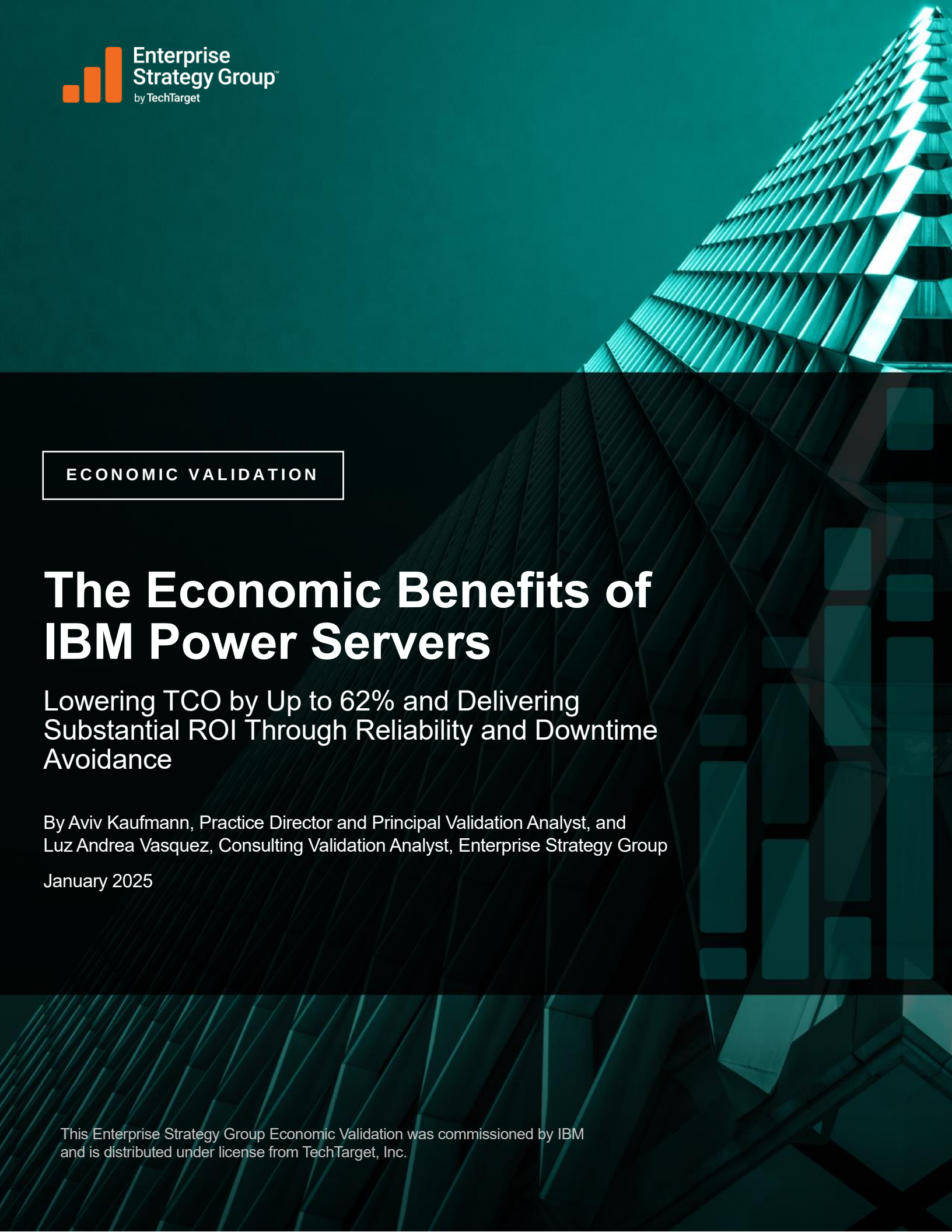

ECONOMIC VALIDATION

The Economic Benefits of IBM Power Servers

Lowering TCO by Up to 62% and Delivering Substantial ROI Through Reliability and Downtime Avoidance

By Aviv Kaufmann, Practice Director and Principal Validation Analyst, and Luz Andrea Vasquez, Consulting Validation Analyst, Enterprise Strategy Group

