



Open your possibilities with Red Hat

Boost innovation and growth in your organization



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Red Hat solutions meet you
wherever you are today—
and grow with you, how
and when you want.

Introduction

Opportunities for business value span the entire IT organization, from traditional workloads and applications to new technology integrations and deployments.

Picture this in the not too distant future . . .

The IT organization in your company is a key contributor to increased growth. All areas are working to spur innovation, efficiencies, and productivity throughout the business. There is no question about the role of IT in your competitive advantage.

If this scenario is close to your ideal state, try one more creative thinking exercise:

- ▶ How did you get there?
- ▶ Where did you start?
- ▶ What was the critical path to success?

This e-book provides answers to those questions *now*, as you build the IT organization you envision.

Our goal is to help you overcome business challenges and make informed decisions. Red Hat can help you:

- ▶ Establish a cohesive, standardized infrastructure.
- ▶ Make the most of the cloud.
- ▶ Use automation to free up your team.
- ▶ Modernize applications for agility and speed.
- ▶ Manage high data volume.
- ▶ Rethink security to work in a cloud environment.

Set a strong foundation

When your systems have a common, shared foundation, they can deliver services as needed instead of being limited to a single function. Intelligent sharing of IT resources gets more work done with fewer servers.

Businesses are often held back by outdated approaches to the design, management, and operation of their IT environment. Does your organization have too much infrastructure complexity and not enough clarity?

If so, you are in good company. Over time, many companies have evolved a complex maze of operating systems and versions, server hardware configurations, and management tools. It often takes a large, skilled IT team to handle interoperability issues, complicated administration, and labor-intensive processes. And the consequences? Slower provisioning, more downtime, and greater security and compliance gaps. It can be difficult to deliver the services the business needs with the efficiency and speed it demands.

Red Hat Enterprise Linux is the world's leading enterprise Linux platform, trusted by more than 90% of the Fortune 500.¹

Set up for innovation now—and into the future

The way IT and business operations approach digital transformation is changing. Organizations are focusing not only on innovation, but also resilience and adaptability to changing conditions. Well-architected infrastructure becomes even more critical because it must be designed to support change. Resilience must:

- ▶ Be supported through deployment of continuous integration and continuous delivery (CI/CD) or for multiple versions of applications.
- ▶ Cross both traditional datacenters and cloud environments.
- ▶ Juggle data security, user and service access, and risk management.

A resilient, adaptable environment will build on three principles: automation, security, and consistency.

How Red Hat can help

Red Hat brings order to your IT environment

The Red Hat® portfolio unifies open source technologies that work together and with your existing systems and processes.

We started with [Red Hat Enterprise Linux®](#), the world's largest commercial Linux platform with proven value for companies of all sizes and industries.² We then developed a broad portfolio of products to extend IT operations into cloud computing and pursue modern software strategies, such as containers and microservices, all with improved security and automation capabilities.

Spend less, save time, and operate more efficiently

Organizations that use Red Hat Enterprise Linux spend less on server purchases, software for those servers, server maintenance, and datacenter power, cooling, and floor space.³ They also spend less time focusing on routine IT tasks, resolving support calls, recovering from unplanned downtime, and deploying or upgrading business applications.³ And they reap business benefits by delivering new services faster.³

Position yourself for future success

With Red Hat Enterprise Linux as your foundation, you can readily scale existing applications and roll out new technologies on a server (bare metal), on virtual machines (VMs), and in cloud environments. Providing a foundation for solutions ranging from containers to automation to artificial intelligence (AI), Red Hat Enterprise Linux is created for innovators, designed for developers, and engineered for operations. It is today's stage for what you can do tomorrow.

¹ Red Hat client data and Fortune 500 list, June 2020.

² IDC, "Worldwide Server Operating Environments Market Shares, 2019: Overall Server Operating Environment Market Grows During the Year, Led by Linux-Based Shipments and Deployments." Doc #US46684720, July 2020.

³ IDC White Paper, sponsored by Red Hat. "The Business Value of Red Hat Solutions Compared to Unpaid Alternatives." Doc #US47607721, April 2021.

“Having that solid foundation of [Red Hat Enterprise Linux]—in the cloud, on virtualized, on bare metal, and the public cloud—allows customers to go anywhere they want, any cloud they want, any type of application.”⁴

Brian Gracely
Director of Product Strategy,
Red Hat

Capitalize on the cloud

With cloud technology, your IT infrastructure can expand and shrink to support the business as needed.

