

Emerging Technology Assessment: The Total Economic Impact™ Of Using Both IBM And Red Hat Solutions Together

IBM commissioned Forrester Consulting to conduct an emerging Total Economic Impact™ (TEI) technology assessment study to examine the value proposition of current hybrid cloud solutions powered by a combination of IBM's and Red Hat's offerings, including hardware, operating systems, middleware, management and orchestration technologies, and professional services. Forrester interviewed five organizations that are customers of both IBM and Red Hat to examine the ways in which they utilize solutions by both IBM and Red Hat in tandem and the impacts achieved as a result.

As interviewees grappled with convoluted infrastructure, excessive costs, and unknown futures, they turned to Linux and Kubernetes as key elements in their infrastructure and application modernization strategies. To ensure successful implementation and long-term dependability, they relied on IBM and Red Hat to provide the enterprise-grade technology and expertise they needed to plan, design, and build solutions using open source components and hybrid infrastructure without sacrificing flexibility or agility.

Organizations implemented a wide range of solutions from IBM and Red Hat. Each company leveraged professional services from IBM and Red Hat to navigate the challenging waters of modernization. All five deployed Red Hat's Enterprise Linux across their infrastructure, and to boost aging on-premises infrastructure, four of the five deployed IBM's Linux-based servers and mainframes. Four deployed either IBM's or Red Hat's enterprise-supported Kubernetes-based container platforms (on both bare metal and virtualized private clouds), and then tapped into a variety of containerized middleware and services from both companies.

These investments led to the following key impacts:

- › **Infrastructure savings.** IBM and Red Hat helped companies improve resource utilization and reduced infrastructure and licensing costs — reducing overall total cost of ownership (TCO) for IT departments.
- › **Workforce productivity and acceleration.** Modernization with IBM and Red Hat helped companies eliminate wasteful steps and accelerated processes — saving labor costs, accelerating delivery, and enhancing employee experience.
- › **Enhanced business outcomes.** With IBM and Red Hat, companies accelerated product development, improved offerings, and ensured dependability and security across environments — mitigating risk, delighting customers, and increasing sales.
- › **Agility and flexibility.** Organizations working with IBM's and Red Hat's Linux- and Kubernetes-based offerings gained agility and reduced risk of lock-in.

These efforts required significant investments, yet interviewees emphasized that maintaining status quo was equally as expensive. Modernizing was not a choice: If they didn't act soon enough, they would be left behind and facing major business issues.

IBM and Red Hat effectively balanced competing priorities and provided a path toward modernization for interviewees. Despite the complexity and expense of modernization, they reported that using IBM and Red Hat offerings in tandem helped them reduce risks, control costs, and accelerate their businesses for long-term success.

IBM and Red Hat enabled organizations to build secure, dependable applications while leveraging the flexibility of open source and hybrid infrastructure.

SUMMARY

This document is an abridged version of the case study, titled: "The Total Economic Impact Of Using Both IBM And Red Hat Solutions Together," June 2019.

METHODOLOGY

The objective of the TEI framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact of using both IBM and Red Hat solutions together, including interviews with Forrester analysts, IBM and Red Hat stakeholders, and five current customers.

Interviewed Customers Achieved The Following Key Benefits

Interviewees identified a wide range of impacts resulting from their modernization efforts with IBM and Red Hat, which Forrester evaluated in four principal categories.

- › **Infrastructure savings.** IBM and Red Hat helped interviewees consistently reduce the total cost of ownership of IT by reducing hardware, cloud, and/or licensing costs.



Reduced top-line TCO for IT by up to 4%.



Optimized resource utilization by up to 30%.



Decreased hardware and licensing costs by up to 50%.

- › **Workforce productivity and acceleration.** Modernization with IBM and Red Hat helped companies eliminate wasteful steps and accelerated processes — saving labor costs, accelerating delivery, and enhancing employee experience.



Reallocated 33% to 90% of labor for infrastructure administration.



Accelerated development by up to 66%.



Enhanced ability to attract, hire, and retain employees.

- › **Enhanced business outcomes.** With IBM and Red Hat, companies accelerated product development, improved offerings, and ensured dependability and security across environments — mitigating risk, delighting customers, and increasing sales.



Increased release frequency by up to 10x.



Accelerated workload processing by 2x to 10x.



Virtually eliminated user-impacting downtime.

- › **Agility and flexibility.** By working with IBM's and Red Hat's Linux- and Kubernetes-based offerings, organizations reduced the risk of lock-in to vendor-specific hardware, public clouds, technology, or services. Open source software-based cloud and containerization platforms provided flexibility to adopt middleware and services from other vendors or open source communities. And ultimately, companies gained agility to try new things from many sources, with the ability to later swap or replace them with alternative components.

Each Organization Used IBM And Red Hat For Different Use Cases

Forrester interviewed five organizations that are customers of both IBM and Red Hat to learn about their experiences utilizing solutions from both companies in tandem:

- › **The European telecommunications company launched a B2B cloud computing platform based on IBM's container platform running on Red Hat Enterprise Linux.** The company aims to build a robust new revenue stream from this offering and is planning to augment the service by adding a marketplace of IBM middleware and technologies.