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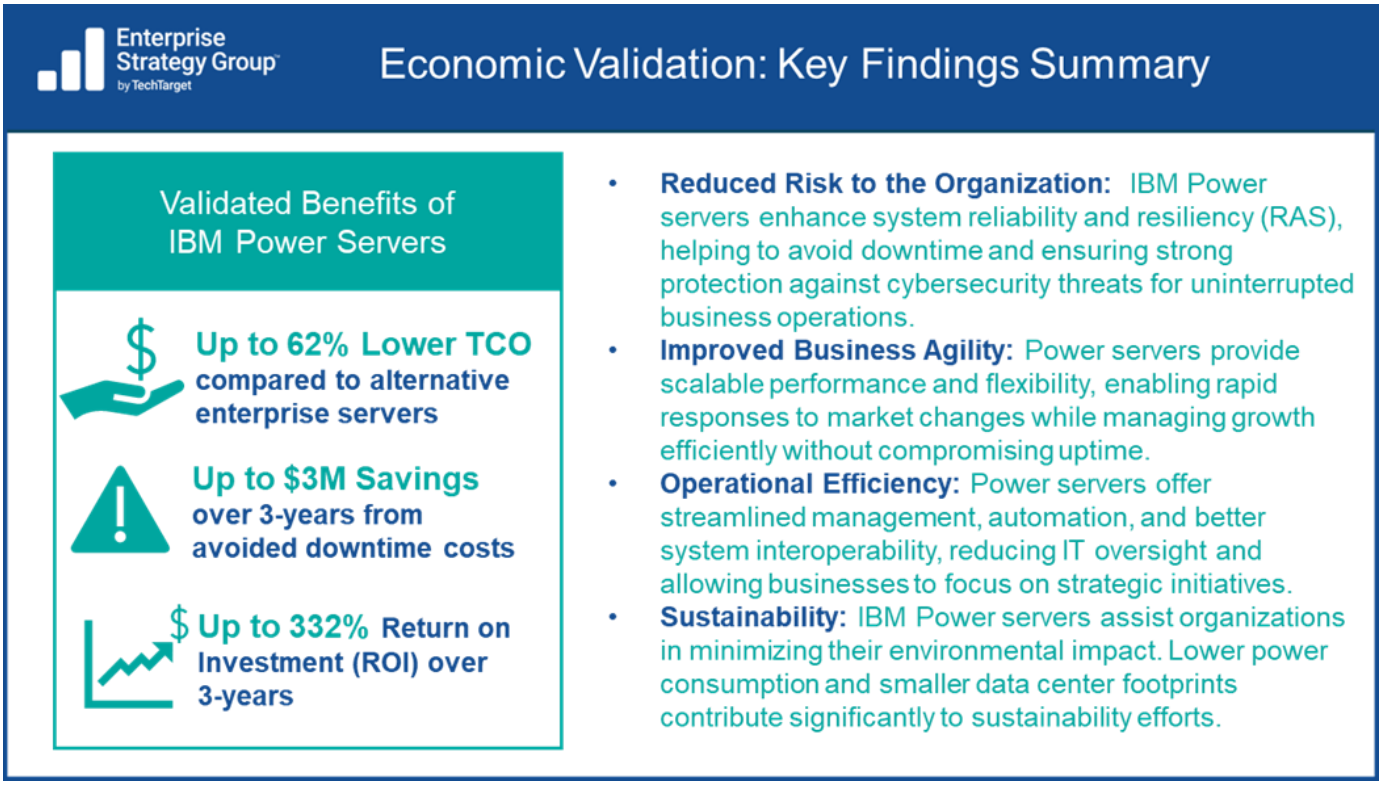

Introduction

This Economic Validation by TechTarget's Enterprise Strategy Group explores the quantitative and qualitative benefits organizations can realize by modernizing their infrastructure with highly reliable IBM Power servers instead of alternative enterprise servers for their mission-critical applications and workloads.

Challenges

In today's era of rapid digital transformation, IT companies face the costly task of modernizing their IT infrastructure to provide high-performance functionality and security while optimizing productivity and profitability. The demands on IT teams are greater than ever, requiring them to deploy, scale, and secure modern applications significantly (25% to 100%) faster than three years ago.[1] This acceleration is particularly crucial for mission-critical applications, where reliability, availability, and serviceability (RAS) are essential. Keeping systems up and running at full capacity is vital, as the financial impact of downtime and degraded performance can be devastating, often resulting in millions of dollars of lost revenue, decreased productivity, and erosion of customer trust. Resilience of IT infrastructure has become a top priority.

Effective cybersecurity is another challenge that can directly hinder operations. Increasingly prioritized due to regulatory requirements mandating breach reports, robust security measures are essential to prevent cyberattacks that can cause significant downtime and disrupt business operations. Public scrutiny of even minor breaches heightens the urgency for comprehensive cybersecurity, ensuring business continuity and protecting organizational reputation. Sustainability has become an important consideration when making IT purchases, as people and organizations grow in environmental awareness, encouraged by the environmental, social, and governance (ESG) movement. Companies now prioritize energy savings and the ability to report sustainability progress to stakeholders.

But organizations rarely factor in these considerations when purchasing new servers. Many popular enterprise servers, particularly those based on Intel and AMD architectures, are designed for price-performance optimization and rapid technology releases. These servers provide the latest and greatest technologies at a seemingly low cost, but organizations often overlook the deeper considerations provided by understanding the total cost of ownership (TCO). A comprehensive TCO analysis must consider security, energy consumption, overall performance capabilities, and the true differences in RAS features (see Figure 1). Not only do these things align well with current IT priorities, but these factors can significantly influence the server's useful life and refresh frequency. Adopting a holistic approach to server infrastructure evaluation is essential to avoid higher long-term costs, increased downtime, and operational risks.

[1] Source: Enterprise Strategy Group Research Report, *Distributed Cloud Series: The State of Infrastructure Modernization Across the Distributed Cloud*, November 2023.

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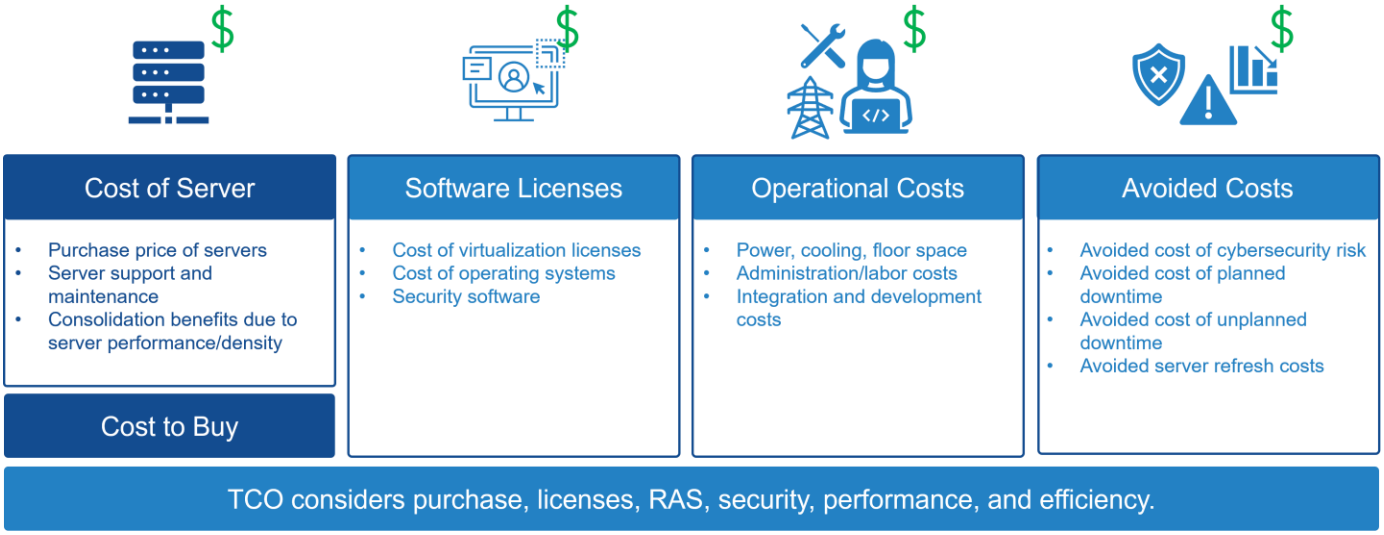
Figure 1. A Comprehensive Server TCO Analysis Considers More Then Purchase Price



