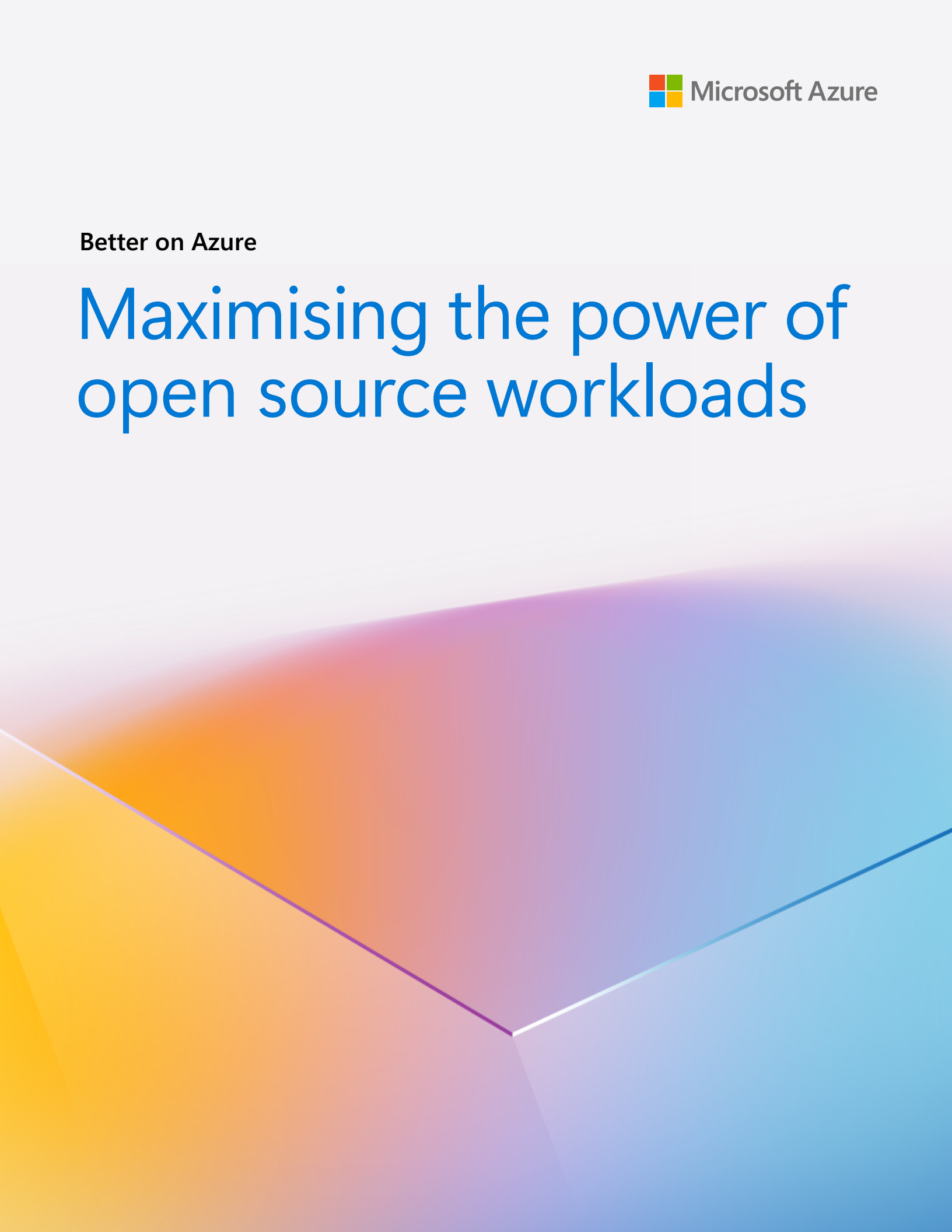
Microsoft Azure

Better on Azure

Maximising the power of open source workloads



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Unlock the power of open source on Azure

Introduction

Businesses today are under pressure to innovate faster, reduce costs and improve their security posture. With 58% of companies reporting an increased use of open-source technology over the past year,[1] it is clear that competitiveness in the modern business landscape depends on open-source technology and development practices. Ageing and inflexible legacy infrastructure can make deploying and operating these technologies costly and cumbersome.

