

ECONOMIC VALIDATION

# The Economic Benefits of Migrating On-premises Databases to Azure Database for PostgreSQL


Delivering ROI of Up to 58% Through Cloud-native Scalability and Operational Efficiency

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## Economic Validation: Key Findings Summary


### Validated Benefits of Azure Database for PostgreSQL



**Up to 58% Lower TCO** migrating from on-premises PostgreSQL databases



**\$770K Savings** over 3-years from avoided downtime costs



**65% Improvement** in database performance

- Improved Cost Efficiency:** Azure Database for PostgreSQL reduces infrastructure-related expenses, eliminates licensing and support costs, and optimizes operational spending through flexible pay-as-you-go and reserved pricing models.
- Improved Performance and Agility:** Azure Database for PostgreSQL accelerates time-to-value by enabling faster deployment, dynamic scaling, and enhanced development velocity.
- Enterprise Readiness:** We found that Azure Database for PostgreSQL ensures reliable operations with built-in HA/DR capabilities, geo-redundant backups, and advanced security features like encryption and Microsoft Entra ID authentication.

## Introduction

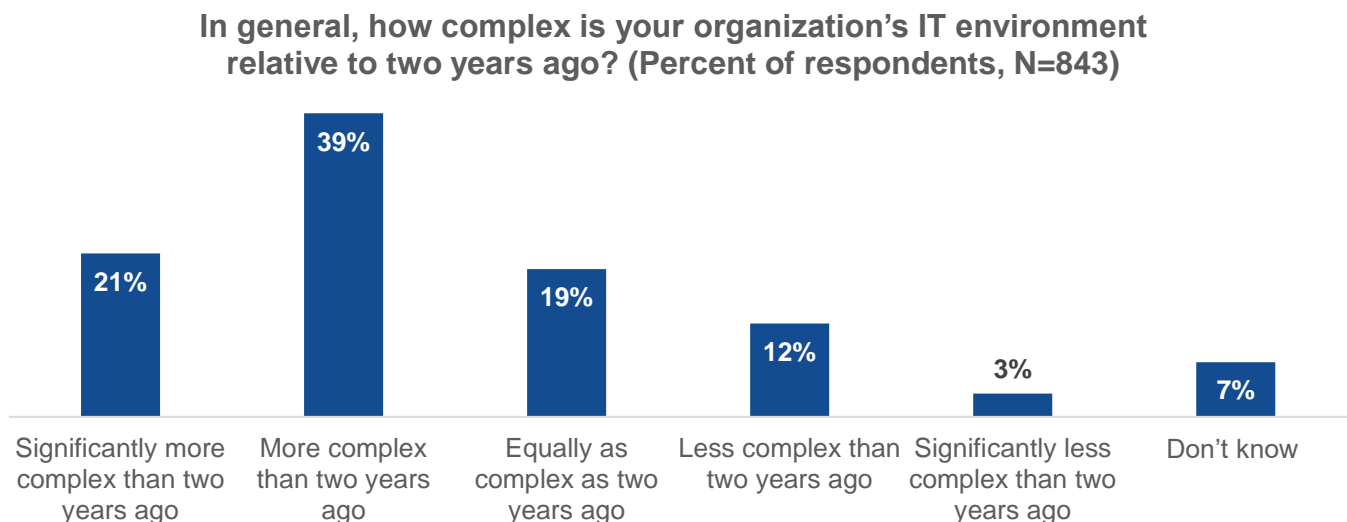
This Economic Validation from Informa TechTarget's Enterprise Strategy Group is focused on the quantitative and qualitative benefits organizations can expect by migrating on-premises PostgreSQL databases to Azure Database for PostgreSQL.

### Challenges

PostgreSQL has become a preferred open-source database for modern applications due to its robust SQL-like interface, flexibility, and strong community support. However, as organizations scale and as data volumes grow, managing PostgreSQL deployments in on-premises environments becomes increasingly complex. IT teams face significant operational overhead, manually managing hardware, patching systems, and monitoring performance while ensuring high availability and disaster recovery. This burden diverts developers and administrators away from high-value tasks like innovation and application development. Additionally, the lack of skilled database administrators leaves many organizations struggling to balance database management with broader business demands.

