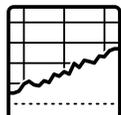


# BUILD SECURE AND MANAGEABLE CLOUD ENVIRONMENTS FOR FINANCIAL SERVICES

TECHNOLOGY OVERVIEW



According to a survey of capital markets senior financial executives,

**50%**

consider managing complex legacy systems and environments to be the greatest challenge in their role.<sup>1</sup>

With built-in scalability and optimized performance, Red Hat® Cloud Infrastructure—including Red Hat Enterprise Linux® OpenStack® Platform, Red Hat CloudForms, and Red Hat Enterprise Virtualization—gives you the security, agility, interoperability, and manageability you need to become more competitive while lowering infrastructure costs.

## CLOUD ADOPTION CHALLENGES

The financial services industry has moved more rapidly to adopt and exploit cloud technology than many other industry sectors due to its highly competitive nature. Speed and agility are essential when sub-second response time is required, and customer demand for new capabilities is a constant. Cloud technology provides an opportunity for your firm to differentiate and demonstrate leadership that helps your services stand out in a crowded industry.

However, the benefits of cloud technology also come with heightened challenges and concerns specific to financial services. As a result, cloud solutions for financial services must address:

- Data security
- Agility
- Manageability
- Standardization
- Cost control

Red Hat Cloud Infrastructure and Red Hat Consulting can help set your firm apart with comprehensive solutions to help you address the challenges and concerns of moving to the cloud.

## BUILD A SECURE AND MANAGEABLE CLOUD ENVIRONMENT

As shown in Figure 1, Red Hat Cloud Infrastructure features Red Hat Enterprise Linux® OpenStack® Platform, Red Hat Enterprise Virtualization, and Red Hat CloudForms. This fully integrated software stack alleviates many of the challenges of deploying cloud environments. Red Hat Enterprise Linux OpenStack Platform integrates the Red Hat Enterprise Linux operating system and a commercially hardened, fully supported OpenStack distribution. Red Hat CloudForms contributes comprehensive cloud management so you can unify your cloud environment with Red Hat Enterprise Virtualization and other virtualization technologies. Red Hat Enterprise Virtualization delivers high-performance, cost-effective virtualization capabilities for more traditional workloads. Adding Red Hat Satellite helps you automate common life-cycle administration tasks for Red Hat Enterprise Linux. This enterprise software stack lets you build and operate a stable, reliable, and highly available cloud environment that meets the needs of the financial services industry.

## INCREASE SECURITY AND COMPLIANCE

The security of financial data is a principal concern. Strong encryption and authentication mechanisms must keep data safe both in-transit and on-storage. In multitenancy situations, strict separation and integrity of all customer data is essential. And cloud solutions need to offer superior management features in order to meet strict regulatory and reporting requirements.



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<sup>1</sup> Accenture, "Accenture 2014 High Performance Finance Study: Capital Markets Report," 2015.

## AWARDS FOR RED HAT CLOUD TECHNOLOGIES

2015



- InfoWorld's Technology of the Year Award: OpenShift by Red Hat



- SIIA CODiE Awards: Best Cloud Management Solution: Red Hat CloudForms

2014



- *Virtualization Review* editor's choice award for best virtualization automation product: Red Hat CloudForms



- Best of VMworld: Private Cloud Computing Technologies finalist: Red Hat CloudForms