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

The Solution: IBM Power Servers

IBM Power servers are designed for high performance and flexibility (see Figure 2). They support IBM AIX, IBM i, and Linux operating systems and are available in 2U, 4U, or 5U form factors with options for 1, 2, or 4 sockets. These servers are ideal for both scale-up and scale-out architectures, optimizing workloads like AIX, IBM i, SAP HANA, Oracle, and Red Hat, whether deployed in data centers, at the edge, or in the cloud.

IBM Power servers provide the following key benefits:

- **Reliability.** IBM Power servers have maintained a leading reliability rating for 15 years, with built-in redundancy across all components, including CPU, memory, and interconnects. Fully designed and manufactured by IBM, they undergo extensive testing and offer predictive support, ensuring up to six 9s uptime for mission-critical workloads.[2] Memory reliability is enhanced with the new Open Memory Interface (OMI) and differential DIMM cards, doubling availability compared with standard options.
- **Security.** IBM Power servers provide top-tier security with built-in memory encryption and cryptographic capabilities across the entire system. They ensure 100% encryption of data at rest and in motion, adhering to quantum-safe standards. By integrating PowerSC monitoring and compliance with IBM Storage Defender, IBM Power servers protect against ransomware, offering fewer vulnerabilities than x86 platforms.
- **High performance.** IBM Power servers excel in performance benchmarks, optimized for AI workloads. Featuring advanced architecture with higher core counts and improved instruction pipelines, they enable faster data processing and superior computational power. Enhanced memory bandwidth and latency, along with built-in AI acceleration, ensure demanding applications run smoothly and efficiently.
- **Scalability.** IBM Power servers scale effortlessly to meet the demands of the largest workloads. They support both scale-up and scale-out configurations, enabling businesses to expand computing resources as needed, while maintaining high performance and reliability.

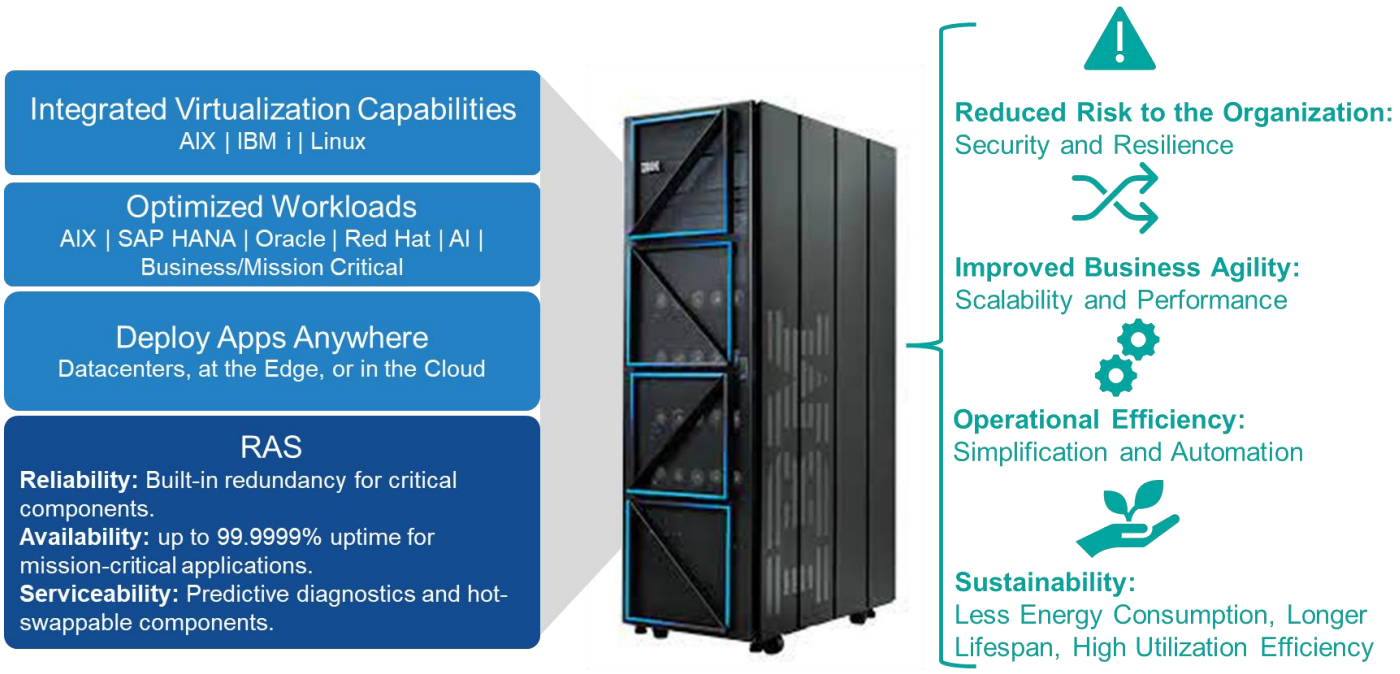
  Simplicity and flexibility. IBM Power servers streamline hybrid cloud management with intuitive tools and automation options, including fully managed Power as a Service. With PowerVC for easy virtualization

[2] Report: *ITIC 2023 Global Server Hardware, Server OS Reliability*, August/September 2023.

management and hundreds of Ansible playbooks to automate repetitive tasks, businesses can improve productivity while reducing costs. These features provide the flexibility needed to scale and adapt to changing business needs, all while simplifying day-to-day operations.

