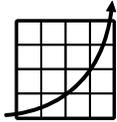


SPEED DEVELOPMENT AND OPERATIONS WITH RED HAT CLOUD SUITE

TECHNOLOGY OVERVIEW



Organizations adopting an agile application development approach can reduce application time to market by

83%

decrease the time needed to update their IT environment by

90%

and increase productivity by

48%

Innovative, integrated, open, and enterprise-grade, Red Hat Cloud Suite is an ideal platform for agile application development that streamlines your operations and increases the scalability of your infrastructure and applications.

INTRODUCTION

The modern business climate is more competitive and disruptive than ever before, forcing your organization to adapt to three new realities:

1. Your business needs a continuous competitive advantage.
2. Your business faces an increasing number of competitive threats from both traditional and non-traditional sources.
3. High-quality software can help you differentiate your company, regardless of your industry.

To be successful, your organization must respond accordingly to these concepts. Line-of-business (LoB) managers must deliver services faster at scale with lower incremental costs. Developers must create and update code more quickly to release applications on demand. Operations managers must provide IT services with both public cloud-like scalability and enterprise reliability.

However, due to traditional processes and inflexible infrastructure and applications, most organizations struggle to meet these needs. As a result, many are looking for new methods and technologies to improve their business and operations:

- 93% are running applications on or experimenting with Infrastructure-as-a-Service (IaaS).²
- 57% are using or planning to implement some form of cloud environment.³
- 93% expect new investments in agile application development.⁴
- 71% are using or anticipate using containers for cloud applications.⁵

Cloud environments and agile application development approaches can help alleviate the new challenges organizations face. In fact, compared to their lower-performing counterparts, organizations that use these elements to focus on producing excellent software have 80% fewer residual design defects in their software, develop software more than three times more productively, and have a 70% shorter time to market for new software products and features.⁶



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¹ Oliver Bossert, Chris Ip, and Irena Starikova, McKinsey and Company, "Beyond agile: Reorganizing IT for faster software delivery," September 2015.

² Ben Kepes, Forbes, "New Stats from the State Of Cloud Report," March 2015, found at: <http://www.forbes.com/sites/benkepes/2015/03/04/new-stats-from-the-state-of-cloud-report/>.

³ IDC, "Don't Get Left Behind: The Business Benefits of Achieving Greater Cloud Adoption," August 2015.

⁴ IDC, "DevOps, Open Source, and Business Agility: Lessons Learned from Early Adopters," June 2015.

⁵ Forrester, "Maximize Container Benefits With A Top-Down Approach," April 2015.

⁶ Peter Andén, Chandra Gnanasambandam, and Tobias Strålin, McKinsey and Company, "The perils of ignoring software development," February 2015.



“A two-speed [bimodal] IT architecture allows large-scale companies to accelerate the release of innovative products and applications that could make a substantial difference to customers while maintaining legacy IT systems that are less innovative but still necessary for the stability of the business.”

OLIVER BOSSERT, CHRIS IP, AND
IRENA STARIKOVA,
MCKINSEY AND COMPANY,
“BEYOND AGILE: REORGANIZING I.T.
FOR FASTER SOFTWARE DELIVERY,”
SEPTEMBER 2015

Even so, most organizations have traditional methods, hardware, and software that make up the core of their business. Replacing all of these at once is expensive and risky. A bimodal IT approach can deliver both stability for traditional applications and agility for new, cloud-native applications.

Gartner defines *bimodal IT* as the practice of managing two separate, coherent modes of IT delivery—one focused on stability the other on agility.⁷

- **Mode 1** is traditional and sequential, emphasizing safety and accuracy.
- **Mode 2** is exploratory and nonlinear, prioritizing agility and speed.

Red Hat® Cloud Infrastructure and Red Hat Cloud Suite can help you transition to a bimodal IT approach with agile application development tooling for greater business success. With Red Hat Cloud Infrastructure, you can deploy a scalable, programmable infrastructure that meets bimodal IT needs and reduces both your infrastructure complexity and the time, effort, and resources you spend delivering existing IT applications and services. Once you have freed your IT staff from day-to-day infrastructure maintenance, you can add agile application development and delivery capabilities with Red Hat Cloud Suite. Based on industry-leading products—including Red Hat OpenStack® Platform, Red Hat CloudForms, Red Hat Ceph Storage, and OpenShift Enterprise by Red Hat—this innovative platform speeds application development, increases scalability, and improves business agility.