2013



- IDG's TechWorld Award for best cloud solution: Red Hat Cloud Infrastructure

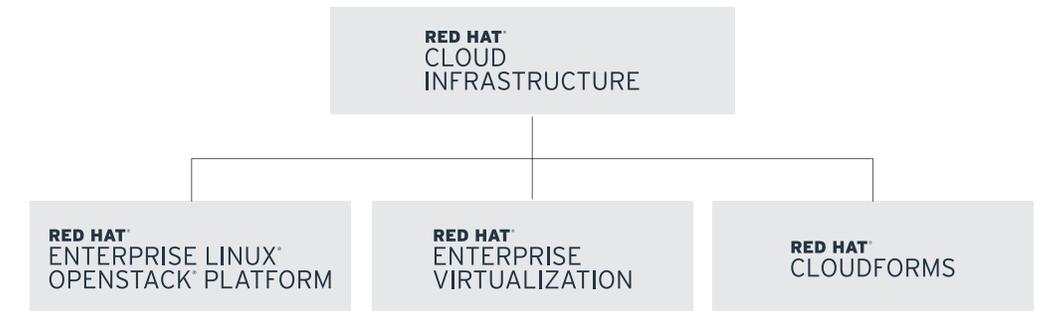


Figure 1. By combining Red Hat Enterprise Linux OpenStack Platform, Red Hat Enterprise Virtualization, and Red Hat CloudForms, Red Hat Cloud Infrastructure gives you a complete, integrated software stack that helps you move to the cloud more easily.

Red Hat products are certified to rigorous security standards. Commercial hardening and enterprise support provide reliable, secure operation. In fact, Red Hat mitigates and releases bug fixes for most critical security issues within 24 hours.<sup>2</sup> Native security technologies in Red Hat Enterprise Linux—including Security-Enhanced Linux (SELinux), sVirt, Secure Sockets Layer (SSL) endpoint encryption, and advanced identity management—extend to OpenStack to help protect against intrusion. And by using certified and trusted partner solutions, you can customize your cloud environment but still be confident that it is secure.

Advanced management tools in Red Hat CloudForms give you visibility into your virtualized and cloud environments from a single interface. This visibility helps you comply with the latest American Institute of Certified Public Accountants (AICPA) standards, including Statements on Standards for Attestation Engagements (SSAE) 16. Reporting capabilities show you where each workload is running and who has access to resources, making compliance tracking easier and more accurate.

### IMPROVE AGILITY AND PERFORMANCE

Cloud solutions can help you develop and deploy applications more quickly, letting you effectively respond to evolving customer needs and stay ahead of the competition.

Red Hat Enterprise Linux OpenStack Platform takes advantage of the unique performance features of both OpenStack and Red Hat Enterprise Linux for better combined performance. Additionally, Red Hat Enterprise Linux OpenStack Platform uses the Kernel-based Virtual Machine (KVM) hypervisor, which provides exceptional performance for OpenStack workloads. Red Hat Enterprise Linux, running the KVM hypervisor, continues to maintain the leading 2-socket and 4-socket server performance records for the industry-standard SPECvirt<sup>™</sup>\_sc2010 and SPECvirt\_sc2013 benchmarks, as well as the only published 8-socket and 16-socket server scores.<sup>3</sup>

Red Hat technologies can also help you improve business productivity and agility. OpenShift Enterprise by Red Hat lets you implement DevOps processes to make developers more productive. The result is continuous improvement and faster time to market for new products and functionality.

<sup>2</sup> See [www.redhat.com/security/data/metrics](http://www.redhat.com/security/data/metrics) for full Red Hat Product Security reports.

<sup>3</sup> Claims based on SPECvirt\_sc2010 and SPECvirt\_sc2013 benchmark results published on [www.spec.org](http://www.spec.org) as of October 27, 2014. For the latest SPECvirt\_sc2010 and SPECvirt\_sc2013 results, visit [www.spec.org/osg/virt\\_sc2010](http://www.spec.org/osg/virt_sc2010) and [www.spec.org/osg/virt\\_sc2013](http://www.spec.org/osg/virt_sc2013), respectively.



Red Hat products are certified to rigorous security standards. Commercial hardening and full, enterprise-grade support provide reliable, secure operation.

### STANDARDIZE AND AVOID VENDOR LOCK-IN

Standardization is about ensuring data portability and interoperability so you're not dependent on a particular vendor or proprietary technology. Open source solutions promote industry standardization by offering innovation without vendor lock-in.

Red Hat is the expert in making open source technologies safe, secure, and consumable for business use. Red Hat provides the latest standards-based innovations, like OpenStack, while giving you a supported, stable life cycle and associated services. Standardization means that you can deploy Red Hat Enterprise Linux in a wide variety of on-premise, public cloud, and private cloud environments, without worrying about compatibility. And Red Hat's certified hardware and software partner ecosystem is one of the largest in the industry, so you have more choice when customizing your cloud environment.