You need to keep your mission-critical open-source workloads running reliably. But to stay competitive, you must also significantly improve the flexibility, scalability and performance of your IT infrastructure. Furthermore, you need to continually deliver innovative new products and solutions while leveraging emerging technologies such as AI. And you have to do all this while minimising costs and ensuring that your staff can effectively manage your entire IT estate.

Cloud migration and modernisation can be your key to achieving these goals. Cloud platforms like Azure provide flexible managed infrastructure – at a global scale. As part of the migration and modernisation process, you can also establish multicloud and hybrid management controls to help you achieve consistent operations, security and compliance across your organisation.

Modernising your open-source workloads also prepares you to take advantage of AI-powered capabilities, including improved IT automation tools, productivity-boosting agents and generative AI functionality that integrates into your customer-facing products and services.

In this e-book, we explore how Azure provides a proven, enterprise-grade cloud platform for running Linux and open-source workloads. We also discuss how migration and modernisation on Azure can help your IT and development teams to innovate faster and can help reduce costs and accelerate your adoption of game-changing AI technology.

[1] 2025 State of Open Source Report. OpenLogic by Perforce, April 2025.

Running open-source workloads on Azure

Before you consider a cloud migration and modernisation effort, you need to know whether a cloud platform can handle the critical software and services your workloads are built around. With full native support for enterprise Linux distributions and an infrastructure built with open-source technology at its core, deploy your mission-critical workloads to Azure with confidence.

Enterprise-grade Linux support on a global scale

The importance of open-source software is reflected in Azure use today. According to the Azure team, more than 66% of the virtual CPU cores in use by customers are running some kind of Linux workload. Designed with high-powered Linux applications and services in mind, Azure infrastructure and services offer enterprise-level support, high performance and massive scalability for your workloads.

Endorsed Linux distributions

On Azure, you're free to use the Linux distribution that meets your needs. Whether you're using a preconfigured marketplace option or providing your own custom-built image, all distributions are welcome.

If you are not already tied to an existing distribution, Azure also offers a range of endorsed distributions to choose from. They feature a formal contractual agreement and deep partnership between Microsoft and the Linux supplier. This includes dedicated engineering and support collaboration, along with ongoing investments to help ensure compatibility, reliability and support for your Linux workloads on Azure.

In addition to Microsoft Azure Linux, which powers many core Azure services such as Azure Kubernetes Service (AKS), these endorsed Linux distributions are available:

- Red Hat Enterprise Linux (RHEL)
- Canonical / Ubuntu
- SUSE / SLES
- CIQ / Rocky Linux
- AlmaLinux
- Credativ / Debian
- Kinvolk / Flatcar
- Oracle Linux

This means you can bring your existing Linux-based applications and toolchains directly to Azure. The platform natively supports more than 100 of the most popular Linux and open-source software workloads, including those powered by Java, Oracle, PHP, Python and many other languages and frameworks. Whether running a LAMP stack, a Java microservices architecture, or containerised Python applications, your existing systems can operate with full compatibility and performance parity on Azure.

In addition, with over 300 enterprise-grade datacentres worldwide, this support is global, so your Linux-based workloads can run anywhere you need them. This means deployment and scaling of your applications is consistent and reliable, whether you are targeting a single country or region or aiming for global reach.

For rapid deployment, many popular Linux distributions are available as pre-configured virtual machines (VM) and container images through Azure Marketplace. These images, which include the latest versions of Red Hat Enterprise Linux (RHEL 10), Ubuntu, SUSE Linux Enterprise Server (SLES) and Debian, come optimised for Azure infrastructure and often include supplier-backed support. You also have easy access to Linux container images designed for Kubernetes, making it easier for you to develop and operate modern applications.

Native enterprise-grade Linux support lets you easily run, scale, and build new solutions using your preferred open-source platforms, supported by the flexibility and reliability of the Azure worldwide infrastructure.

The business advantage of Linux on Azure

Your migration and modernisation efforts on Azure can also result in tangible financial benefits. One effective way to save is with the competitive enterprise Linux cloud licensing options that Azure offers. The Azure Hybrid Benefit for Linux can reduce costs by up to 76% over a three-year period[2] on RHEL and SUSE Enterprise licensing.

