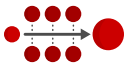
Red Hat | intel

Whitepaper

Alleviate technical debt

Build an adaptable foundation for a changing future



IT organizations typically spend

71%

of their budget on maintaining their existing operations, leaving little time and budget for innovation.[1]

Optimizing your IT environment can help you reduce the technical debt of your current infrastructure and free time and budget for strategic projects that support business innovation.

The core of modern business is effective IT

IT is now a business differentiator, resulting in increasing demands on already stressed IT teams. They must:

- Deliver innovative new services and resources faster.
- Manage and align operational costs with off-premise alternatives.
- Improve consistency throughout their infrastructure and services.
- Maximize their return on investment in time, skills, and training.

Teams face many challenges in meeting these demands. Legacy infrastructure is often too rigid to support the agile operations and on-demand scaling required. Complicated manual operations slow resource delivery and increase the risk of errors and inconsistencies. A variety of unconnected and incompatible point tools makes it difficult to manage systems consistently and understand infrastructure properties, leading to security vulnerabilities, performance and reliability issues, and misconfigurations.

Even so, organizations have invested money, time, and training in their existing infrastructure and need to maximize its value and return. This technical debt often leaves little budget and time for innovation. Studies show that, on average, IT organizations spend 71% of their budgets on continuing maintenance.[1]

IT optimization alleviates technical debt

Optimizing your IT environment can help you reduce the technical debt of your current infrastructure and free time and budget for strategic projects that support business initiatives. IT optimization is the process of incrementally and methodically assessing and standardizing your infrastructure to improve operational efficiency. This streamlines daily maintenance while increasing visibility and control, allowing IT staff to shift their focus to innovation. IT optimization helps your organization gradually enhance agility, productivity, and performance to deliver software and services faster. As a result, it can reduce IT environment operating costs by 20%.[1]

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1 *Gartner. "IT Key Metrics Data 2019: Executive Summary." December 17, 2018,* gartner.com/en/documents/3895271/it-key-metrics-data-2019-executive-summary.

Paths to optimization

IT optimization does not happen all at once. It's an ongoing process with multiple paths and steps. Most organizations start in one of two main areas: standardization or migration.

Upgrade infrastructure to a standard, security-focused operating environment

Operating multiple platforms results in numerous tools and processes for configuring, updating, and patching systems, impeding management and visibility. Standardizing on a flexible, security-focused infrastructure gives you a consistent foundation for streamlining IT operations and maintenance. With a standardized environment, you can:

- **Modernize software and hardware infrastructure.** Software and hardware work together to form your IT environment. Both must be up to date to get the most performance, security, and flexibility from your investment.
- **Increase efficiency and consistency.** At its core, optimization is about efficiency. Implementing consistent platforms, tools, and processes can help you gain control over IT resources and speed service delivery while reducing the amount of staff training needed.
- **Streamline processes and governance.** Security and compliance are critical for digital operations. Standardizing on a single set of management tools and procedures provides increased visibility into your environment; accelerates update, upgrade, and patching operations; and permits more automation for increased security and compliance.

Migrate legacy infrastructure to a cloud-ready platform

Many proprietary and legacy platforms have high costs due to expensive license agreements and unchecked spread of virtual resources. And they often do not provide a clear path to hybrid cloud deployment. Migrating applications and workloads to an agile, cloud-ready platform can help you simplify your environment while preparing for hybrid operations. An open, supported foundation can also significantly reduce licensing expenses and vendor lock-in, giving you more budget and flexibility to innovate. With a cloud-ready platform, you can:

- **Centralize control and compliance.** Control and compliance are top concerns for hybrid cloud environments. Unifying management of on-premise and cloud resources can help you ensure all systems are in compliance with regulatory and security policies, regardless of where they are located. You can also better control virtual machine sprawl and ensure that hosts are retired at end of life, releasing resources for other users and increasing efficiency.
- **Speed IT service delivery.** Slow resource delivery encourages users to bypass IT and deploy unsanctioned resources outside of IT's control. A cloud-ready platform gives you self-service provisioning and automated life-cycle management capabilities to speed service delivery and avoid shadow IT.
- **Build a path to hybrid and multicloud.** Hybrid and multicloud environments are a strategic goal for many organizations. In fact, 58% of enterprises have a hybrid cloud strategy and 84% have a multicloud strategy.[2] Implementing a cloud-ready platform that supports traditionally virtualized, cloud-native, and containerized applications lets you modernize and move workloads more easily and at your own pace.