### GAIN DEEPER VISIBILITY AND MANAGEABILITY

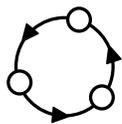
Visibility, management, and control are needed for insight into your cloud environment and operations. With the right configuration, monitoring, and analysis information, IT staff can correlate infrastructure performance to resource changes and quickly resolve issues.

Red Hat's integrated cloud stack reduces infrastructure complexity and makes building and managing your cloud environment simpler and faster. Red Hat CloudForms unifies management of your virtualized and cloud environments, allows you to support traditional or cloud models of IT, and gives you visibility into your entire infrastructure. With deeper analytic insight, and the capability to manage workloads and resources based on policies, IT organizations can more accurately plan and forecast capacity and usage, and allocate costs back to users. Complete life cycle management and automation streamlines operations for your traditional, virtualized, and cloud workloads, giving your IT staff more time to focus on adding value for the business.

### LOWER COSTS

Commercially-supported open source technologies often provide lower total cost of ownership (TCO) than proprietary solutions.<sup>4</sup> This allows you to reallocate resources to more strategic projects.

Red Hat takes these benefits even further. The unified, advanced management tools included in Red Hat CloudForms can also reduce operational expenses (OpEx) and protect existing and new infrastructure investments. Design, planning, and deployment services can help let you move to the cloud more quickly, cost-effectively, and efficiently, with an even faster return on investment (ROI). And, with Red Hat's fully integrated software stack, these benefits extend throughout your cloud environment.



Red Hat's integrated cloud stack unifies management of your virtualized and cloud environments, allowing you to support traditional or cloud models of IT and giving you visibility into your entire infrastructure.

### RED HAT CLOUD INNOVATION PRACTICE

Red Hat Cloud Innovation Practice is ready to assist you on your journey to the cloud. A global team of Red Hat Consulting experts, Red Hat Cloud Innovation Practice can provide technical leadership, evangelism, best practices, research, support, and dissemination services to help increase delivery efficiency, speed up deployments, and achieve a quicker ROI for organizations using cloud technologies. This team can deliver solutions and services such as validated designs with reference architectures and agile methodology consulting and training. Using Red Hat's open source technologies our consultants create customized solutions that meet your unique requirements. You can engage Red Hat Consulting to provide guidance, design implementation, and accelerated deployment.

<sup>4</sup> IDC, "Understanding Linux Deployment Strategies: The Business Case for Standardizing on Red Hat Enterprise Linux," April 2011.



Red Hat Consulting and Cloud Innovation Practice provide the technical leadership, evangelism, best practices, research, support and dissemination services to help increase delivery efficiency, speed up deployments, and achieve a quicker return on investment for organizations using cloud technologies.

Red Hat Consulting offers 3 service tiers to help you build an effective cloud strategy:

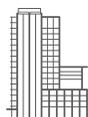
- **Discovery:** Identify problems and outline solutions in a no-cost workshop.
- **Assessment:** Deeply analyze current and potential infrastructure, working from use cases, and recommend solution approaches.
- **SmartStart:** Design a full architecture and lab environment through sophisticated hands-on mentoring.

Red Hat Consulting and Red Hat Cloud Innovation Practice maintain a close and direct connection to Red Hat engineering staff. Because you depend on the latest advances in our technologies, the ability to reach out to our engineering teams is essential.

Integration services can help you coordinate multiple parts of a complex infrastructure, which can often be the biggest source of delay. Eliminating problems and getting things running smoothly gets you back to business faster. Migration services can help you move from existing legacy systems to next-generation platforms. And training courses—in our classrooms, on-site at your business, virtual, or self-paced—can teach your teams how to deploy, configure, and manage solutions for the best results.

## CONCLUSION

Red Hat offers a full-featured and completely open source suite of cloud technologies that can meet all the special needs of financial services. Red Hat Consulting and Red Hat Cloud Innovation Practice can help you prepare for, integrate, and deploy those technologies most effectively to make your organization more agile, save time, and lower costs.



## ABOUT RED HAT

Red Hat is the world's leading provider of open source solutions, using a community-powered approach to provide reliable and high-performing cloud, virtualization, storage, Linux, and middleware technologies. Red Hat also offers award-winning support, training, and consulting services. Red Hat is an S&P company with more than 80 offices spanning the globe, empowering its customers' businesses.



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