Enterprise Strategy Group research highlighted the growing complexity of IT environments, exacerbating challenges for PostgreSQL users. As shown in Figure 1, **60% of organizations reported their IT environments are more complex than two years ago**.<sup>1</sup> Key drivers of this complexity include cybersecurity challenges (42%), the integration of emerging technologies like AI and analytics (36%), and **managing higher data volumes and varied data sources (31%)**. Further compounding these issues, **99% of IT teams faced increased pressure to perform faster than three years ago**, with over half being asked to perform at least 50% faster.<sup>2</sup> These findings emphasize the operational strain and inefficiencies organizations face as they scale their PostgreSQL deployments.

**Figure 1.** The Growing Challenge of IT Environment Complexity



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

<sup>1</sup> Source: Enterprise Strategy Group Research Report, [2025 Technology Spending Intentions Survey](#), December 2024.

<sup>2</sup> Source: Enterprise Strategy Group Research Report, [Generative AI in IT Operations: Fueling the Next Wave of Modernization](#), September 2024.

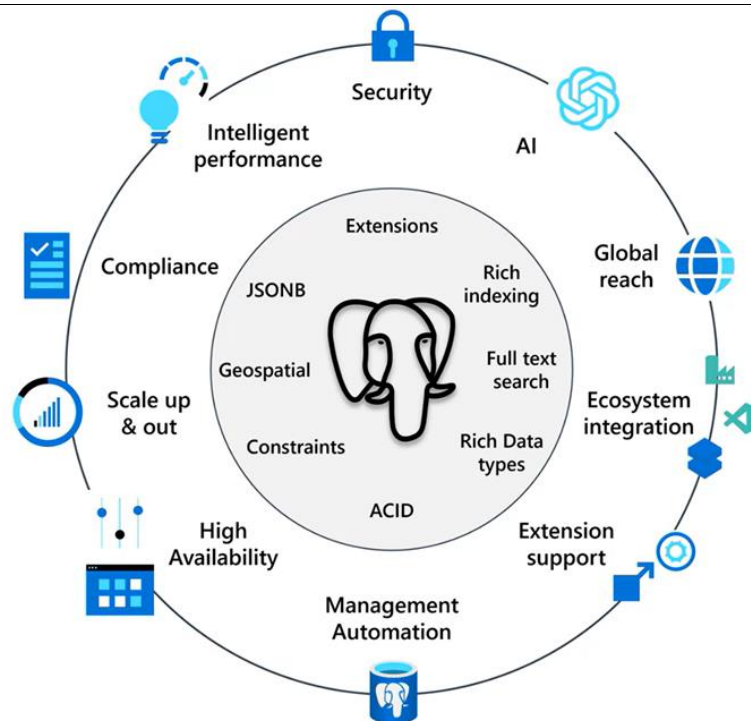
To make matters worse, on-premises-based PostgreSQL environments often require overprovisioning to meet peak demands, resulting in underutilized resources during off-peak periods. Organizations also grapple with compliance requirements, performance-tuning complexities, and the integration of modern tools for analytics and AI. These challenges highlight the need for a solution that simplifies operations, delivers elastic scalability, and integrates advanced security and performance features. By addressing these pain points, organizations can reduce operational overhead, improve resource utilization, and refocus their IT teams on delivering business value rather than managing infrastructure.

### The Solution: Azure Database for PostgreSQL

Azure Database for PostgreSQL is a fully managed, AI-ready open-source relational database that can offer 58% cost savings over an on-premises PostgreSQL database. Azure Database for PostgreSQL enhances security, scalability, and management of enterprise workloads with the ability to scale workloads horizontally. It supports the latest PostgreSQL versions and a wide range of PostgreSQL extensions, with new AI features to improve the accuracy of retrieval augmented generation (RAG) based AI applications.