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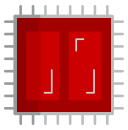
2 *Flexera, "RightScale 2019 State of the Cloud Report from Flexera," February 2019.* info.flexerasoftware.com/SLO-WP-State-of-the-Cloud-2019.

Considerations and benefits of IT optimization

IT optimization can alleviate your technical debt and help you create a flexible foundation for the future. The platforms and solutions you choose can greatly impact the level of optimization you achieve. The following sections discuss considerations for selecting vendors and solutions in your journey to modernization.



Intel® Xeon® Scalable processors hold

95

world records for performance.[3]

Performance and scalability

In an application-centric world, internal and external users expect instant connection and rapid performance for all services. Poor performance encourages internal users to bypass IT and external users to shift to competitors' offerings. Implementing a high-performance, highly scalable hardware and software foundation allows you to deliver the services users demand at all times, improving end user experiences and customer loyalty.

Look for solutions that include:

- **Performance-optimized platforms and processors.** Software and hardware that enhance performance across a variety of workloads ensure all applications run optimally.
- **Consistent, cross-infrastructure scalability.** Platforms that can scale across on-premise and cloud infrastructure allow you to deploy workloads where it makes the most sense according to performance, cost, and security. They also help to prevent applications from becoming resource-constrained.
- **Low-overhead security and encryption technologies.** Optimized security and encryption accelerators increase protection without sacrificing performance.
- **High-performance, programmable networking technologies.** Low-latency networking allows you to deliver services without delays caused by network congestion. Software-defined networking (SDN) capabilities adapt your network as needed to optimize security and performance.

HCA Healthcare℠

Customer highlight: HCA Healthcare

HCA Healthcare uses its data resources to find innovative solutions to long-standing industry challenges. The healthcare company deployed a real-time predictive analytics product, SPOT (Sepsis Prediction and Optimization of Therapy), based on optimized container and automation technology. With SPOT, the company can more accurately and rapidly detect sepsis, a potentially life-threatening condition, helping to save lives.

Sped sepsis detection by up to 20 hours

Gained new insights using machine learning algorithms

Reduced risk and cost of innovation

Read the customer success story to learn more about HCA Healthcare's experience.

3 *Intel, "Intel Xeon Scalable Processors Set 95 New Performance World Records," October 1, 2018.* newsroom.intel.com/news/intel-xeon-scalable-processors-set-95-new-performance-world-records/#gs.9min6z.

Only
26%
of technology leaders feel "very well" prepared for cyber attacks.[4]

Security and compliance

Security breaches and non-compliance can have dire consequences for your company, including loss of certifications, reputational damage, regulatory fines, and legal action. Even so, security threats are increasing and 32% of enterprises experienced major cyber attacks in the previous two years.[4] Correspondingly, improving cyber security is a top priority for 56% of enterprises.[4] A consistent IT foundation with automation capabilities can help you improve security and compliance.

Choose offerings that provide:

- **Consistency across your entire infrastructure.** Tools and platforms that operate consistently across infrastructure let you establish and maintain a single set of processes and policies regardless of location.
- **Automated monitoring and management tools.** Automation can provide constant visibility into system configurations and streamline patching operations to keep your systems up to date.
- **Advanced, real-time security features.** Built-in capabilities that are integrated across hardware and software increase protection and reduce security gaps.