[Cloud computing](#) helps organizations run workloads within distributed IT environments, pooling and sharing resources across a network. The cloud can be:

- ▶ Within your organization and serve only you (private cloud).
- ▶ Outside your organization, serving other tenants as well (public cloud).
- ▶ Made of multiple clouds, including public and private platforms, with some degree of connection among them (hybrid cloud).
- ▶ A combination of public and private clouds that may or may not be networked (multicloud).

For example, if you are an online retailer, you could maintain an on-premise IT infrastructure that meets your day-to-day needs. During peak times, such as holidays and sales events, you could use cloud bursting, where an application bursts into a public cloud as demand for computing capacity spikes. You can process the heavier demand without needing extra resources in your own datacenter.

While cloud computing is rapidly becoming essential for IT operations, standalone clouds based on proprietary technologies are not the answer. A [hybrid cloud](#) environment bridges clouds, makes data and workloads portable among them, and creates a unified experience, positioning your organization for the future.

The common foundation you established makes your cloud deployment faster, more reliable, and more efficient.

How Red Hat can help

Ensure a strong foundation

Red Hat’s open source technologies bring a consistent foundation to any cloud deployment. Our standard operating system works the same way in any environment. Our container platform packages and moves applications from cloud to cloud. Red Hat tools help you manage and automate it all, in your private cloud or multicloud environments.

[Red Hat Enterprise Linux](#) is [certified by hundreds of public cloud and service providers](#), so you can move to the cloud with confidence.

Supports a comprehensive cloud approach

With [Red Hat Ansible® Automation Platform](#) and [Red Hat OpenShift®](#), our portfolio supports cloud computing, from infrastructure management and monitoring to data and application services. You can maximize your cloud capabilities, knowing that today’s investments and tomorrow’s new applications will run anywhere.

⁴ [Red Hat hybrid cloud infrastructure page](#). Accessed July 12, 2021.

You have many cloud adoption possibilities because you can integrate offerings from hundreds of Red Hat-certified software, hardware, and services partners. If you need help planning your approach, our experienced teams can help you establish a roadmap to take you from where you are to where you want to be.

Free your IT organization for higher value tasks

IT components and tasks multiply faster than humans can handle.

Automation in all forms has evolved from being a cost-saving measure into a strategic boardroom imperative. By adopting an automation-first philosophy, companies can gain the agility and efficiency required to keep pace in today's dynamic business environment. In companies using edge computing, automation allows IT to more robustly support operation technology. Automation is also critical for managing the increased data volume that the Internet of Things (IoT) produces.

IT operations teams manage intricate IT architectures built on multiple platforms and complex technology layers. Legacy management tools have limitations. They compartmentalize control, use proprietary languages, and do not expand existing use cases. As a result, manual tasks dominate the team's time and energy, which limits innovation and growth.

Automate redundant and mundane tasks. Automation increases speed and reliability when rolling out new applications and services, presents fewer security and compliance risks, and lowers operating expenses. It also frees IT staff and budget for more valuable activities. When you are confident that your IT environment operates as it should, you can spend more time and resources on strategic priorities.

How Red Hat can help

Automate across your teams for better and faster innovation

No matter how complex your IT environment is or where you are on your modernization journey, Red Hat's automation and management portfolio takes charge of routine tasks that slow down your teams. Choose the components you need to:

- ▶ Automate on your schedule.
- ▶ Claim space to think ahead.
- ▶ Reduce the risk of human error.
- ▶ Capitalize on consistency.

You could start by automating one task or service, then share it and build on it. Over time, you will reach your chosen level of automation, without having to make big changes at once.

Red Hat automation tools help you optimize resources

Free up time, money, and resources. Count on Red Hat's open source automation technologies to help get more out of your time, teams, and investments.

When you are confident that your IT environment operates as it should, you can spend more time and resources on strategic priorities.

Red Hat Ansible Automation Platform was named a leader in infrastructure automation platforms in The Forrester Wave™: Infrastructure Automation Platforms, Q3 2020.⁵

⁵ Forrester Research. "The Forrester Wave™: Infrastructure Automation Platforms, Q3 2020." August 2020.

[Red Hat Ansible Automation Platform](#) automates configuration, provisioning, workflow orchestration, application deployment, and life-cycle management. Ansible Automation Platform makes automation easier to implement because it uses agentless technology. That means there is no need for a nugget of software to run in the background on the machine being managed.