- **Sustainability.** IBM Power10 servers help deploy less hardware to meet workloads, consuming up to 64% less energy versus Power8 and offering a longer usable life. They can deliver more than 2x the performance per watt compared with Power8, reducing energy consumption and carbon emissions. IBM Power servers ensure high utilization, delivering energy efficiency and performance as well as contributing to sustainability goals.

Figure 2. IBM Power Servers



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Enterprise Strategy Group Economic Validation

Our Economic Validation process is a proven method for understanding, validating, quantifying, and modeling the economic value propositions of a product or solution. The process leverages Enterprise Strategy Group's core competencies in market and industry analysis, forward-looking research, and technical/economic validation. We conducted in-depth interviews with end users to better understand and quantify how IBM Power servers have impacted their organizations, particularly in comparison with previously deployed and/or experienced server technologies.

IBM Power Servers Economic Overview

Enterprise Strategy Group's economic analysis revealed that, compared with alternative enterprise servers, customers using IBM Power servers gained measurable value through enhanced reliability, scalability, operational efficiency, and energy savings. Enterprise Strategy Group identified significant savings and benefits in the following key areas:

- **Reduced risk to the organization.** IBM Power servers can mitigate organizational risk by enhancing system reliability and security features. These improvements ensure continuous operations and robust protection against cybersecurity threats, which are critical for maintaining uninterrupted business processes and safeguarding sensitive information.
- **Improved business agility.** Organizations utilizing IBM Power servers experienced heightened business agility due to enhanced performance, scalability, and resource consolidation. These servers provide the technological flexibility necessary to quickly respond to evolving market demands and manage growth without compromising efficiency.
- **Improved operational efficiency.** IBM Power servers drove operational efficiencies by streamlining management processes, automating routine tasks, and ensuring better system interoperability. These features collectively reduced the time and effort required to oversee IT operations, enabling businesses to focus on strategic initiatives.
- **Improved sustainability.** IBM Power servers contribute to environmental sustainability by lowering power consumption, reducing data center footprints, and supporting sustainable lifecycle management practices. These aspects have helped organizations pursue their green objectives while minimizing their ecological impact.

Reduced Risk to the Organization

Reducing risk is critical to ensuring business continuity and safeguarding valuable assets. IBM Power servers provide organizations with advanced features that minimize operational risks, such as downtime and system failures, while also enhancing security. Enterprise Strategy Group's conversations with customers revealed that Power's reliability and security features significantly reduced their risk exposure, which led to greater confidence in their infrastructure and fewer disruptions to business operations. Customers reported savings and benefits in the following categories:

- **Improved reliability, availability, and serviceability.** IBM Power servers provide customers with a high level of reliability that minimizes downtime and ensures seamless business continuity. One customer shared, **"Extreme reliability is key—no issues, it just runs! We haven't had any application downtime in eight years."** This testimonial highlights how Power's features directly improve uptime. Customers also appreciated the ability to adjust resources without system restarts, specifically mentioning Live Partition Mobility (LPM) and Dynamic Logical Partitioning (DLPAR) operations. One customer noted, **"If we see a database is failing, we can just start it on a different frame, avoiding any major outage."** These features enabled businesses to scale and adapt while keeping operations running smoothly. Additionally, the ability to perform nondisruptive firmware updates and replace parts using hot-swappable components meant that customers didn't need extensive high availability (HA) solutions. As one customer put it, **"Even a hardware failure won't cause bigger outages. We're able to bring critical systems back in a few minutes."** These features helped customers maintain business continuity and minimize system failures.

> **"In my opinion, IBM Power is the most secure server platform in the world."**
>
> — IBM Power customer

- **Lower risk of cybersecurity events.** IBM Power servers provide customers with a secure environment that minimizes exposure to cyberthreats. One customer shared that Power's proprietary architecture gave them peace of mind: **"Most ransomware is written for alternative enterprise servers, so we feel inherently more secure with Power."** The built-in security features across the platform helped ensure there was no data corruption or loss, with components swappable online without shutting down the system. Customers also highlighted the benefit of virtual persistent memory, which kept large databases running smoothly and continuously. Another customer emphasized the importance of role-based access control (RBAC) on AIX for managing system access based on user roles. For their Linux systems, they mentioned the simplicity and

added security of using sudo to control access, helping to ensure that only authorized users could perform critical tasks. These security capabilities enable businesses to run their environments confidently, with minimal risk of cyberattacks or system outages.