Figure 2. Azure Database for PostgreSQL

## Azure Database for PostgreSQL: AI-Ready for Enterprise Applications



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

- **Fully managed, intelligent open-source PostgreSQL.** Customers can focus on application innovation with a fully managed and open-source compatible PostgreSQL database with support for the newest versions that automatically handles all maintenance, patching, and updates. Migrate with no application code changes, backwards compatibility, and built-in migration tooling.
- **Highly available and scalable service.** Easily provision a highly available PostgreSQL database with Flexible Server. Independently scale compute and storage based on your workload needs. For distributed workloads, leverage elastic clusters to horizontally scale across a distributed PostgreSQL server architecture.



- **Lower total cost of ownership.** Reduce costs by up to 58% when migrating and modernizing to Azure. Take advantage of stop/start features, burstable instances, and reserved capacity to optimize costs. Pay only for storage when your database is stopped.
- **Enterprise level tools and features.** Because Azure Database for PostgreSQL is built on Microsoft Azure, Azure native tools such as Azure Data Factory facilitate the movement, transformation, monitoring, and management of data while capabilities such as Microsoft Defender for Azure provides advanced threat detection and security management for PostgreSQL.
- **Faster app development with built-in AI and Azure integration.** Innovate rapidly with built-in AI capabilities and seamless integration with Azure AI services. Simplify end-to-end deployment and enhance query performance and accuracy using new vector indexing capabilities, tailored for AI-driven applications.
- **Enterprise-grade security and compliance.** Safeguard your data with robust, enterprise-grade security and compliance features. Leverage Microsoft Defender for enhanced protection and encryption to secure data in transit and at rest.
- **Migration.** Microsoft has built a first-party migration service in Azure Database for PostgreSQL flexible server that can easily migrate databases with no downtime and with no code changes required except for pointing to the new location of the database. Further details on the new migration service can be found [here](#).

Find more information on unlocking innovative AI use cases with PostgreSQL on Azure [here](#).

## Azure Database for PostgreSQL Economic Overview

Enterprise Strategy Group's economic analysis revealed that organizations migrating from on-premises environments to Azure Database for PostgreSQL gained measurable value through significant cost savings, improved operational agility, and enhanced security. Enterprise Strategy Group identified key savings and benefits in the following areas:

- **Improved cost efficiency.** Organizations achieved substantial cost savings by eliminating hardware expenses, reducing licensing and support costs, and streamlining operational expenses through Azure's pay-as-you-go and reserved pricing models.
- **Improved performance and agility.** Azure Database for PostgreSQL enabled businesses to accelerate time to value, scale dynamically to meet evolving demands, and increase development velocity by freeing up resources from infrastructure management and empowering faster innovation.
- **Enterprise readiness.** Azure Database for PostgreSQL mitigated risks like downtime, data breaches, ransomware, and noncompliance through built-in high availability and disaster recovery (HA/DR) capabilities, geo-redundant backups, and advanced security features including encryption and secure authentication protocols.

## Improved Cost Efficiency

Organizations migrating from on-premises PostgreSQL environments to Azure Database for PostgreSQL achieved significant cost savings by eliminating hardware expenses, reducing licensing and support costs, and lowering operational overhead. These benefits enabled them to reallocate resources and streamline operations.

- **Elimination of hardware and infrastructure costs.** Organizations transitioning from on-premises environments to Azure Database for PostgreSQL achieved substantial savings by eliminating hardware-related costs. By removing the need to purchase, maintain, patch, troubleshoot, or refresh servers, storage, and networking equipment, organizations we studied realized up to a **58% reduction in total costs** over three years. Additionally, repurposing or decommissioning existing hardware saved thousands annually, with further reductions in power, cooling, and floor space expenses. This transition not only reduced capital expenditures

but also helped businesses to avoid the hardware lifecycle management complexities often associated with on-premises infrastructure.