The Azure Hybrid Benefit for Linux offers a pay-as-you-go (PAYG) model, allowing you to pay for enterprise subscriptions only as you use them. Alternatively, if you have existing enterprise licences for SUSE or Red Hat, the Azure Bring Your Own Subscription (BYOS) model helps you migrate while making use of your existing licensing agreements. BYOS gives you the enterprise-grade infrastructure, global reach and integrated services of Azure – without requiring you to manage or purchase additional licences.

With the release of RHEL 10 on Azure in May 2025, organisations gain access to AI-powered management tools that can further enhance operational efficiency and reduce the time required for system administration tasks.

The advantages of Linux on Azure go beyond licensing, with proven, real-world cost and efficiency advantages. Industry studies show substantial benefits from running open-source software workloads on Azure, ranging from overall cost savings to improved reliability and faster innovation:

- Enterprises running Ubuntu on Azure over a three-year period achieved up to a 306% return on investment (ROI).[3]
- Companies running RHEL on Azure could realise up to an 85% reduction in downtime due to outages.[4]
- When running Azure Red Hat OpenShift on Azure, customers reported a 70% shorter development cycle and a 50% improvement in operational efficiency.[5]

Optimise costs for your Linux-based workloads

The Bank of Montreal has recently migrated its market risk management platform – which heavily relies on RHEL-based VMs – to Azure. Within a year, the bank has realised a 30% total cost savings and has noted a decrease in the time it takes to perform risk analysis tasks. Using Azure Spot Virtual Machines, which take advantage of unused compute capacity to provide significant discounts on compute costs, the bank is able to cost-effectively scale its platform from 35,000 to 80,000 cores as needed.

Read the story: The Bank of Montreal runs risk calculations twice as fast and at 30% lower cost with Azure

[2] Azure Hybrid Benefit for Linux virtual machines. Microsoft, January 2025.
[3] IDC Business Value White Paper, sponsored by Microsoft, The Business Value of Ubuntu on Microsoft Azure, Doc. #US52857024, January 2025.
[4] The Total Economic Impact™ Red Hat Enterprise Linux on Microsoft Azure. Forrester, 2024.
[5] Microsoft Azure Red Hat OpenShift provides more value and support to cloud-first organisations. Red Hat, 19 March 2024.

Easier open-source development

Azure includes a unique mix of tools and services designed to make building and operating your open-source applications faster and more efficient. Across infrastructure as a service (IaaS) and platform as a service (PaaS) offerings, Azure provides native support for popular open-source runtimes and frameworks, including Java, PHP, Ruby, Node.js, Python and .NET Core. As a result, your developers can run their preferred dev stacks in a fully managed environment or take complete control of custom VMs – without sacrificing compatibility or performance.

GitHub Copilot, the AI-powered coding assistant from Microsoft, is another powerful tool that brings AI-assisted coding directly into your Azure-based development workflows. Copilot is trained extensively on popular open-source programming languages and technologies, and can help your developers save time on repetitive tasks by generating functions, conducting code review and validation and even automating many aspects of refactoring legacy applications.

If your teams need to modernise applications using open-source frameworks, Copilot can recommend best practices to guide your migrations and can help you add the project into your continuous integration and continuous delivery (CI/CD) pipelines by using tools such as Azure DevOps or GitHub Actions. It can also analyse your applications and dependencies, identify issues and offer solutions to automate much of the modernisation effort.