Improved Business Agility

Agility of IT infrastructure is essential for businesses to scale workloads and services efficiently and respond to evolving demands. Enterprise Strategy Group's conversations with customers revealed that Power's scalability, enhanced performance, and streamlined consolidation helped them operate in a more agile manner. Customers reported savings and benefits in the following categories:

- **Improved performance.** Customers reported significant performance gains when upgrading to IBM Power10 servers. One customer shared, **"Transitioning to IBM Power10 servers delivers performance gains of up to 75% compared to Power9. IBM is a true partner in our journey to run business-critical systems cost-efficiently while delivering outstanding performance."** Another customer highlighted how the increased performance has reduced the time needed for batch processing and data analysis, freeing up resources for other critical tasks. As a result, businesses were able to deploy and scale more demanding workloads faster, enabling them to focus on innovation and maintain operational efficiency.
- **Improved scalability.** Customers consistently praised the effortless scalability of IBM Power servers, highlighting how easy it was to adjust resources in real time. One customer shared, **"We can easily scale infrastructure with just the click of a button."** The platform's granular scalability enabled businesses to grow incrementally without complicating their architecture, enabling them to absorb workloads seamlessly as they scaled. Another customer explained, **"The shared pool concept is incredibly powerful. I can literally turn the dial on how much memory a particular virtual machine has and the number of cores based on what the workload needs. It's extremely flexible, and it gives me the option to grow with the business without overspending on resources."** Power's ability to scale up SAP HANA without the need for complex scale-out clustering was another game-changer, with one customer noting, **"We can scale up our HANA as high as we need, up to 32TB on a single virtual machine, without the complexity of growing the cluster by adding nodes."** One customer also highlighted the Enterprise Pool concept, which enabled them to allocate resources dynamically without needing additional hardware or licensing. These capabilities reduced complexity and enabled businesses to manage their resources more efficiently as they scaled.

> **"Power servers' native ability to scale up is what sets them apart from any other platform in the industry."**
>
> — IBM Power customer

- **Improved consolidation.** Customers reported significant benefits in terms of consolidation with IBM Power, particularly when it came to Oracle licensing. Power's ability to host per-CPU-licensed software on large servers while limiting licensing costs through virtual CPU pools offered substantial cost savings. On alternative enterprise servers, Oracle licensing is typically based on the number of cores, and since these systems often require more cores to achieve equivalent performance, this can lead to higher licensing costs. As one customer explained, **"If you run Oracle on an alternative enterprise server, you have to pay a license for the entire system. With Power, we can manage licensing virtually instead of physically, which is a complete paradigm shift."** This virtual approach to licensing enabled businesses to use fewer cores and licenses while maintaining performance. By consolidating workloads onto fewer, larger servers, customers not only saved on licensing costs but also reduced infrastructure complexity, making their operations more streamlined and cost-efficient.

Improved Operational Efficiency

Operational efficiency is vital for reducing costs and optimizing resources. IBM Power servers simplify management through automation, ease of use, and seamless integration. Enterprise Strategy Group's discussions with customers revealed that Power's features enabled them to streamline operations, reduce staffing needs, and manage their infrastructure more efficiently. Customers reported savings and benefits in the following categories:

- **Simplicity.** Customers praised IBM Power servers for their ease of use, noting that the platform simplified many routine tasks. One customer shared, **"It's a really easy platform to use—for updates, it's just a click of a button."** This testimonial highlights how much simpler system management became after upgrading to Power. The simplicity extended to other maintenance tasks as well, with the call-home functionality automatically notifying technicians of system issues before customers were even aware, reducing the need for manual oversight. This ease of management enabled organizations to focus on more strategic tasks rather than daily system maintenance.

> **"With IBM Power, we manage the same infrastructure with 50% fewer resources and 5x less time compared to alternative platforms, significantly simplifying our operations."**
>
> — IBM Power customer

- **Automation.** During interviews, organizations frequently mentioned that IBM Power's automation features drastically reduced the time and resources needed to manage their infrastructure. One customer explained, **"We now have 16 FTEs managing the Power infrastructure, but if it were with alternative enterprise servers, we'd need 50% more staff and hardware to manage the environment."** Another customer noted that IBM Power's automation features enabled them to spend 5x less time managing the system compared with alternative platforms. By automating daily operational tasks, customers reduced time and effort spent on manual processes, minimized human error, and optimized efficiency across their operations.
- **Interoperability.** Customers consistently valued the interoperability of IBM Power, emphasizing how smoothly the platform integrated with their existing infrastructure. They encountered no significant challenges when connecting Power with other systems, which enabled them to efficiently manage diverse environments. This flexibility enabled them to adopt new technologies while continuing to leverage their current systems, simplifying IT operations and reducing complexity.

Improved Sustainability

Sustainability is a growing priority for organizations, their partners, and their customers. Enterprise Strategy Group's conversations with customers revealed that IBM Power servers helped businesses reduce energy use, shrink their data center footprint, and extend hardware lifecycles through reuse—all while maintaining strong performance. Customers reported savings and benefits in the following categories:

- **Lower server power consumption.** Customers reported significant energy savings when consolidating workloads onto fewer IBM Power servers and/or updating to the latest release of Power servers, particularly due to their ability to run powerful workloads with less heating and cooling. One customer noted that their energy consumption dropped by 20% after transitioning from Power9 to Power10. The efficiency of Power servers means that, even for large-scale operations, businesses can reduce power consumption, lowering operational costs while maintaining strong performance.

> **"With IBM Power, we reduced energy consumption by 20%, cut our data center footprint in half, and extended the lifecycle of our servers through reuse—all while maintaining top performance."**
>
> — IBM Power customer

- **Reduced data center footprint and resource efficiency.** Several customers highlighted the reduced data center footprint and improved resource efficiency they experienced with IBM Power servers. One customer from a very large enterprise shared, **"We are literally running our entire company, including business-critical operations, on just three Power servers."** By leveraging Power's ability to share CPU resources across multiple workloads, businesses were able to optimize efficiency and minimize their energy footprint. Customers also noted that Power's ability to handle workload spikes or predictable demand shifts reduced both energy and resource consumption, making their operations leaner and more cost-effective.
- **Lifecycle management and sustainable practices.** In addition to energy efficiency, IBM Power servers demonstrated strong lifecycle management practices. One customer noted that moving to the latest Power generation reduced their need for multiple machines: **"If we were running our environment on alternative server technology, our data center footprint would double."** Another customer explained how they extend the life of older Power servers by donating them to cancer research, where they continue to perform reliably. This practice of reusing older hardware reflects IBM Power's commitment to sustainability, enabling businesses to reduce waste while continuing to benefit from reliable, high-performance equipment.