[Red Hat Smart Management](#) allows continuous, deep analysis to identify and resolve security, compliance, and configuration issues for bare metal, virtual, and cloud deployments of Red Hat Enterprise Linux. It is the easiest way to manage Red Hat infrastructure across physical, virtual, and cloud environments. Use Red Hat Smart Management to keep systems running efficiently, with the proper security, and in compliance with standards.

Modernize your applications

Accelerate the path to competitive advantage.

To compete and succeed, your business likely relies on a host of digital applications, such as:

- ▶ **Operations software** to manage procurement, human resources, customer experience, and other business functions.
- ▶ **Customer-facing software** that allows customer self-service and provides an immediate digital experience.
- ▶ **Business intelligence** to transform volumes of data into insights to make sound business decisions.
- ▶ **Predictive analytics** to use historical data to guide decisions.
- ▶ **Intelligent data services** to move, store, transform, respond to, and learn from enterprise data.
- ▶ **Machine learning**, where an application learns from the data it sees and makes new discoveries.

You need to increase application velocity to deploy, run, and update applications and services whenever needed.

And it needs to be done in the cloud

If you wonder how to run and support applications on different clouds, you are not alone. Many organizations struggle with balancing how to reap the full advantages of the cloud and deliver the speed the business needs.

In addition to a standardized operating environment, containerization is the way of the future in application development. Containers package applications into modules with their entire runtime environment—all of the files necessary to run. Rather than run an entire, complex application in one centralized machine, the application is organized into modules that evolve and scale independently.

A survey sponsored by Red Hat reported notable metrics related to containerization:⁶

- ▶ DevOps and development team productivity is 20% higher.
- ▶ IT infrastructure teams are 21% more efficient.
- ▶ 5-year ROI was 636%.

⁶ IDC White Paper, sponsored by Red Hat. "The Business Value of Red Hat OpenShift." Doc #US47539121, March 2021.

With containerization:
DevOps and development team
productivity is 20% higher.

IT infrastructure teams are 21%
more efficient.⁶

The right mix of technologies—already tested, running, and available—simplifies application development so you can focus on other priorities.

How Red Hat can help

Whatever your current application development process and platform, and whatever your container strategy, Red Hat is here to help.

Modernize with a container application

[Red Hat OpenShift](#) is the leading choice for customers who want a more secure, supported Kubernetes platform guided by deep expertise. Red Hat OpenShift automates the container life cycle, embeds security into the container pipeline, and supports DevOps teams. Optimized to improve developer productivity and promote innovation, Red Hat OpenShift is an enterprise Kubernetes container platform with full-stack automated operations for managing hybrid cloud, multcloud, and edge deployments. Multiple [Red Hat OpenShift managed services](#) are available, so you can choose the option that best fits your organization's needs.

Engage our managed services

Many organizations are moving to, or considering moving to, managed cloud services. Red Hat is committed to the hybrid cloud experience. To that end, in addition to our self-managed products, Red Hat OpenShift managed services offer managed application, data, and platform cloud services with full stack management and a streamlined user experience across open hybrid cloud environments.

Advantages include faster time to market because cloud operations can get started right away and continuously update infrastructure. Plus, you only pay for what the team uses—reducing overall costs—and your focus can shift to redeployment of valuable resources to achieve business objectives.

Get access to development and training resources

Red Hat hosts and manages container solutions, in the cloud or on-premise, that are native in all major clouds. Red Hat Ecosystem Catalog provides access to hundreds of certified container images, language runtimes, and databases, along with connecting middleware that can run anywhere you run Red Hat Enterprise Linux. Our [online training classes](#) build your team's technical skills in container concepts and container orchestration technology.

Build and scale
applications with confidence.
We manage the rest.

Make light work of heavy data

Unlock the power of data, while making it accessible, resilient, and useful.

Most successful businesses have learned to monetize data to boost efficiency, increase profitability, and develop a competitive advantage. But the high volume of data presents challenges for organizations and can prohibit them from maximizing the benefits it can deliver. In many organizations, data resides in a mix of systems, often locked into a specific development language, operating system, or deployment model (cloud, virtual, or on-premise).

Business and IT leaders want to streamline data processes—to standardize the data environment, consolidate database servers on a consistent platform, and reduce licensing costs.

Having data available in a usable format when and where needed can mean the difference between market leadership and missed opportunities.

