

BUILD AN ENTERPRISE-GRADE CLOUD ENVIRONMENT WITH RED HAT AND MICROSOFT

TECHNOLOGY OVERVIEW



61%

of organizations define their cloud infrastructure as hybrid.¹

37%

of organizations are moving toward a multicloud future.¹

ENTERPRISE CLOUD ADOPTION IS GROWING

Enterprise organizations are increasingly using public cloud resources within hybrid cloud strategies. Over the next two years, cloud decision makers plan to expand their public cloud infrastructure by 20%.² There are many compelling reasons for organizations to add public cloud resources to their IT infrastructure.

The benefits of an enterprise-ready public cloud environment can be difficult to match in a private data-center. Nearly unlimited scalability enables faster response to changing market conditions. Integrated tools and technologies support continuous evolution and improvement of processes. Massive compute performance provides real-time data analysis to help make better business decisions.

Furthermore, public cloud providers manage all aspects of the cloud datacenter. This simplifies your internal operations and increases your productivity. Advanced data mirroring and backup processes guarantee the integrity and availability of data. Optimization of datacenter resources ensures peak performance during periods of increased utilization.

CONSIDERATIONS FOR DEPLOYING PUBLIC CLOUD RESOURCES

The benefits of integrating public cloud resources into a hybrid infrastructure are numerous, but there are several important items to consider when building your environment:

- While security is a concern for any datacenter, adding public cloud resources can increase potential attack areas as data leaves your private infrastructure and transits the internet.
- While public cloud resources reduce or eliminate many capital expenditures (CapEx), controlling operating expenses (OpEx) can be difficult. Idle and unused resources can raise OpEx quickly and significantly.
- Cloud resources are often managed differently than private datacenter infrastructure as they require more flexible and robust enterprise management and automation tools.
- Public cloud infrastructure can experience times of extremely high use. If resources are not provisioned adequately, demand peaks can negatively impact workload performance.
- Availability and reliability are challenges that scale with datacenter size. In a global environment, public cloud providers must guarantee availability and reliability of global and regional resources.

¹ "Red Hat Global Customer Tech Outlook 2018." Red Hat. January 25, 2018. [redhat.com/en/blog/red-hat-global-customer-tech-outlook-2018](https://www.redhat.com/en/blog/red-hat-global-customer-tech-outlook-2018).

² Calculated based on statistics provided in "Cloud Migration Is Actively Embraced, But Not For Everything." Forrester. October, 2017. [redhat.com/en/resources/cloud-migration-embraced-analyst-paper](https://www.redhat.com/en/resources/cloud-migration-embraced-analyst-paper).

“VAIO migration project practitioners speak highly of the variety of Red Hat solutions on Azure, and of their compatibility with Azure, which is optimized by embedded solutions.”³

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Red Hat Enterprise Linux is Common Criteria and Federal Information Processing Standards (FIPS) 140-2 certified, as well as the first operating system with Linux container framework support to be Common Criteria-certified (v7.1).⁴

DEPLOY AN ENTERPRISE-GRADE CLOUD WITH RED HAT AND MICROSOFT

Together, Red Hat® Enterprise Linux® and Microsoft Azure form a production-ready public cloud foundation. As the most deployed commercial operating system in public clouds, Red Hat Enterprise Linux delivers a stable, high-performance platform, with built-in security and manageability, for running cloud-based workloads.⁵ Microsoft Azure is a global network of some of the world’s largest datacenters and provides a comprehensive set of cloud services for building, deploying, and managing the most demanding applications.

Red Hat solutions running on Microsoft Azure can help you focus on your business, rather than your underlying infrastructure. Quickly launch applications without deploying and configuring additional hardware. Support new infrastructure technologies with your current IT staff. Seamlessly integrate traditional on-premise applications and cloud-native workloads with a consistent foundation for hybrid environments.

SIMPLICITY, EXPERTISE, AND SUPPORT

Integrating public cloud resources into your IT infrastructure can be complicated. Red Hat and Microsoft deliver the simplicity, expertise, and support you need for a successful cloud migration.