CHALLENGES	ACTIONS	OUTCOMES
<ul style="list-style-type: none"> • Sought to fill a market opportunity for a regionally based cloud platform in Europe and Latin America. • Aimed to leverage native Kubernetes for maximum portability. • Needed to maximize profit margins while ensuring performance, scalability, and extensibility. 	<ul style="list-style-type: none"> • Launched a B2B cloud platform using IBM's container platform on bare metal and virtual machines running RHEL. • Created a self-service portal to automate deployment for customers. • Scoping additional cloud offerings, middleware, and AI from IBM. 	<ul style="list-style-type: none"> • Achieved infrastructure flexibility and competitive TCO with minimal risks. • Early adoption includes five customers containerizing legacy applications or creating new ones with microservices. • Customers avoid lock-in with native Kubernetes.

- › **The North American telecommunications company is beginning to modernize its aging environment.** The company is early in its journey but aims to leverage containerization, cloud environments, IBM professional services, and Red Hat middleware to control its IT costs, gain infrastructure flexibility, and attract and retain top talent.

CHALLENGES	ACTIONS	GOALS
<ul style="list-style-type: none"> • Employee departures left knowledge gaps. • Stringent availability requirements limited innovation and open source adoption. • Licensing costs were excessive. • Complex infrastructure and team siloes wasted DevOps labor. 	<ul style="list-style-type: none"> • Adopting open source and lighter-weight middleware with enterprise support. • Engaging IBM for cloud migration and application rearchitecture support. • Containerizing 20 applications for a cloud migration, with more to come. • Replacing data centers with multiple public clouds running RHEL. 	<p>The company hopes to:</p> <ul style="list-style-type: none"> • Gain flexibility to shift infrastructure as needed. • Reduce infrastructure TCO. • Better attract, hire, and retain talent with modern technology. • Improve apps with AI using Watson.

- › **The North American transportation company is modernizing its IT processes and infrastructure with IBM and Red Hat.** The company aims to reduce IT costs, accelerate innovation, improve employee experience, and deliver better customer experience.

CHALLENGES	ACTIONS	OUTCOMES
<ul style="list-style-type: none"> • Monolithic legacy apps were difficult to update, move, or find new employees with expertise. • Major data center outages damaged reputation and revenue. • Had to overprovision resources to handle peak capacities. • Developers struggled with frustrating tools and wasted time. 	<ul style="list-style-type: none"> • Shifting to DevOps, CI/CD, and cloud-native development. • Modernizing mainframes with IBM. • Containerizing applications and consolidating middleware and management in OpenShift. • Partnering with both IBM and Red Hat services to enable transformation. 	<ul style="list-style-type: none"> • Reduced TCO by 35% with licensing and labor savings from OpenShift. • Tightened compliance and security. • Prevented further data center outages. • Accelerated release cycles by over 66%. • Improved employee experience. • Projecting \$200 million in net benefit over five years — a 4% total IT savings.

› **The Asian financial services company replaced legacy data warehouse hardware with IBM Z running Red Hat Enterprise Linux.** By consolidating infrastructure and increasing performance, the company aimed to reduce TCO and drive business growth.

CHALLENGES

- Data warehouse was full of legacy hardware, with no room to expand.
- Storage and performance lagged growth, causing frequent downtime.
- Security attacks were on the rise.
- Struggled to find, hire, and retain talent with the needed skill sets to work on the legacy infrastructure.

ACTIONS

- Replaced legacy hardware with IBM Z mainframes running RHEL.
- Moved Linux-based workloads to IBM Z.
- Containerizing and rearchitecting other legacy applications with Linux to be moved to the new environment.
- Developing new apps in Linux.

OUTCOMES

- Reduced infrastructure TCO by 44%.
- Reallocated four admins (33%).
- Reduced labor costs for support.
- Shortened batch processes by 40%.
- Slashed disaster recovery failover from 4 hours to 10 seconds.
- Eliminated application downtime.

› **The European financial services company containerized its applications using IBM's container platform, Red Hat Enterprise Linux, and JBoss.** The company drove drastic productivity improvements for developers, accelerated production, and slashed administration labor and infrastructure resource costs.

CHALLENGES

- Manual, complex testing and deployment processes held back product development.
- Underutilized infrastructure resources caused excess costs.
- Major incidents impacted production and customers, often for weeks.
- Struggled to employ a team of specialists to manage and deploy each middleware offering.

ACTIONS

- Containerized 25% of nonmainframe applications using JBoss in IBM's container platform running on RHEL.
- Launched self-service, automated deployment of containerized environments and applications.
- Consolidated middleware deployment and management to one IT FTE.
- Containerizing the remaining 75% of applications within three years.

OUTCOMES

- Reduced \$200K in hardware costs and reallocated 14 infrastructure admins.
- Slashed major incident resolution from weeks to a couple of hours.
- Gained agility and speed without increasing costs.
- Increased developer efficiency by 10x.
- Slashed deployment errors by 10x.
- Eliminated 75 hours of labor every time they roll to production.

“We were always having to build for worst-case scenarios. With containers, we can scale based on demand. We've improved performance, reliability, and elasticity.”

Principal application architect, NA transportation



“We used to need many different specialists [for each] middleware technology. . . . Now, one person checks and launches to pipeline for all our containerized middleware.”

Chief technical architect, EMEA financial services



“We were looking for a platform that would be highly scalable, resilient, and future-proof. We didn't want to buy something and have to go back to the board five years later.”

Chief technology and operations officer, APAC financial services



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