Enterprise Strategy Group Analysis

Enterprise Strategy Group leveraged vendor-provided materials, public and industry knowledge, and insights from customer interviews to assess the expected TCO and potential avoided cost of downtime to model and predict a three-year ROI for organizations transitioning to IBM Power servers. This analysis compares the costs and benefits of deploying IBM Power servers against alternative enterprise servers. Enterprise Strategy Group's model is grounded in the findings from customer interviews, combined with our expertise in economic modeling and technical validation of IBM Power solutions, forming the basis of the comprehensive scenarios presented.

TCO Comparison

To assess the financial impact of transitioning to IBM Power servers, Enterprise Strategy Group leveraged data sourced from the publicly available Precision IT TCO calculator for IBM Power.[3] To understand the savings and benefits that can be provided across different applications, server models, and scale of deployment, we used the tool to estimate the expected TCO for three distinct workload scenarios: a small Oracle environment, a medium Red Hat OpenShift deployment, and a large SAP HANA workload. In each scenario, we evaluated the expected TCO for IBM Power10 servers compared with alternative enterprise servers, considering factors such as hardware, software licensing, power consumption, and management overhead. This analysis was further supported by feedback from our own customer interviews, which helped validate the assumptions and results of the calculator.

Based on the CPU, memory, and configuration requirements (well documented in the IBM Power TCO calculator assumptions), the Precision IT TCO calculator for IBM Power predicted that the workload requirements could be met for each of the three scenarios using fewer IBM Power servers than if using commodity Intel-based servers. The predicted server reduction factors are detailed in Table 1.

[3] IBM Power, *TCO Calculator*, *Precision IT Total Cost of Ownership (TCO) Calculator*.

Table 1. IBM Power Server and Core Reduction Across Three Scenarios

Scenario	Alt. Enterprise Servers Required	IBM Power Servers Required	Server Reduction (%)
Small Oracle Scenario	6	1	83%
Medium OpenShift Scenario	12	1	92%
Large SAP HANA Scenario	24	24	0%
Scenario	**Alt. Enterprise Cores Required**	**Number of Power Cores Required**	**Core Reduction (%)**
Small Oracle Scenario	72	24	67%
Medium OpenShift Scenario	288	48	83%
Large SAP HANA Scenario	3,072	1,152	62.5%

This analysis was created using Precision IT's IBM Power TCO Calculator.

Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Key Findings Across the Three TCO Scenarios:

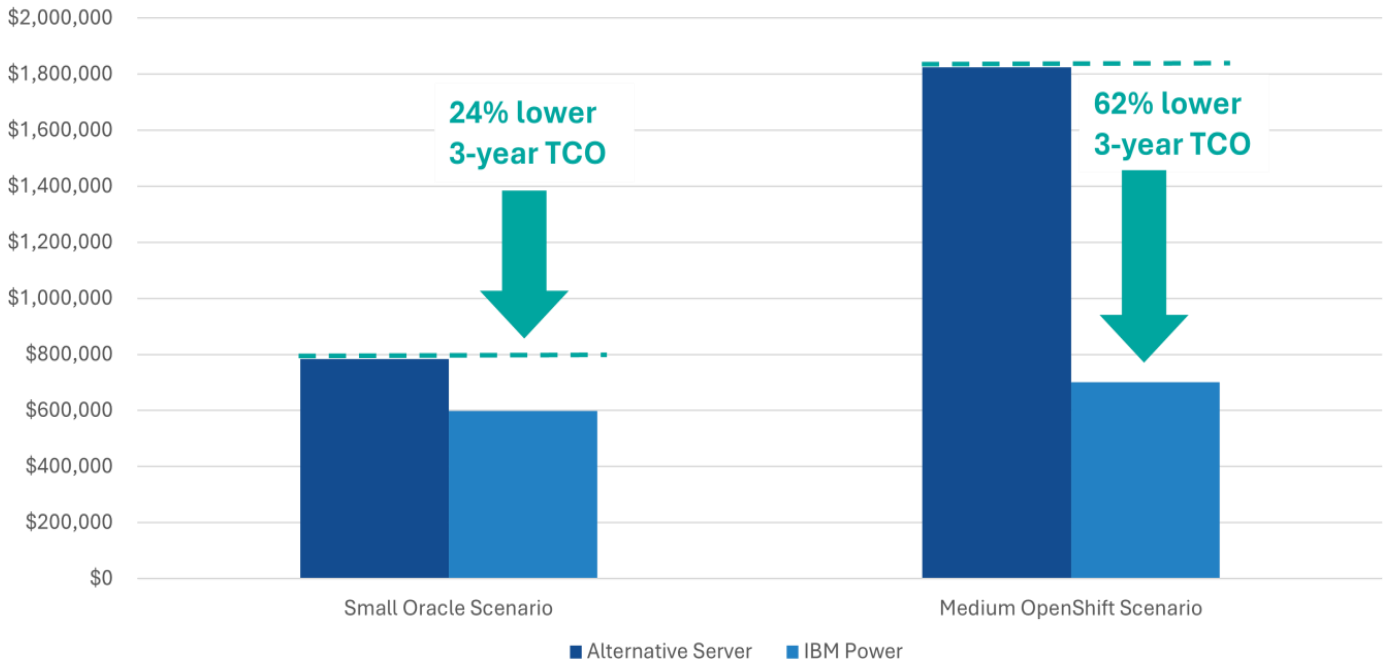
- **Server Consolidation:** IBM Power achieved significant reductions in the number of physical servers required, particularly for smaller and medium workloads. In the small Oracle environment, six alternative enterprise servers were replaced by a single IBM Power server, an 83% reduction. Similarly, in the medium OpenShift deployment, IBM Power consolidated 12 alternative enterprise servers into just one, achieving a 92% reduction. For the large SAP HANA workload, both IBM Power and the alternative enterprise solutions required three servers to meet the workload, so no server reduction was observed. These server reductions translated into lower infrastructure costs, simplified IT environments, and reduced management overhead, all contributing to the overall cost efficiency of IBM Power servers.
- **TCO Savings:** Across all scenarios, IBM Power delivered TCO savings by reducing hardware, software licensing, and operational expenses:
  - In the small Oracle environment, organizations saw a 24% reduction in TCO, saving $185,230 over three years. These savings were primarily driven by reduced software licensing costs and operational efficiencies.
  - The medium OpenShift deployment showed the highest TCO savings at 62%, with organizations saving $1,122,723 over three years. These substantial savings resulted from the combination of server consolidation, reduced software licensing costs, and lower operating expenses.
  - For the large SAP HANA workload, the TCO calculator highlighted hardware cost savings and power/cooling cost savings, showing a 10% total reduction (about $185,279). Beyond these savings, customers can achieve substantial benefits from IBM Power's ability to reduce core counts by 62.5% (from 3,072 cores across 24 Intel servers to 1,152 cores across 24 IBM Power servers). This reduction offers significant opportunities for software licensing efficiencies and reduced management overhead, which are critical for large-scale SAP HANA environments.
- **Operational Efficiency:** IBM Power servers also improved operational efficiency by reducing power consumption, cooling requirements, and environmental impact:
  - In the large SAP HANA workload, IBM Power reduced power and cooling costs by 34%, cutting expenses and contributing to a more sustainable infrastructure.