Microsoft is a member of the Red Hat Certified Cloud and Service Provider program. Through this partnership, engineering teams for both companies integrate Red Hat Enterprise Linux and Microsoft Azure to provide an easy-to-use platform for cloud workloads. You can deploy applications using the same skills, development tools, and system management solutions that you already know. Comprehensive, certified independent software vendor (ISV) ecosystems and extensive communities of partners and experts allow you to customize your cloud environment according to your organization’s needs.

Together, Red Hat and Microsoft provide an integrated, enterprise-grade support system for customers running Red Hat solutions on Microsoft Azure. This complete support experience features multilingual engineers across 18 regions, colocated staff from both companies, an integrated ticketing system, and a seamless, coordinated escalation and resolution process.

SECURITY

Safeguarding sensitive data is a priority for all IT organizations. Red Hat and Microsoft use their extensive experience to build advanced security features into Red Hat Enterprise Linux and Microsoft Azure. This helps you reduce risk, more easily maintain a secure operating environment, and protect your organization’s most important data.

Red Hat Enterprise Linux provides security technologies, certifications, and the ongoing support of the Red Hat Product Security team to combat intrusions, safeguard your data, and comply with regulations. OpenSCAP—Red Hat’s National Institute of Standards and Technology (NIST)-certified scanner—automates scanning and remediation of security vulnerabilities and provides configuration

³ “Sony Global Manufacturing & Operations support service combines the cloud with open source software to reduce costs.” Microsoft. September 2017. customers.microsoft.com/en-us/story/sony-visionarts.

⁴ “Red Hat Achieves Common Criteria Security Certification for Red Hat Enterprise Linux 7.” October, 2016. redhat.com/en/about/press-releases/red-hat-achieves-common-criteria-security-certification-red-hat-enterprise-linux-7.

⁵ “The state of Linux in the public cloud for enterprises.” Red Hat. February 2018. redhat.com/en/resources/state-of-linux-in-public-cloud-for-enterprises.

Red Hat Enterprise Linux, the world's leading open source operating system, is trusted by **90%** of the Fortune 500.⁶

security baselines for Red Hat Enterprise Linux systems. Integrated security features—including centralized identity and credential management and Security-Enhanced Linux (SELinux) mandatory access controls—give you strict control over data and centralizes authentication management.

Using industry-standard encryption protocols, Microsoft Azure secures your data as it travels to, from, and within Microsoft datacenters, as well as at rest in Azure Storage. Within Microsoft Azure, you can enable security management and threat protection for Red Hat Enterprise Linux as a default. These settings deliver built-in behavioral analytics and use machine learning to identify attacks and zero-day exploits. Additionally, Microsoft Azure monitors Red Hat virtual machine-related networks and cloud services for known attack patterns and post-breach activity.

Red Hat and Microsoft security response teams work together—and in collaboration with customers, partners, and the global open source community—to identify and resolve vulnerabilities. The Microsoft threat-management approach uses technologies and processes, including intrusion and anomaly detection, distributed denial-of-service (DDoS) attack prevention, and behavioral analytics, to continually reduce security risks.

COST CONTROL

Controlling costs continues to be a challenge for IT organizations of all sizes. With a variety of tools and programs, Red Hat and Microsoft help you understand and manage your cloud spending while maximizing the value of your existing investments. The Red Hat Cloud Access program lets you use your Red Hat subscriptions across your entire IT environment. Transfer your existing, unused subscriptions in Microsoft Azure at no additional cost while maintaining your direct support and business relationship with Red Hat and continuing to use your existing operational and procurement processes.

Microsoft Azure's advanced monitoring tools collect cloud use and billing data, giving you full visibility into resource consumption and costs. Custom budget thresholds and automatic alerts warn you when you are at risk of overspending. Clear showback and chargeback reports let you track cloud costs throughout your organization. Role-based access control (RBAC) allows your teams to access data and insights and manage their own spending. Detailed utilization information helps you optimize your assets by right-sizing virtual machines and retiring idle resources.