Support for popular open-source database technologies

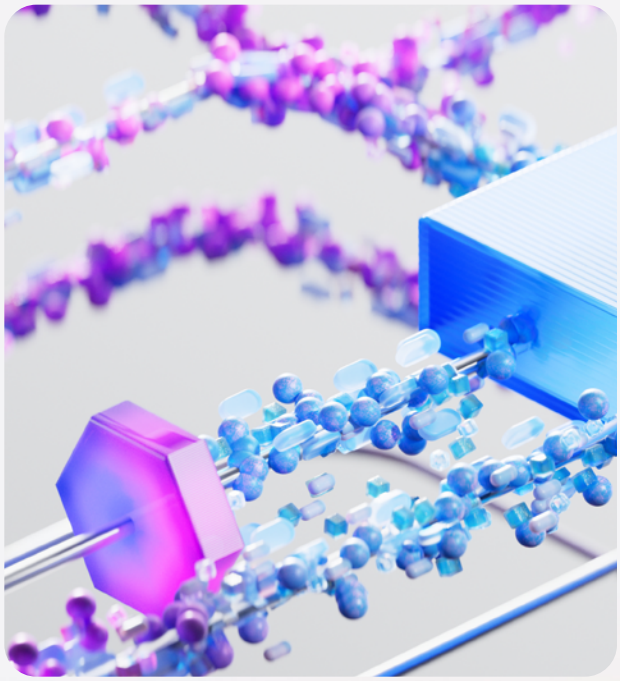
In addition to the wider portfolio of database services, Azure offers specific support for popular open-source database products. With Azure Database for PostgreSQL and Azure Database for MySQL, you get easy scalability, support for a wide range of popular extensions and a 99.99% availability service-level agreement (SLA). With these fully managed PaaS database offerings, your database workloads can harness the overall power and agility of the Azure ecosystem.

With automated backups, patching, high availability and elastic scaling, your development teams can focus on building applications rather than on managing databases. These services also come with built-in cost optimisation controls that have been shown to provide up to a 58% lower total cost of ownership (TCO) for PostgreSQL workloads over on-premises hosting[6] and a similar 54% lower TCO for MySQL workloads.[7]

With Azure Database for PostgreSQL, you also benefit from the Microsoft contributions to the PostgreSQL open-source project. For example, the service gives you access to the latest PostgreSQL community edition features, specific enterprise-grade enhancements and performance improvements that Microsoft contributors help develop as soon as they're released. It also offers long-term support for running PostgreSQL workloads at scale on Azure.

RHEL 10 on Azure includes PostgreSQL 16 by default, along with updated tooling that supports modern database workloads. The enhanced container support in RHEL 10 on Azure, including Podman 5.0, makes it easier to deploy and manage containerised database workloads alongside traditional installations.

Azure services, built on a global infrastructure, support use of the open-source database tools you already trust, while offering the operational efficiency, global reach and scalability that Azure provides.



[6]McAfee, Nathan. The Economic Benefits of Migrating On-premises Databases to Azure Database for PostgreSQL. Enterprise Strategy Group, March 2025.
[7]McAfee, Nathan. Analysing the Economic Benefits of Microsoft Azure Database for MySQL. Enterprise Strategy Group, April 2025.

Open-source technology is the key to successful modernisation

To get the most out of the cloud, you need to take advantage of its unique capabilities. Open-source technology is central to your migration and modernisation efforts on Azure because it provides flexibility, portability, and innovation without locking you into a single supplier's ecosystem. In addition, support for open-source technology in many Azure services gives you the tools to modernise your legacy applications as you continue to use the tools and frameworks you already trust.

AKS

Container-based applications in general, and Kubernetes-orchestrated containerisation in particular, have become the de facto standard for building and running modern applications. AKS is a managed Kubernetes service from Microsoft, fully conformant with open-source Kubernetes. It gives you the platform to modernise your legacy monolithic apps into modern microservices-based applications, enabling faster release cycles, better resource utilisation, improved resiliency and cost optimisation.

AKS combines the flexibility and open-source alignment of Kubernetes while taking advantage of global, enterprise-grade Azure infrastructure and tooling. With AKS, you don't need to manually manage the Kubernetes control planes, security patches, and monitoring tools, so your development and operations teams can focus on building and scaling applications rather than managing infrastructure. The result is faster innovation, improved reliability, and lower TCO for containerised workloads.

Using AKS in conjunction with other Azure services helps you further improve the flexibility, cost effectiveness and security of your workloads. For example, GitHub Copilot helps you accelerate development and deployment of containerised applications that run on AKS. Azure DevOps and GitHub Actions let you integrate your Kubernetes infrastructure with your CI/CD pipelines. And Azure security scanning and policy enforcement tools support compliance without slowing down release cycles.

AKS can help you streamline the development, deployment and management of your containerised applications, enhance your scalability and resilience and reduce operational overhead, all while taking advantage of the broader Azure ecosystem.