- **Elimination of licensing, monitoring, and support costs.** Azure Database for PostgreSQL helps organizations reduce or eliminate licensing costs associated with hypervisors, middleware, and third-party monitoring tools. Fully managed services further eliminated the need for professional consulting services for database management and optimization, reducing overall operational expenses. Customers also reported the ability to eliminate monitoring and security tools, which previously incurred recurring licensing fees. Additionally, organizations noted that hosted services like Microsoft Entra ID and other integrated Azure features helped lower costs by replacing external licensing and support solutions.
- **Streamlined operational costs with Azure pricing models.** Azure's flexible pay-as-you-go and reserved pricing models enabled organizations to optimize resource usage and significantly reduce operational costs. Azure Database for PostgreSQL's fully managed service ensured that customers only paid for what they used while benefiting from scalable and predictable pricing. Furthermore, organizations no longer had to manage or maintain individual PostgreSQL database instances, as Azure provided fully tested and stable versions to better accommodate application needs, leading to additional savings.
- **Reduced infrastructure management overhead.** With Azure Database for PostgreSQL, organizations were able to minimize labor-intensive tasks such as hardware management, database patching, performance tuning, and troubleshooting. By reducing reliance on infrastructure-focused full-time equivalents (FTEs), IT teams were freed up to focus on higher-value tasks like innovation and application development. Additionally, simplified remediation and automated performance tuning tools further reduced complexity, enabling faster issue resolution and improved database performance. Azure's fully managed service alleviates the operational burden of managing complex infrastructures, leading to greater efficiency and operational excellence.

**"We have seen wins on both sides of the financial equation. Our costs are down across the board, and we have increased our revenue specifically because of the capabilities that moving to Azure Database for PostgreSQL has brought our organization."**

## Improved Performance and Agility

Organizations migrating to Azure Database for PostgreSQL unlocked significant time savings and operational efficiencies, enabling faster delivery of services, accelerated performance, improved flexibility, and greater development velocity. Customers reported benefits in the following areas:

- **Accelerated performance.** Each customer interviewed specifically pointed out the increases in database performance they have achieved since migrating to Azure Database for PostgreSQL. Examples provided ranged from a **65% increase** to one where the customer found a **9x increase** in performance for their primary application. When asked what specifically contributed to these performance gains, customers shared capabilities including how Premium SSD v2 can achieve sub-millisecond latency and facilitate scale-up, how the platform automatically applies best practices, and a more effective alignment between the workload and the proper processor. However, after analyzing the performance stories uncovered, we believe the overarching benefit is the ability to very closely map capabilities to needs with each workload having the ability to be run at its needed performance levels without having to waste resources on overprovisioning.
- **Faster deployment and migration.** Organizations migrating on-premises PostgreSQL databases to Azure Database for PostgreSQL reported significant time savings during deployment and migration processes. With Azure's free migration tools, databases were migrated in **hours instead of weeks** while new databases were provisioned in minutes, reducing the time needed for planning, installing, and configuring infrastructure. This accelerated migration process enabled organizations to begin realizing value months earlier, saving precious

time and resources during their digital modernization journeys. Customers also praised Azure's user-friendly online migration framework for simplifying transitions and minimizing disruptions to ongoing operations.

- **Flexible scaling and workload optimization.**

Azure Database for PostgreSQL provided organizations with the flexibility to dynamically scale resources based on demand, enabling rapid adaptation to workload changes. Businesses leveraged start/stop functionality to optimize resource utilization, avoiding overprovisioning during off-peak periods. Additionally, near-zero downtime scaling of storage and compute enabled teams to adjust

capacity with only seconds of downtime, ensuring both cost efficiency and uninterrupted operations. These capabilities empowered IT teams to react to business needs faster while maintaining predictable and efficient workloads.

**“We removed a lot of complexity by moving our PostgreSQL to Azure Database for PostgreSQL. Our senior people have gotten away from day-to-day issues and are now solving business problems.”**

- **Increased development velocity.** Azure Database for PostgreSQL significantly improved development velocity by freeing developers from time-intensive tasks such as infrastructure management and database tuning. Customers reported that faster application release cycles led to an additional **4% increase in revenue** through earlier time to market and an improved ability to react to customer needs and opportunities. For our modeled organization, this equates to **\$18 million** in increased annual revenue. Features like built-in performance recommendations and query tuning eliminated bottlenecks and enabled developers to focus on creating high-quality code. Simplified troubleshooting and improved workflows further accelerated the development process, enabling organizations to innovate and deliver new products faster than ever before.
- **Open source flexibility and developer support.** Organizations appreciated Azure Database for PostgreSQL's commitment to open source flexibility, which supported faster prototyping and innovation. Developers utilized PostgreSQL extensions and integrations with Azure services, allowing for seamless experimentation and efficient workflows. Burstable instances reduce time to start for new projects, enabling faster prototyping and iterations without the need for additional infrastructure investment. These benefits streamlined development pipelines, leading to quicker deployment of modern applications and solutions.