This technology overview discusses container-based application delivery using Red Hat Cloud Suite.

THE OPEN SOURCE ADVANTAGE

Organizations traditionally feel they must choose between innovation and integration. Innovation requires a large engineering investment that involves integrating and supporting disparate open projects. Meanwhile, proprietary integrated solutions can be expensive and lock you into a single vendor that controls your access to innovation.

Red Hat unites innovation with integration to deliver open, agile technologies. As the open source leader, all of Red Hat’s solutions—including Red Hat Cloud Suite—are completely open source and based on industry standards. All Red Hat products offer community innovation while providing the security, stability, and deployability enterprises need.

Agile application development methodologies—conceived as a way to collaborate in open source communities—are inherently open and continue to develop in these communities. Much as it did for Linux® and OpenStack, Red Hat brings the agile application development methodology from the community to the enterprise, so your organization can benefit from both open innovation and integration. Additionally, Red Hat is a leading contributor to the Kubernetes and OpenShift communities and participates in several Docker-based communities. The company includes tested and hardened versions of these technologies in Red Hat Cloud Suite.

⁷ Gartner, “Bimodal IT,” found at: <http://www.gartner.com/it-glossary/bimodal>.



“Containers are a key enabler of modern application and operation management approaches.”

FORRESTER,
“MAXIMIZE CONTAINER BENEFITS
WITH A TOP-DOWN APPROACH,”
APRIL 2015

INCREASE AGILITY WITH MODERN DEVELOPMENT AND OPERATIONS

Frequently, disparate development teams build monolithic, rigid applications that are unable to operate independently. Building cross-functional development teams and using a microservices architecture to streamline your processes and operations can increase business agility. Reduced dependencies between applications allows greater, independent, and more efficient scaling. A faster development cycle moves new functionality from development to production more quickly. This approach also enables more frequent changes to applications and increases the success rate of those changes.

With Red Hat Cloud Suite, adopting an agile application development approach is simple. OpenShift Enterprise by Red Hat helps you take advantage of container-based application delivery in both your organization and your environment—its container architecture helps you build efficient, independently deployable, microservices-based applications that speed new product delivery. With a stable runtime for container technologies, you can deploy workloads across physical, virtual, and private and public cloud environments as needed. OpenShift Enterprise by Red Hat also gives you the management tooling and automation to build a continuous integration and delivery pipeline that quickly moves applications from development to production. Red Hat Ceph Storage dynamically connects microservices and ephemeral, containerized data to avoid bottlenecks in production environments. Additionally, Red Hat CloudForms helps you manage your environment from a single interface, simplifying compliance and governance.



CASE STUDY: FICO

Challenge: Expand and diversify offerings to serve new markets.

Results:

- Reduced time to value for new analytics solutions by up to 70%
- Improved IT operational efficiency
- Implemented an embedded solution for on-premise platform delivery



CASE STUDY: CISCO

Challenge: Improve productivity and expand access to new programming languages and frameworks.

Results:

- Automated provisioning for developers to make resources available in as few as 15 minutes
- Deployed standardized stacks for different languages, including Java and Node.js
- Improved infrastructure and management using containers



CASE STUDY: CA TECHNOLOGIES

Challenge: Deploy more on-demand applications, speed time to market, and implement a common platform for application development.

Results:

- Reduced the time to build, deploy, and update new software from months to days
- Enabled developers to move applications from concept to production faster
- Improved hardware usage and horizontal scaling using containers

INCREASE SCALABILITY WITH A PROGRAMMABLE INFRASTRUCTURE

Cloud-native applications require a scalable infrastructure. However, scale-up infrastructure is typically expensive, complex, and unable to meet the scalability needs of web applications. Furthermore, building and maintaining a scale-out infrastructure yourself can be complicated, as many solutions lack enterprise features. An enterprise-grade OpenStack distribution, with software-defined storage, can help you deliver the scale-out infrastructure needed for cloud-native applications across multiple locations. Commodity hardware lets you provide massive, cost-effective scalability. Full-featured, high-quality management tools simplify administration and allow you to manage a federated cloud infrastructure.