“The processes to capture, transform, respond to, and learn from data are indeed much more valuable than the data itself.”⁷

Irshad Raihan
Red Hat Data Services

How Red Hat can help

With [Red Hat Data Services](#), organizations can more efficiently manage their data at rest, in motion, and in action to deliver meaningful business insights. Our open, stable database solutions help your business work more efficiently and grow faster with data that is available, stable, and protected.

Products to consider:

[Red Hat OpenShift Data Foundation](#) abstracts storage infrastructure so data can be stored in many different places—but act as a single persistent repository. This data service delivers simplified access to developers, dynamic scale for Kubernetes administrators, and a consistent user experience across clouds, on-premise, and virtual deployments.

[Red Hat Ceph® Storage](#) is an open and scalable storage solution for modern data pipelines, such as advanced analytics, media repositories, and AI. Quickly gain insights from massive amounts of unstructured data with streamlined operation, monitoring, and capacity management, while scaling beyond 10 billion objects.

Increasingly, object storage is becoming a preferred data lake platform because of its ease of use via representational state transfer (REST) application programming interfaces (APIs) and its massive scalability. Red Hat Ceph Storage, which is the data plane for Red Hat OpenShift Data Foundation, delivers on these key requirements.

[Red Hat OpenShift Data Science](#) provides a supported, self-service sandbox environment to help data scientists and machine learning (ML) engineers collaborate on preparing data, testing, and training ML models. Customers can access a range of AI/ML technologies from Red Hat partners and independent software vendors to build customized environments using the best AI/ML and data science tools in the industry.

Protect the business and your IT environment

Security approaches can be different in the cloud.

Cloud adoption is often developer driven and accompanied by the adoption of open source technologies. These technologies offer advantages, like access to the latest innovations, transparency, collaboration, cost savings, and potentially higher-quality software. Deployment of cloud technologies often means giving developers increased control of the full development life cycle. Developers, however, are not security experts, and you may increase risk if you have not incorporated the necessary mitigations and security gates.

Consider security from the beginning

Bring in your security teams at an early point in the cloud evaluation process. That way you are planning the security of your hybrid cloud environments proactively and collaboratively from the beginning. This early planning also helps create more secure applications. As a result, you are introducing DevSecOps into your organization from the start of your cloud process. As you plan implementation:

- ▶ Incorporate security into your open source technology environment. Specifically:
 - ▶ Have a method to inventory the scope of open source usage in your organization.
 - ▶ Have the ability to find vulnerabilities across all the open source technologies that are being used and quickly assess the security impact of each vulnerability.

⁷ Raihan, Irshad. “Open the possibilities of your data.” Red Hat blog, June 23, 2021.

“Bring in your security teams at an early point in the cloud evaluation process. That way you are figuring out how to secure hybrid cloud environments proactively and collaboratively from the beginning.”⁸

Lucy Kerner
Director, Security Global Strategy
and Evangelism, Red Hat

- ▶ Have the resources in place to quickly fix vulnerabilities and update all affected systems to the latest version that includes the fixes.
- ▶ Determine your strategy for automated configuration management to resolve misconfigurations, which are a common cause of security breaches.
- ▶ Create a strategy for managing, protecting, and gaining visibility into all your data in a hybrid cloud environment. For example, encrypt your data at rest, in motion, and in action.
- ▶ Encrypt secrets within the cloud and within your application.
- ▶ Determine a strategy to maintain compliance and governance in the hybrid cloud environment.
- ▶ Take advantage of the vast security tooling you have in place, whether it is from your public cloud provider or in your operating system.

Make sure your security works in the new environment

To achieve the benefits of open source and cloud computing with minimal risk, your security approach must be thoughtfully considered and updated regularly. Take a close look at your security practices and policies. A security approach that makes sense in a physical or virtual environment may not make sense in a cloud environment. Also, make sure procedures are in place to regularly review and update your approach.

How Red Hat can help

Implement security and meet compliance requirements

Our people, processes, and technologies work together to help organizations implement security and meet compliance across application and infrastructure life cycles in both traditional and cloud-native environments.

Red Hat open source software is developed with a documented security process that gives you the flexibility to move workloads to any footprint while reducing exposure to vulnerabilities and attacks. Red Hat includes static analysis of source code and other key actions to ensure the security of operations and security updates for all our products.

Red Hat provides the technologies needed to build a hybrid cloud more securely

We take a layered, defense-in-depth (DiD) approach that uses the capabilities of each layer—operating system, container platform, automation tools, Software-as-a-Service assets, cloud services—and helps organizations implement security across each phase of the life cycle in partnership with our security partners.