Azure Red Hat OpenShift

If you need enterprise-grade Kubernetes support based on the Red Hat OpenShift platform, Azure Red Hat OpenShift can help. The service provides a scalable, fully managed platform to host your containerised workloads on a supported and highly secure solution that is fully aligned with both the Red Hat and Azure ecosystems.

Azure Red Hat OpenShift now supports OpenShift 4.17 as the latest installable version, with OpenShift 4.16 also available, providing access to the newest container platform features and improvements.

With Azure Red Hat OpenShift, you can deploy any containerised workloads consistently between your on-premises and cloud environments. It lets you use all the OpenShift developer tools and CI/CD pipelines to help containerise and modernise legacy applications. With OpenShift Virtualisation support, you can run traditional VMs alongside your modern containerised applications on the same infrastructure, eliminating the need for separate VMware licences and reducing operational costs overall. This unified approach helps organisations move away from expensive VMware licensing while making the creation and enforcement of consistent compliance and governance standards easier for all of your OpenShift-managed workloads.

Azure Red Hat OpenShift combines the flexibility and innovation of open-source Kubernetes with Red Hat enterprise-grade container expertise, giving you a jointly managed service designed to take advantage of the global Azure infrastructure. Native support for Azure DevOps and GitHub Actions allows you to integrate OpenShift workflows as part of your broader Azure-based toolchains. You also benefit from the built-in OpenShift security scanning and comprehensive policy enforcement, along with the Red Hat security-hardened container images to support compliance without slowing down your development cycles.

Enhanced security features now include managed identity support in public preview, allowing organisations to replace long-term credentials with short-term, token-based credentials. Additionally, Confidential Containers are now available in public preview, providing hardware-level protection for workloads through memory encryption and secure execution environments – particularly valuable for compliance in healthcare and financial services.

Open-source technology accelerates development on Azure

To take advantage of the cloud, you need support for the development frameworks, environments and languages that you use to build effective modern applications. Equipped with these tools, your developers can migrate your existing workloads with minimal friction, resulting in faster development timelines, reduced effort and cost, and a minimal risk of supplier lock-in.

Azure PaaS compute and data services automate many tasks related to creating, configuring, and managing your servers, databases and applications, saving you time and effort. Built-in support for popular open-source development technologies also helps your developers start building solutions faster.

In addition, these services provide automated scalability, integrated monitoring and reduced infrastructure management. These combined capabilities help increase developer productivity, allowing your teams to spend less time on operational overhead and more time on building features that directly benefit customers.

AI-powered tools, like GitHub Copilot, also help you streamline the modernisation process. Copilot is fluent in most open-source frameworks and can help your developers with tasks such as generating boilerplate code, recommending best practices and refactoring legacy codebases for cloud-readiness. In modernisation projects, organisations have realised up to a 70% reduction in effort when using Copilot to transform applications.[8] By bridging developer productivity and cloud-native capability, Azure and Copilot together can significantly shorten the timeline and reduce costs of your modernisation efforts.

The latest RHEL 10 on Azure further enhances developer productivity with Red Hat Enterprise Linux Lightspeed, an AI-powered command-line assistant that provides context-aware guidance using natural language queries. This helps bridge Linux skills gaps by allowing developers to ask questions in plain English and receive actionable recommendations drawn from decades of Red Hat expertise.

[8] Accelerate migration and modernisation with agentic AI, Microsoft, 23 September 2025.
[9] 2025 Developer Survey, Stack Overflow, July 2025.

Visual Studio Code (VS Code) is the most popular integrated development environment (IDE), according to Stack Overflow's annual developer survey.[9] VS Code, an open-source AI code editor, gives developers a lightweight, extensible and cross-platform tool that streamlines coding and debugging, and offers support for diverse languages and frameworks. Add-ons like the PostgreSQL extension for Visual Studio Code streamline the development process by enabling interaction with PostgreSQL databases directly within VS Code and using GitHub Copilot to provide intelligent query assistance and schema exploration to reduce query-writing errors.

Managed Azure services, open-source support, AI-powered development tools like GitHub Copilot, and developer-friendly tools like VS Code, all help to accelerate your migration and modernisation efforts while supporting reduced operational overhead, cost and risk.