Red Hat Cloud Suite delivers all of these features. Red Hat OpenStack Platform provides an enterprise-grade cloud infrastructure with a scalability that surpasses most virtualization platforms. Combining Red Hat OpenStack Platform with Red Hat Ceph Storage, which is tightly integrated with OpenStack’s modular architecture and is overwhelmingly preferred by OpenStack users, delivers even greater scalability. With programmable application programming interfaces (APIs), you can automate scaling and capacity management. An asynchronous design delivers greater scalability and lets you use commodity servers for compute, networking, and storage, simplifying purchasing and reducing costs. And the open foundation gives you more choice and flexibility to integrate complementary technologies and deploy them according to your needs.

Adding to this, Red Hat CloudForms supplies enterprise-grade cloud management capabilities. With Red Hat CloudForms, you can federate management across multiple OpenStack environments to increase efficiency, consistency, and visibility. Chargeback, reporting, and governance functionality for OpenStack gives you increased control over usage and compliance.



CASE STUDY: LEADING HEALTHCARE PROVIDER

Challenge: Deploy a cloud environment with the technical depth, availability, and control to support critical applications.

Results:

- Unified their cloud environment to provide greater scalability and enterprise functionality
- Increased data security and protection by using an internal private cloud
- Contained costs by integrating existing hardware into new environment



CASE STUDY: LARGE EUROPEAN BANK

Challenge: Deliver a public cloud-like experience to internal users and control brokering to public cloud resources.

Results:

- Developed a secure IaaS environment for agile computing
- Improved reliability using a highly available architecture and design
- Adopted a structured approach to integrating private and public IaaS environments

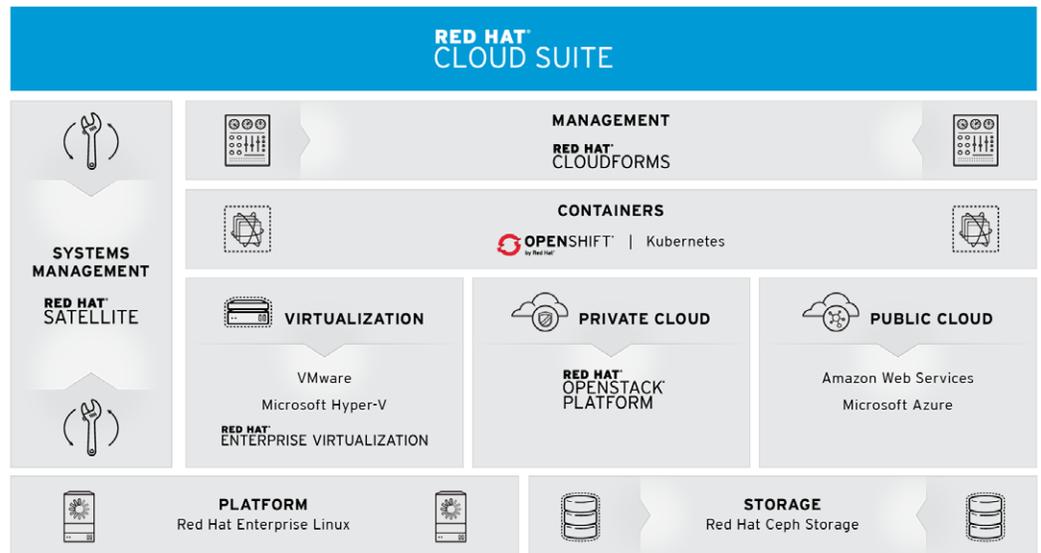


“Red Hat ... leads the evaluation with its powerful portal, top governance capabilities, and a strategy built around integration, open source, and interoperability.”

LAUREN E. NELSON,
FORRESTER,
“THE FORRESTER WAVE™: PRIVATE
CLOUD SOFTWARE SUITES, Q1 2016,”
JANUARY 2016

RED HAT CLOUD SUITE

As shown in Figure 1, Red Hat Cloud Suite delivers all of the software components you need to build and manage a private cloud environment with both IaaS and container-based application platform capabilities. Integrated tools and platforms support virtual machine and container-based applications. Automation and standardized container-based application development increase developer productivity. Standard APIs and an asynchronous architecture provide programmable and scalable infrastructure. A common management framework spans the environment to simplify administration, upgrades, updates, and governance.



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Figure 1. Red Hat Cloud Suite architectural overview



Red Hat Cloud Suite includes all of the software components you need to build and manage a private cloud environment.