Products to consider:

- ▶ [Red Hat Enterprise Linux](#) has built-in security technologies directly in the operating system. From this foundational security, you can scale existing applications and consistently roll out emerging technologies across bare-metal, virtual, container, and all types of cloud environments. [Red Hat Insights](#), part of Red Hat Enterprise Linux, uses predictive analytics and deep domain expertise to help organizations improve security and compliance visibility, reduce downtime, optimize skills and resources, and focus on innovation.

⁸ Kerner, Lucy. “Open your possibilities video series: Security.” Accessed July 12, 2021.

- ▶ [Red Hat OpenShift Platform Plus](#) inherits all the security features of Red Hat Enterprise Linux and delivers a consistent hybrid cloud enterprise Kubernetes platform for building and scaling containerized applications more securely.
- ▶ [Red Hat Ansible Automation Platform](#) allows organizations to implement automation consistently across infrastructure operations, application development, and security operations. Ansible Automation Platform's integration with third-party security technologies further extends these capabilities by providing curated, certified, and supported automation content focused on security use cases like investigation enrichment, threat hunting, and incident response.
- ▶ [Red Hat Smart Management](#) increases efficiency by automating repetitive life-cycle management tasks for Red Hat Enterprise Linux, keeping systems more secure, available, and compliant.
- ▶ [Red Hat Application Services](#) offers a wide range of services with application security features providing a set of agile and flexible products that feature security support for API management, API traffic control, API gateway, encryption, authentication, authorization, and more secure communication and connectivity between applications.

Red Hat is your security partner

We can help scale your organization with security training, support, and consulting services. You will get continuous security updates for all the packages included in Red Hat products.

Create better technology with open source

Open source offers advantages over proprietary technologies, including:

- ▶ **Open collaboration.** The existence of active open source communities means that you can find help, resources, and perspectives that reach beyond one interest group or one company.
- ▶ **Freedom to innovate.** Open source is the foundation for innovation. Connect your ideas with the best that open source communities offer.
- ▶ **Peer review.** Open source code is living code, actively checked and improved upon by peer programmers.
- ▶ **Transparency.** Open source allows you to track data movement and code changes without involving a vendor.
- ▶ **Reliability.** Open source code outlives its original authors because it is constantly updated through active open source communities. Open standards and peer review ensure that open source code is tested appropriately and often.
- ▶ **Flexibility.** You are not locked into using the code in a specific way—you can use open source code to address problems that are unique to your business or community. Plus, you can rely on community help and peer review when you implement new solutions.
- ▶ **Lower cost.** With open source, the code itself is free, so when you work with a company like Red Hat, you pay for support, security hardening, and help in managing interoperability.
- ▶ **No vendor lock-in.** You can take your open source code anywhere, and use it for anything at any time.

At Red Hat, we have spent more than two decades collaborating on community projects and protecting open source licenses so we can continue to develop software that pushes the boundaries of technological ability.

How we work

A Red Hat subscription helps you move your business forward with less frustration and more room for innovation. It gives you what you need to run all your systems reliably and more securely. In addition to the software, a subscription gives you access to a community of experts, knowledge resources, security updates, and support tools that you cannot get anywhere else. Services and resources include:

Businesses that use Red Hat subscription software instead of unpaid, community supported alternatives gain US\$17,195 in benefits per 100 users.⁹

Ongoing delivery

- ▶ Patches
- ▶ Bug fixes
- ▶ Updates
- ▶ Upgrades

Technical support

- ▶ 24/7 availability
- ▶ Unlimited incidents
- ▶ Specialty-based routing
- ▶ Multivendor case ownership
- ▶ Multichannel support

Industry ecosystem

- ▶ Hardware certifications
- ▶ Software certifications
- ▶ Cloud provider certifications
- ▶ Software assurance

Resources

- ▶ Red Hat Customer Portal
- ▶ Red Hat Training and Certification
- ▶ Red Hat Consulting

⁹ IDC White Paper, sponsored by Red Hat. "The Business Value of Red Hat Solutions Compared to Unpaid Alternatives." #US47607721, April 2021.

Do more with Red Hat

Open more possibilities for your IT organization.

Find out how [Red Hat and open source](#) can bring stability, security, and innovation to your business.

Learn more about our [IT solutions](#) and [talk to a Red Hatter](#).



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 develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. [A trusted adviser to the Fortune 500](#), Red Hat provides [award-winning](#) support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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