CLOUD MANAGEMENT

Managing cloud resources can be difficult without the right tools and capabilities. The combination of Red Hat Enterprise Linux and Microsoft Azure services gives you control over every aspect of your public cloud infrastructure.

Red Hat Enterprise Linux provides a reliable foundation for resource management solutions. A consistent and comprehensive management experience—based on easy-to-use web interfaces, update and patch management, and automated consistency and compliance monitoring—streamlines cloud operations. Microsoft Azure Access Control Service lets you grant explicit management and access rights to subscription, service, and operation levels. Microsoft Azure Policy allows you to create, assign, and manage policy definitions for control and governance. It scans your cloud resources and enforces policy-based rules and actions to ensure compliance with corporate standards and service-level agreements (SLAs).

Enhance your cloud management capabilities by adding Red Hat Satellite, Red Hat Insights, and Red Hat Ansible® Automation to your environment. Learn more about Red Hat's management portfolio at redhat.com/management.

⁶ Red Hat client data and Fortune 500, 2017. fortune.com/fortune500.

ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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ABOUT MICROSOFT

Microsoft is the leading platform and productivity company for the mobile-first, cloud-first world, and its mission is to empower every person and every organization on the planet to achieve more.

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Management and automation services offered by Red Hat and Microsoft—delivered as open source applications, frameworks, templates, and single and multiple virtual machine images—let you manage your cloud resources in the manner that works best for your organization.

WORKLOAD PERFORMANCE

Modern applications often have elevated resource requirements. With a workload-aware platform, Red Hat and Microsoft deliver increased performance for demanding applications. As one of the top-performing platforms available, Red Hat Enterprise Linux consistently meets stringent performance requirements across bare-metal, virtual, cloud, and container environments.

Microsoft Azure offers a wide selection of compute services and resources—including graphics processing units (GPUs) in N-series virtual machines—that let you choose the best options for your workload. With resources designed and configured for both compute- and graphics-intensive workloads, you can run any application from high-performance computing (HPC) and batch processing to artificial intelligence (AI) and visualization. Microsoft Azure gives you the flexibility to distribute and scale your workloads to thousands of virtual machines or cores.

AVAILABILITY AND RELIABILITY

Guaranteeing resource stability is a critical task for IT organizations. Red Hat and Microsoft ensure availability and reliability for critical applications to keep your business running at all times.

Every release of Red Hat Enterprise Linux undergoes extensive stress testing and quality assurance, focusing on operating system features that are most important to enterprise applications. This provides a hardened and predictable foundation with greater than 99.999% uptime for essential workloads. Because Red Hat preserves application stability with minor updates, you can maintain critical applications for 10 years or more.

Through availability zones—fault-isolated locations with redundant power, cooling, and networking—Microsoft Azure delivers higher availability and fault tolerance. Depending on the service type, Microsoft guarantees availability and reliability with SLAs of up to 99.99%. As part of the Red Hat Certified Cloud and Service Provider program, Red Hat and Microsoft test and validate the stability and reliability of Red Hat Enterprise Linux running on Microsoft Azure.

LEARN MORE

Enterprise cloud adoption is growing. Red Hat Enterprise Linux and Microsoft Azure form an ideal public cloud foundation to support modern IT needs. The combination delivers high availability, reliability, and performance for demanding applications. Enterprise-grade support and expertise from an integrated team eases your cloud migration. Advanced security technologies protect your data, applications, and business. Unified tools and visibility provide simple cloud management. Contact your Red Hat or Microsoft sales representative to begin your cloud journey.

[Learn more at redhat.com/rhel](https://redhat.com/rhel) and azure.com/redhat.

3 "2017 State of DevOps Report." Puppet Labs and DORA. 2017. puppet.com/resources/whitepaper/state-of-devops-report.

4 "Building trust in a cloudy sky." McAfee. 2017. mcafee.com/us/solutions/lp/cloud-security-report.html.