPMI. Based on a Principled Technologies report commissioned by Dell Technologies, Increase security, sustainability, and efficiency with robust Dell management tools compared to the Supermicro management portfolio, April 2024.

[3] Source: Sustainable Servers | Dell UK, accessed March 2026.

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