Build a production-grade cloud to support modern IT

87%

of enterprises have a hybrid cloud strategy, and

96%

of organizations use at least one public cloud.[1]

Red Hat and Microsoft can help you build a production-grade cloud environment to support digital business needs.

Digital IT requires cloud adoption

Enterprise organizations are increasingly using public cloud resources within hybrid cloud strategies. In fact, more than 50% of enterprise workloads and data are expected to be in a public cloud within 12 months.[1] 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 datacenter. Organizations can take advantage of nearly unlimited scalability to speed response to changing market conditions. Integrated tools and technologies support continuous evolution and improvement of processes. And massive compute performance permits 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. Resource optimization ensures peak performance during periods of increased use.

Key considerations for constructing your cloud environment

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.

- Even though 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 and 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 Flexera. "2020 Flexera State of the Cloud Report," April 2020.

Build a production-grade cloud with Red Hat and Microsoft

Together, Red Hat® Enterprise Linux® and Microsoft Azure form a production-ready public cloud foundation. As the top commercial Linux distribution for public cloud deployments, Red Hat Enterprise Linux delivers a stable, high-performance platform with built-in security and manageability for running cloud-based workloads.[2] 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 shift focus from infrastructure maintenance to delivering more business value. Quickly launch applications without deploying and configuring additional hardware. Support new infrastructure technologies with your current IT staff. Seamlessly integrate traditional on-site applications and cloud-native workloads with a consistent foundation for hybrid environments.

Simplify cloud migration with expertise and support

Organizations face many assessment, planning, and optimization challenges when adopting public cloud resources and 66% say migration is a top cloud challenge.[1] Red Hat and Microsoft deliver the simplicity, expertise, and support you need for a successful cloud migration.

86%

of organizations are using, experimenting with, or planning to use Microsoft Azure.[1]

Microsoft is a member of the Red Hat Certified Cloud and Service Provider (CCSP) program. Through this partnership, engineering teams from both companies integrate Red Hat Enterprise Linux and Microsoft Azure to provide an easy-to-use platform for cloud workloads. Use your current skills, development tools, and management solutions to deploy applications in the cloud. Customize your cloud environment through comprehensive, certified independent software vendor (ISV) ecosystems and extensive communities of partners and experts.

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.

Protect your business with integrated security

Certification to stringent security standards—including Federal Information Processing Standard (FIPS) 140-2, Common Criteria (CC), and Secure Technical Implementation Guidelines (STIG)—lets you use Red Hat Enterprise Linux across industries and situations without compromising security

81% of organizations cite security as a top cloud challenge.[1] 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, maintain a security-focused operating environment, and better protect your organization's most important data.

Red Hat Enterprise Linux provides layered security technologies, certifications, and the ongoing support of the Red Hat Product Security team to combat intrusions, safeguard your data, and comply with regulations. Integrated security features—including centralized identity and credential management and Security-Enhanced Linux (SELinux) mandatory access controls—give you strict control over data and centralize authentication management. Included with Red Hat Enterprise Linux, OpenSCAP is a National Institute of Standards and Technology (NIST)-certified set of specifications for maintaining enterprise system security. OpenSCAP verifies the presence of patches, checks system security configuration settings, and examines systems for signs of compromise based on standards and specifications.

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2 Management Insight Technologies, sponsored by Red Hat. "State of Linux in the public cloud for enterprises," February 2018.

![Red Hat logo]

100%

of airlines, commercial banks, healthcare companies, and tele-communication companies in the Fortune Global 500 rely on Red Hat products.[3]

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 turn on 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. Microsoft's 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.

Control cloud costs

66% of organizations cite optimizing costs as a top cloud initiative.[1] Using a variety of tools and pro-grams, Red Hat and Microsoft help you understand and manage your cloud spending while maxi-mizing 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 subscrip-tions to Microsoft Azure while maintaining your direct support and business relationship with Red Hat and continuing to use your current operational and procurement processes.

Microsoft Azure's advanced monitoring tools collect cloud use and billing data, giving you complete 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 use information helps you optimize your assets by right-sizing virtual machines and retiring idle resources.
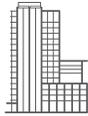
Streamline cloud management

Improving operational efficiency is the top business priority for organizational boards.[4] The combina-tion 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 con-sistent 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).

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.

Gain operational confidence with Red Hat Insights

Included with all active Red Hat Enterprise Linux subscriptions, Red Hat Insights is a Software-as-a-Service (SaaS) offering that collects analytics about your Red Hat Enterprise Linux environment to proactively identify and remediate security, compliance, and configuration risks.

- Enhance visibility with a unified interface.

- Identify risks without manual analysis.

- Gain remediation guidance and prioritize actions.

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3 *Red Hat client data and Fortune Global 500 list for 2020.*

4 Harvey Nash and KPMG. *"CIO Survey 2020: Everything changed. Or did it?"* Sept. 2020.

Boost workload performance

62% of organizations view applications as essential to their business, and an additional 36% believe applications provide a competitive advantage.[5] With a workload-aware platform, Red Hat and Microsoft deliver increased performance for critical applications. Used in four of the world's top ten supercomputers, Red Hat Enterprise Linux consistently meets stringent performance requirements across bare-metal, virtual, cloud, and container environments.[6]

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 applications. 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 also gives you the flexibility to distribute and scale your workloads to thousands of virtual machines or cores.

Ensure 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 99.99% 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 CCSP program, Red Hat and Microsoft test and validate the stability and reliability of Red Hat Enterprise Linux running on Microsoft Azure.

Learn more

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.

Begin your cloud journey at redhat.com/en/red-hat-microsoft-partnership.

5 F5 Networks. "2020 State of Application Services Report," 2020.

6 TOP500 list as of June 2020. Retrieved from top500.org/lists/top500/2020/06/ on 22 October 2020.

About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.

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