Deployment flexibility and infrastructure as code

Without standardised and repeatable methods to provision your infrastructure, your cloud resources can end up with inconsistent configuration and undocumented settings and could require frequent ad hoc updates. These problems significantly worsen as your IT estate grows and can make managing, securing, and operating your workloads more difficult, time consuming and expensive.

Successful modernisation extends beyond simply modifying your applications to use cloud-native architectures. It depends on tools that can reliably deploy and manage your cloud infrastructure. Infrastructure as code (IaC) is an approach to tackle this problem, automating the creation and management of these servers, databases, and network resources by using templates and scripts.

Services such as GitHub Actions and Azure DevOps enable you to adopt IaC practices as part of your existing software development toolchain. Your teams can easily automate infrastructure creation as part of your CI/CD processes, so your applications are hosted in consistent environments throughout their lifecycles. This helps to ensure that your workloads deploy more consistently at scale and that they meet your security and compliance policies.

Popular open-source IaC tools, like Terraform, Bicep and Ansible, give you the ability to consistently automate infrastructure provisioning across your Azure, hybrid, or multicloud environments. This flexibility makes deployments consistent, auditable and scalable – no matter which cloud platform you're deploying to. The alignment of DevOps practices with IaC automation brings agility, efficiency and standardised controls to your modernised infrastructure.

Modernisation enables AI

A well-executed migration and modernisation effort results in a solid foundation for your cloud infrastructure. Running modern, cloud-native applications and services on Azure sets the stage for you to make the most of another major benefit: Azure AI services.

Emerging AI technologies can result in real-world advantages for your business, including increased developer productivity, improved business analytics and decision-making, the automation of complex processes, better customer experiences and more. Azure AI services and tooling can help cost-effectively integrate this technology into your applications and services.

Unlock AI with a high-performance, global infrastructure

AI applications depend on massive compute power, large-scale data storage and infrastructure flexibility. With a modernised cloud infrastructure built on Azure, you get the tools you need to adopt advanced AI workloads as part of your business.

ChatGPT is powered by open source on Azure

OpenAI's ChatGPT has grown to almost 700 million weekly active users.[10] It processes over 1 billion queries per day, without a hitch and without needing a giant operations team to manage the operations.

ChatGPT is built entirely on Azure and uses a variety of open-source-powered services, including AKS, for container orchestration, Ubuntu Linux on Azure to run high-performance GPU-enabled VMs, and Azure Database for PostgreSQL to store user conversations and context.[11] Using open-source technology, coupled with a powerful global infrastructure and dedicated services like Azure HPC, ChatGPT shows how your open-source AI workloads can work at extreme scale on Azure.

Watch the on-demand talk: Scaling PostgreSQL at OpenAI: Lessons in Reliability, Efficiency and Innovation

[10] ChatGPT's On Track For 700M Weekly Users Milestone: OpenAI Goes Mainstream. TechRepublic, 5 August 2025.
[11] Microsoft's open source journey: From 20,000 lines of Linux code to AI on a global scale. Microsoft Azure Blog, 22 August 2025.

AI systems require minimal latency between various components. On Azure, you can ensure that you're co-locating data and compute resources within the same datacentre. This physical proximity massively reduces latency and eliminates costly data transfers, enabling faster AI model iteration speeds. Similarly, the Azure internal infrastructure, which includes specialised networking, dedicated GPU hardware, and optimised compute platforms, like ARM-based Cobalt 100 VMs, can lead to significant performance gains for AI workloads.

Combining these capabilities with specialised services, such as high-performance computing (HPC) on Azure, provides you with the tools to create incredibly powerful and highly responsive AI-powered solutions. Studies show that AI training on Azure, for example, can run up to 5.1x faster than on competing services[12] and inferencing can be up to 5.8x faster,[13] resulting in better-performing AI applications overall. These performance gains help your AI workloads go live more quickly and operate more reliably.

Modern open-source applications are the foundation for AI

Migration and modernisation efforts not only streamline and optimise your existing IT estate but also give you the opportunity to adopt new technologies like AI. Studies show that organisations migrating to Azure can observe a 78% faster execution of business changes.[14] With a proven track record for increasing business agility and enabling technological innovation, modernising with Azure sets you up for faster and more successful AI adoption.