## Enterprise Readiness

Azure Database for PostgreSQL delivers built-in security and high availability features, helping organizations reduce risks and ensure compliance. By integrating advanced security measures and robust availability guarantees, organizations can safeguard their data, streamline operations, and minimize the risks associated with modern database management:

- **Built-in high availability and disaster recovery.** Organizations migrating to Azure Database for PostgreSQL benefit from **up to 99.99% SLA-backed availability**, reducing downtime and improving reliability. This ensures that critical business functions remain operational with no additional time or effort required to set up disaster recovery. Read replica functionality improves performance and scalability by offloading read-intensive workloads to replicas to the region of choice while **geo-redundant backups** provide a safeguard against ransomware attacks, ensuring that organizations can quickly recover lost data and maintain continuity.

**“We are much more secure since we moved to Azure Database for PostgreSQL. We use Azure AI to set our security standards and get constant recommendations on how we can increase our security even more.”**

- **Integrated security and compliance.** Azure Database for PostgreSQL provides organizations with a hardened security posture through its **built-in encryption** built on Microsoft Entra ID authentication. These features not only protect sensitive data but also ensure compliance with strict data sovereignty and recovery requirements. For organizations with advanced security needs, **encryption with user-defined keys** offers an additional layer of protection. By automating database tuning and leveraging secure authentication protocols, Azure reduces vulnerabilities and compliance gaps. This enables IT teams to focus on strategic initiatives rather than operational risks or regulatory concerns.
- **Simplified operations for IT teams.** By eliminating manual tasks like patching, updates, and troubleshooting, Azure Database for PostgreSQL enables IT teams to focus on strategic initiatives. This streamlined approach reduces risks in workflows by automating routine maintenance tasks, helping organizations to operate more efficiently and securely.
- **Enhanced integration with the Azure ecosystem.** Azure Database for PostgreSQL integrates seamlessly with the broader Azure ecosystem, including Azure AI services like machine learning (ML), Kubernetes, and Microsoft Entra ID. These integrations strengthen security and agility while enabling new innovations in application development. For example, Azure's powerful AI and ML services can help reduce the time to build complex analytics features into applications, improving overall resilience.

## Enterprise Strategy Group Analysis

Enterprise Strategy Group leveraged the information collected through vendor-provided material, public and industry knowledge of economics and technologies, and the results of customer interviews to create a TCO/ROI model that compares the costs and benefits of on-premises PostgreSQL and Azure Database for PostgreSQL. Enterprise Strategy Group's interviews with customers who have recently made the transition, combined with experience and expertise in economic modeling and technical validation, helped to form the basis for our modeled scenario.

Our modeled organization has 1,800 employees, generating \$450 million in annual revenue. Details of the company are shown in Table 1. While all costs and benefits listed in this paper are based on this sample company, the financial model created was vetted to ensure it was realistic and accurate for organizations of multiple sizes and industries.

### Why This Matters

While our analysis is based on customer-provided data and the research of our analysts, each of the companies we interviewed had different before-states, unique needs, and specific use cases for PostgreSQL. To recognize this, we created a sample company using blended averages and conservative projections of moving to Azure Database for PostgreSQL.