- In the small Oracle environment, the servers achieved a 26% reduction in CO_2 emissions, aligning with sustainability goals while lowering operational costs.

- **Licensing Efficiency:** IBM Power's ability to handle workloads with fewer cores provided significant licensing cost savings:
  - In the small Oracle environment, organizations saved $188,100 over three years in Oracle Database Enterprise Edition licensing costs.
  - In the medium OpenShift deployment, businesses achieved $1.44 million in Red Hat OpenShift licensing savings over three years.
  - For the large SAP HANA workload, although the TCO calculator did not directly calculate licensing savings, the 62.5% reduction in cores (from 384 to 144) indicates substantial potential savings for licensing models tied to core or memory usage, such as SAP HANA.

While hardware and power/cooling savings contributed to overall cost reductions, software licensing efficiencies were a major factor in the small Oracle and medium OpenShift scenarios. The large SAP HANA scenario was not included in the chart, as it did not include software licensing savings, unlike the other two scenarios. The results of the TCO analysis are summarized in Figure 3, which focuses on the small Oracle and medium OpenShift scenarios and provides a consistent and comprehensive comparison.

Figure 3. Expected Three-year TCO Savings Provided by IBM Power Servers



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Cost of Downtime Analysis

When evaluating IT infrastructure for mission-critical applications, reliability is a critical factor. Even small increments of downtime can have significant operational and financial consequences. To understand the economic implications, we conducted an analysis using industry data to calculate the cost of downtime per server over three years.

All interviewed customers reported zero downtime with IBM Power servers, underscoring their exceptional reliability for mission-critical workloads. For this analysis, we applied a conservative reliability estimate of six nines (99.9999%) availability for IBM Power servers. Downtime values were based on reported annual averages for IBM Power servers and alternative enterprise servers, as provided by IBM and industry sources.[4] These values were extrapolated over three years to provide a clearer understanding of downtime costs.

- **IBM Power:** A Class leaser, achieves 31.5 seconds of downtime per year, resulting in approximately 1.575 minutes of downtime over three years.
- **Alternative Enterprise 1:** 1.38 minutes of downtime per year, equating to approximately 4.14 minutes over three years.
- **Alternative Enterprise 2:** 24 minutes of downtime per year, equating to approximately 72 minutes over three years.
- **Alternative Enterprise 3:** 37 minutes of downtime per year, resulting in approximately 111 minutes over three years.

Table 2. Downtime Cost Analysis per Server: IBM vs. Alternatives Over Three Years

Reliability Scenario (Downtime in Minutes Over 3 Years)	**Cost of Downtime $200K/hr**	**Cost of Downtime $1.5M/hr**	**Cost of Downtime $3M/hr**
IBM Power – Customer Interviews – 0 min/3 years	$0	$0	$0
IBM Power – 1.575 min/3 years	$5,250	$39,375	$78,750
Alt. Enterprise 1 – 4.14 min/3 years	$13,800	$103,500	$207,000
Alt. Enterprise 2 – 72 min/3 years	$240,000	$1,800,000	$3,600,000
Alt. Enterprise 3 – 111 min/3 years	$370,000	$2,775,000	$5,500,000

Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Key Findings: Cost of Downtime Savings with IBM Power Servers

To better understand the financial impact of downtime on different customer environments, we extended our cost of downtime calculations to include the three specific scenarios used in the TCO analysis. These scenarios highlight how server consolidation ratios and per-server downtime costs affect overall business outcomes.

The analysis compares IBM Power servers—designed for reliability (1.575 minutes of downtime over 3 years)—to the most reliable alternative enterprise servers in this study (4.14 minutes of downtime over 3 years). The customer scenarios include:

- **Small Oracle Environment:**
  - **Server Ratio:** IBM Power (1) vs. Alternative Enterprise Servers (6).
  - **Hourly Cost of Downtime:** $200K/hour.

[4] Report: ITIC 2023 Global Server Hardware, Server OS Reliability, August/September 2023.