A Red Hat Cloud Suite subscription includes:

- **OpenShift Enterprise by Red Hat:** An on-premise, private container-based application platform that lets your development and operations teams collaborate to deliver applications faster. Secure multitenancy isolates workloads to protect your environment.
- **Red Hat OpenStack Platform:** A massively scalable IaaS solution that delivers an open and flexible private cloud foundation. Optimized for and co-engineered with Red Hat Enterprise Linux, it provides greater security, interoperability, and performance.
- **Red Hat Ceph Storage:** An open software-defined storage for petabyte-scale environments. It provides a single efficient platform to support both block (persistent and ephemeral), object, and file storage that scales out across physical, virtual, and cloud resources.
- **Red Hat Enterprise Virtualization:** A complete datacenter virtualization product for Linux and Windows workloads that helps you build an agile, secure, and highly scalable virtualization foundation and includes the features needed for traditional enterprise application workloads.
- **Red Hat CloudForms:** An open hybrid cloud management solution that provides visibility into and control over existing heterogeneous virtual infrastructures. It lets you deploy, monitor, and manage cloud services across virtualization products, Red Hat OpenStack Platform, and many public cloud platforms. It also provides management of container-based applications through OpenShift Enterprise by Red Hat and Red Hat Atomic Enterprise Platform.
- **Red Hat Satellite:** An easy-to-use, advanced life-cycle and configuration management platform for Red Hat Enterprise Linux that supplies tools to efficiently deploy, update, and manage systems.
- **Red Hat Insights:** A modern infrastructure analytics platform that lets you identify configuration risks across your IT environment and resolve them before they impact business operations.
- **Red Hat Enterprise Linux for Virtual Datacenters:** A stable, secure, and open operating system with an ecosystem of thousands of certified applications and vendors. Each subscription includes an unlimited number of guests that can be run within Red Hat Enterprise Virtualization and Red Hat OpenStack Platform.

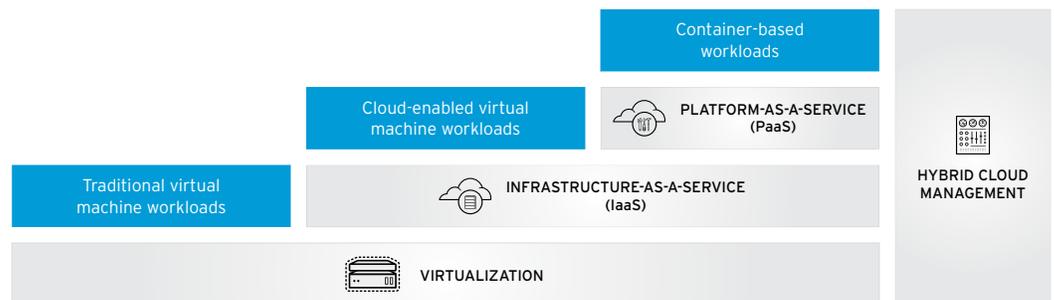


Figure 2. Red Hat Cloud Suite platforms and workloads



Red Hat Cloud Suite delivers the scalability, agility, and manageability you need to meet changing business requirements and succeed in a competitive and fast-paced market.

ACCELERATE YOUR APPLICATIONS AND INFRASTRUCTURE

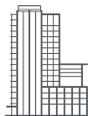
There are many benefits to deploying Red Hat Cloud Suite. Comprehensive, self-service, and on-demand application stacks increase developer productivity and agility. Support for Java, Ruby, Node.js, Python, PHP, and Perl give developers more choice and flexibility when creating applications.

An open, industry-standard foundation enhances interoperability, allowing you to customize your environment with complementary technologies and preparing your infrastructure for change. With the highly scalable architecture, you can expand your environment as needed to meet new demand—without limiting capacity. The container framework also lets you move applications across your infrastructure and migrate applications and workloads as needed, protecting investments and increasing agility. Integrated security features like SELinux and CGroups protect your environment from threats and breaches.

Unified management with automation across your entire environment increases operational efficiency and infrastructure visibility. Finally, enterprise-grade support for all solution components lets you operate with confidence. All of this adds up to more efficient, cost-effective operations and greater business agility.

CONCLUSION

An agile application development environment can help you stay competitive in a crowded and fast-paced business climate. Innovative, integrated, open, and enterprise-grade, Red Hat Cloud Suite is an ideal platform for modernizing your operations and increasing the scalability of your infrastructure and applications. Contact your Red Hat representative to schedule a cloud discovery workshop or visit redhat.com/en/cloud-computing/cloud-suite to learn how Red Hat Cloud Suite can help your organization succeed.



ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to 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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