**Table 1.** Sample Modeled Organization

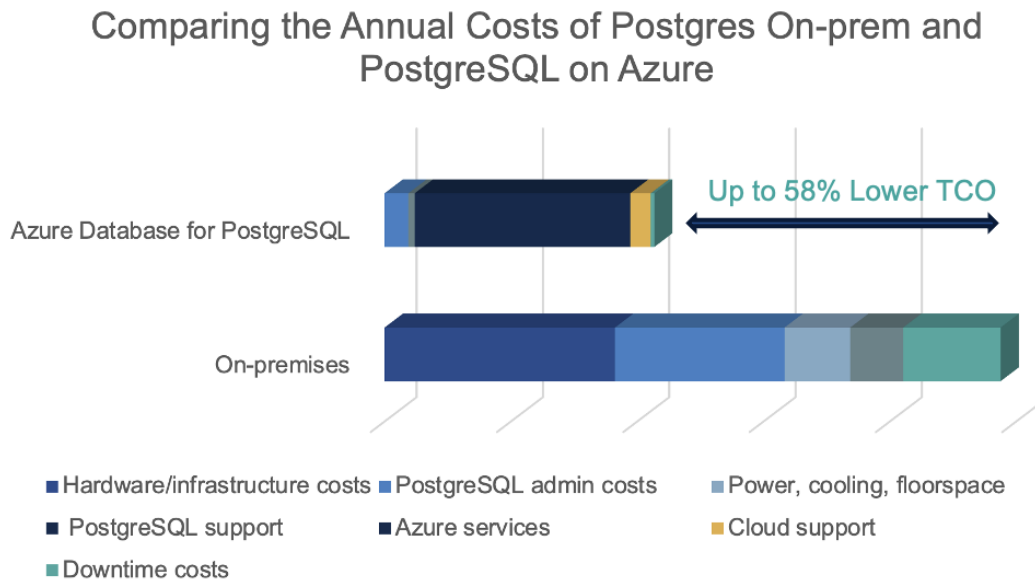
Variables	On-prem	Azure Database for PostgreSQL
Number of employees	1,800	1,800
Annual revenue	\$450M	\$468M
Revenue per employee	\$250K	\$260K
Number of servers	1,300	1,174
Hours of database-related downtime per year	15	1
Hours of admin time per month per database	2.1	.6

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



When exploring the major cost savings categories, the largest differences in comparing PostgreSQL on-premises and PostgreSQL for Azure are in the elimination of hardware, power, cooling, and flooring as well as a substantial reduction in PostgreSQL administrative costs and database-related downtime (as seen in Figure 3).

**Figure 3.** Azure Database for PostgreSQL



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

## Conclusion

Organizations relying on on-premises PostgreSQL databases face mounting challenges as their workloads scale and as data volumes grow. Managing infrastructure, patching systems, and ensuring availability create significant operational burdens for IT teams, often diverting valuable resources away from strategic priorities like innovation and application development. These challenges are exacerbated by the increasing complexity of IT environments, with organizations struggling to address cybersecurity concerns, integrate emerging technologies, and manage varied data sources. Enterprise Strategy Group research confirmed that these operational inefficiencies not only hinder productivity but also escalate costs, creating an urgent need for solutions that simplify database management and enhance scalability.

**“Customer satisfaction is our most important metric. Since we migrated our databases to Azure, we have improved our customer experience and raised the revenue we are getting per customer interaction.”**

Azure Database for PostgreSQL addresses these pain points by offering a fully managed database-as-a-service solution. By eliminating the need to manage hardware, along with patching and database tuning, organizations benefit from streamlined operations and improved agility. Customers migrating from on-premises environments have reported measurable financial and operational benefits, including significant reductions in infrastructure and licensing costs, faster application development cycles, and greater scalability. These operational efficiencies enable IT teams to focus on delivering business value rather than managing infrastructure, paving the way for innovation and faster time to market.

In addition to operational improvements, organizations achieved substantial financial savings by transitioning to Azure Database for PostgreSQL. Our analysis identified an ROI of 58%, driven by cost-effective licensing models, reduced administrative overhead, and the elimination of third-party support and consulting fees. Furthermore, built-in HA/DR features minimize the risks of downtime, enhancing reliability and reducing financial losses from outages.

Enterprise Strategy Group has validated the savings and benefits that Azure Database for PostgreSQL delivers and strongly recommends that organizations consider Azure Database for PostgreSQL to drive measurable savings and accelerate innovation.

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