  - **Results:** With IBM Power, downtime costs amount to $5,250 over three years, compared to $82,800 for the alternative. The difference is amplified by the 6:1 server reduction ratio, further reducing infrastructure and associated risks.
- **Medium OpenShift Environment:**
  - **Server Ratio:** IBM Power (1) vs. Alternative Enterprise Servers (12).
  - **Hourly Cost of Downtime:** $1.5M/hour.
  - **Results:** IBM Power servers yield a downtime cost of $39,375 over three years, whereas the alternative incurs $1,242,000. The higher consolidation ratio (12:1) with IBM Power minimizes costs significantly.
- **Large SAP HANA Environment:**
  - **Server Ratio:** IBM Power (24) vs. Alternative Enterprise Servers (24).
  - **Hourly Cost of Downtime:** $3M/hour.
  - **Results:** IBM Power downtime costs amount to $1,890,000, compared to $4,968,000 for the alternative solution. Here, the equal server ratio highlights the significant reliability advantage of IBM Power servers in large-scale environments.

The findings demonstrate the financial and operational advantages of IBM Power servers in avoiding downtime costs, positioning them as a highly reliable and value-driven choice for businesses with stringent uptime requirements.

Return on Investment

The analysis of three customer scenarios, as detailed in Table 3, revealed a three-year ROI ranging from 33% to 332%, depending on the workload and environment. This evaluation is based on a conservative comparison between IBM Power servers, designed for reliability (1.575 minutes of downtime over three years), and Alternative Enterprise 1 servers (4.14 minutes of downtime over three years). The analysis incorporates both TCO savings and downtime cost savings, highlighting the substantial economic benefits of deploying IBM Power servers for mission-critical applications.

Table 3. IBM Power Three-year ROI Comparison Across Key Customer Scenarios

Metric	Small Oracle Scenario	Medium OpenShift Scenario	Large SAP HANA Scenario
TCO Savings	$185,230	$1,122,723	$1,482,232
Downtime Cost Savings	$77,500	$1,202,625	$3,078,000
IBM Power Investment Cost	$598,614	$701,190	$13,715,704
ROI	**44%**	**332%**	**33%**

Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Key Findings: ROI Analysis Across Customer Scenarios

- **Small Oracle Environment:** In a scenario with a downtime cost of $200,000 per hour, IBM Power servers deliver TCO savings of $185K and eliminate $77.5K in downtime costs over three years. This results in an ROI of 44%, showcasing measurable financial value for smaller workloads while maintaining exceptional reliability for mission-critical applications.

- **Medium OpenShift Environment:** For containerized workloads with a downtime cost of $1.5 million per hour, IBM Power servers achieve TCO savings of $1.1M and avoid $1.2M in downtime costs over three years. These savings produce an impressive ROI of 332%, demonstrating significant financial efficiency for medium-sized mission-critical environments.
- **Large SAP HANA Environment:** In a scenario involving large-scale, mission-critical SAP HANA workloads with a downtime cost of $3 million per hour, IBM Power servers provide $1.5M in TCO savings and avoid $3M in downtime costs over three years. Despite the higher initial investment required for this environment, the ROI stands at 33%, highlighting the economic viability of IBM Power for large-scale deployments where reliability is paramount.

The findings highlight IBM Power servers' ability to deliver strong ROI across diverse mission-critical scenarios. By reducing TCO and minimizing downtime, they provide significant financial benefits for organizations operating smaller workloads or large-scale, mission-critical environments. While customers interviewed reported achieving zero downtime with IBM Power servers, the analysis conservatively assumes 1.575 minutes of downtime over three years, based on industry-standard data. This approach ensures a balanced perspective while showcasing the superior reliability and uptime of IBM Power servers.

Issues to Consider

Organizations using IBM Power servers could realize additional benefits not reflected here. Power servers' built-in HA and resilience could reduce the need for costly HA infrastructure and lower disaster recovery costs. Additionally, advanced security features help mitigate cybersecurity risks, and minimizing downtime could lead to faster time to market for critical applications, potentially boosting revenue—another benefit not included in the calculated ROI.

Savings will vary depending on the specific use case, application requirements, and security needs.

Conclusion

Organizations today face increasing pressure to ensure system reliability, performance, and security while managing complex IT environments with limited resources. Downtime—whether planned or unplanned—can result in significant financial losses, and maintaining sprawling infrastructure across multiple servers adds to operational complexity and costs.

> **"The peace of mind from knowing our mission-critical applications are secure with Power is invaluable. No downtime, no disruptions, it simply runs."**
>
> — IBM Power customer

IBM Power servers are built to tackle these challenges, offering unmatched reliability, security, and scalability. Customers have praised Power for its lower footprint, ease of management, and advanced features that enhance performance and security. One customer noted, **"The reduced footprint in our data center and the ability to manage everything with a small team are key advantages. The performance, security, and reliability built into Power systems give us confidence in running our environment."** Additionally, IBM's strong partnership and Power's native ability to scale are seen as crucial differentiators by its users.

In addition to these operational benefits, IBM Power servers provide significant financial advantages. By consolidating infrastructure, reducing software licensing requirements, and lowering operational costs, IBM Power achieves up to a 62% reduction in TCO. In certain workloads, IBM Power has reduced server counts by up to 92%, lowering infrastructure costs and simplifying management burdens. Furthermore, by minimizing downtime and ensuring higher availability, IBM Power helps businesses avoid potential losses—up to $3M in downtime costs

over three years for high-risk environments. These financial outcomes translate into a strong ROI ranging from 33% up to 332%, demonstrating IBM Power's ability to deliver value across diverse workloads.

We hope this report provides valuable insights for organizations evaluating infrastructure options, particularly where resilience and availability are critical. Enterprise Strategy Group has validated that IBM Power servers not only offer substantial long-term savings but are an ideal choice for businesses that depend on the highest levels of reliability for their mission-critical applications. We encourage IT decision-makers to consult with their IBM Power representative or sales partner to explore how Power can meet their specific business needs.

For more information go to: www.ibm.com/power.

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contact@esg-global.com
www.esg-global.com