To effectively add AI capabilities, your applications need to be cloud-native, scalable and secure enough to support AI's heavy compute, storage and networking demands. Managed services, like AKS and Azure Database for PostgreSQL, give your developers an enterprise-grade environment that can handle development, deployment and operational requirements of AI at scale.

[12] MLCommons. "Training." MLCommons, April 2024
[13] MLCommons. "Inference - Data Centre." MLCommons, April 2024
[14] IDC Business Value White Paper, sponsored by Microsoft, The Business Value of Migrating and Modernizing IT Estate with Microsoft Azure, Doc. #US53301225, April 2025.

On Azure, you can give your developers access to the languages, tools and frameworks they need to integrate AI into your products and infrastructure. With support for open-source AI frameworks like PyTorch and TensorFlow, along with wider platforms like Hugging Face, you have the tools to benefit from AI faster, using all the latest community-driven features and advancements.

With RHEL 10 on Azure, you can also use Red Hat's AI-powered management capabilities, including the Lightspeed assistant. These features can help you manage the complex infrastructure required for AI deployments more efficiently, reducing your operational overhead and ensuring enterprise-grade reliability.

Support for relational and AI database workloads in one service

Migrating your PostgreSQL databases to Azure can also help you to establish a unified data infrastructure with built-in support for AI workloads.

Unlike traditional workloads supported by relational databases, AI workloads make extensive use of vector databases. Purpose-built vector databases are highly useful for AI scenarios but must be provisioned and maintained separately from the rest of your database infrastructure. However, with Azure Database for PostgreSQL, you are able to use the same service you are already using for relational data to also store vector data.

Although PostgreSQL is fundamentally a relational database technology, Azure Database for PostgreSQL natively supports extensions such as pgvector. This allows you to use PostgreSQL databases as vector stores for your AI applications and agents. The service also includes support for scalability and accuracy optimisations, including DiskANN, a vector search algorithm developed by Microsoft Research which lowers latency and cost as datasets grow, as well as accuracy-improving features such as semantic operators and GraphRAG.

Unifying your database infrastructure on Azure Database for PostgreSQL can help you reduce complexity and cost. A single managed service that supports not only traditional relational but also AI-driven workloads avoids the need to operate specialised database servers – helping to lower your operational overhead and licensing expenses while also simplifying governance, compliance and security.

Open-source software is easier on Azure

Modernising your applications involves more than just modifying your applications to use cloud-native architectures. Success also depends on integrating the unique capabilities offered by the global Azure platform into your operational, security and governance processes.

A unified platform empowers your teams

Azure empowers your teams to work in a unified, scalable and flexible environment. This helps break down the traditional silos of legacy IT environments and supports your migration and modernisation efforts by bringing together your developers, IT staff and business stakeholders.

With the Azure platform's extensive support for open-source technology, your teams continue working with the technologies and programming frameworks they already know, while gaining the benefits of automation, built-in security and governance. And because Azure is globally available and connected, your teams can stay productive around the clock, wherever they are.

Powerful monitoring and observability tools

Robust monitoring, reporting, and logging are prerequisites for reliable and performant workloads. When configured properly, these tools can increase efficiency, reduce costs associated with outages or inefficiencies, and enable you to proactively optimise workloads to deliver higher-quality services to your customers.

Azure Monitor offers you end-to-end observability, issue detection, performance optimisation and other tools that help you ensure that your applications are functioning at scale. A comprehensive, fully managed service, Azure Monitor works with many popular open-source applications, databases and frameworks, including PostgreSQL databases, Kubernetes clusters and Linux systems.

The native Azure Monitor support for Grafana dashboards and Prometheus metrics can help you make faster data-driven decisions about your open-source workloads – whether they're running on Azure, on-premises or on another cloud platform. It also gives you the ability to simplify reporting and collaboration between your IT and business teams, reduce the time required to detect and resolve issues and improve your overall service reliability and compliance.

Log ingestion and aggregation tools, like Fluentd and Logstash, help you incorporate operational and security data into Azure Monitor from workloads running on-premises or on other cloud platforms. With this type of consolidated data, you're able to make more informed decisions, optimise application performance, and improve overall reliability and security of workloads across your entire IT estate.

Security, from code to cloud, built in at every level

Before engaging in migration and modernisation efforts, you need to be sure your applications will be protected from potential threats. Securing your cloud infrastructure reduces the risks and potential costs related to data exposure or misuse, helps ensure policy and regulatory compliance, and, ultimately, builds customer trust.

To help you establish safeguards for your entire infrastructure, including hybrid and multicloud environments, Azure offers its integrated cloud-native application protection platform (CNAPP), Microsoft Defender for Cloud. Unlike ad hoc or service-specific security tools, a CNAPP is a comprehensive security solution designed to protect your applications across the application lifecycle, from code to operations and beyond. It can improve your visibility into resource use, help you monitor and track compliance issues, manage potential vulnerabilities, and proactively protect your infrastructure. A CNAPP like Defender for Cloud also provides continuous monitoring and alert correlation across compute, databases and cloud services.

Modern open-source workloads also face unique risks, such as supply-chain vulnerabilities related to code dependencies or unpatched VM or container images. Defender for Cloud provides a holistic set of tools to help you strengthen your DevOps security, embedding security controls into Azure and CI/CD pipelines that help you secure your code, identifying vulnerabilities, and addressing potential security gaps as early as possible.

Defender for Cloud harnesses the vast security capabilities of Microsoft to help protect your infrastructure and applications. It offers powerful threat detection, integrating over 78 trillion daily signals and benefiting from the equivalent of 34,000 full-time engineers assigned to various security initiatives.[15] With these capabilities, you're able to access continuous cyberthreat intelligence, enabling near–real-time responses to threats across various cloud platforms, including AWS, Azure, and Google Cloud.

[15] Microsoft Digital Defense Report 2024. Microsoft, 2024.

Following Azure security best practices helps you to further secure your infrastructure. Open source solutions are usually built with diverse, community-sourced components, often with inconsistent security models. Correctly implementing Azure features, such as role-based access control (RBAC), managed identities, network isolation and encryption, helps you to establish a consistent layer of enterprise-grade security. Your DevOps process can also benefit from enhanced security controls, with secure code and dependency scanning available through GitHub and Azure DevOps.

Both RHEL 10 and Ubuntu Pro FIPS on Azure support Federal Information Processing Standards (FIPS) compliance for post-quantum cryptography, helping organisations prepare for future quantum computing threats. This forward-looking security approach, combined with updated OpenSSH 9.8 and enhanced SELinux capabilities, provides enterprise-grade protection against emerging security challenges.

The layered approach to security on Azure gives you confidence that your critical Linux and open-source workloads have enterprise-grade protection and that your applications are secure, resilient and compliant at scale.

Built-in tools to keep your open-source software workloads compliant

Lack of proper governance and regulatory compliance can result in costly fines and penalties, particularly if sensitive data is mishandled. It can also cause reputational damage due to security breaches or failed audits, financial losses tied to downtime or remediation efforts and even criminal penalties. To help you apply consistent policy enforcement mechanisms across your entire cloud, multicloud and hybrid environments, Azure provides built-in policy and compliance tools that work alongside open-source technologies.

Microsoft also engages globally with governments, regulators, standards bodies and nongovernmental organisations, so that aligning your Azure-based workloads with local laws and requirements is as straightforward as possible. With well over 100 offerings, the Azure compliance portfolio provides certifications and attestation frameworks that can simplify your audits and reporting. Combined, these tools help to ensure that you're meeting global compliance standards when building innovative open-source products and solutions on Azure.

Unlock the power of open source on Azure

Modernising your Linux and open-source workloads on Azure empowers your IT and development teams to scale innovation, accelerate AI adoption, and streamline your operations – without sacrificing flexibility, choice or security.

Azure supports your important open-source workloads with managed databases, container platforms and development frameworks, helping your developers get more done in less time. Co-locating data and compute resources within globally distributed Azure datacentres allows you to minimise latency, improving performance for traditional workloads while also enabling AI-powered innovation.

With a single, enterprise-grade cloud platform, Azure helps you to modernise your open-source applications and to reduce operational overhead and manage costs, while ensuring that you're taking advantage of the latest technology available. With the built-in governance, monitoring and security services provided by Azure, you have what you need to operate at global scale without losing control of compliance or resilience.

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