BRINKER INTERNATIONAL

Customer highlight: Brinker International

Brinker International, Inc., the parent company of Chili's Grill & Bar and Maggiano's Little Italy, sought to establish a unified e-commerce environment that offers a consistent guest experience across apps and platforms. With an optimized open source foundation and advanced management tool, Brinker's new e-commerce environment supports faster development and deployment, can scale to support peak traffic demands, and helps the company ensure critical customer data is protected.

Improved sensitive customer data protection

Built an innovative, scalable e-commerce environment

Sped feature and service development and launch

Read the customer success story to learn more about Brinker's experience.

4 *Harvey Nash and KPMG, "CIO Survey 2019: A Changing Perspective," 2019.* home.kpmg/xx/en/home/insights/2019/06/harvey-nash-kpmg-cio-survey-2019.html.

Red Hat

Standardizing on a consistent, optimized infrastructure can provide

63%

less unplanned downtime.[5]

Stability and reliability

Success in the digital economy requires services to be available at all times. Downtime is unacceptable for critical applications and workloads. Service unavailability can lead external users to move to competing products and internal users to bypass IT. Accordingly, delivering consistent and stable IT performance to the business is a top priority for 64% of enterprises.[4] Implementing an integrated IT platform based on production-grade hardware and software can help you avoid downtime.

Select solutions that supply:

- **Integrated software and hardware.** Integration and joint engineering ensure that incompatibilities within your platform will not cause downtime.
- **Enterprise-grade platforms.** Components that have been tested and validated for use in production environments reduce the risk of instabilities in your infrastructure.
- **Proactive monitoring tools.** Proactive management tools can help you automatically identify and remediate issues before they impact performance and availability.
- **Automated life-cycle management.** Automated provisioning, scaling, and configuration capabilities can improve consistency, reducing the risk of manual configuration errors and inconsistencies that can lead to instabilities and downtime.

CATHAY PACIFIC

Customer highlight: Cathay Pacific Airways Limited

Cathay Pacific Airways Limited sought to modernize its costly, time-consuming, and inflexible legacy IT architectures. Cathay Pacific's IT team implemented a modern hybrid cloud IT architecture platform and operating model. As a result, Cathay Pacific can be more responsive to business demands and prepare its digital IT capabilities for the future.

Increased stability through automation

Reduced server provisioning time to less than one hour

Cut operational costs and saved staff time

Read the customer success story to learn more about Cathay Pacific's experience.

5 *IDC, "The Business Value of Red Hat Solutions and Cost Relationship to Unpaid Alternatives," July 2019.* redhat.com/en/resources/idc-business-value-red-hat-solutions-compared-to-unpaid.

Standardizing on a consistent, optimized infrastructure can provide

38%

more efficient IT infrastructure teams.[5]

Manageability and control

Large IT environments are often complex to manage. Complicated management operations can delay service delivery and cause mistakes. Using unconnected management tools across your environment can lead to gaps in control and visibility, increasing the risk of misconfiguration, uncontrolled configuration drift, and security, compliance, and availability issues. Standardizing on a consistent platform with unified management tools and automation can help you streamline management and improve IT efficiency.

Look for offerings that incorporate:

- **Unified management tools.** Tools that work across your entire infrastructure increase consistency and visibility.
- **Automation.** Automated management, configuration, and life-cycle capabilities ensure consistency and streamline operations.
- **Advanced patching capabilities.** Tools that can assess and track system configurations and apply patches and updates can help you implement stronger configuration management and control.
- **Automated discovery capabilities.** Simplified system registration and automatic discovery features allow you to bring resources under control without defining every resource manually.

GROUP Hotelplan

Customer highlight: Hotelplan Group

Hotelplan Group, an international travel and tourism company based in Switzerland, wanted to save money and modernize its core IT environment by migrating its SAP systems from costly UNIX platforms and legacy servers. The company switched to an open source, x86-based environments to gain cost-effective performance improvements that improve data accuracy for travelers and agencies.

Reduced server provisioning time to two hours

Achieved higher data refresh rates

Significantly reduced licensing costs

Read the customer success story to learn more about Hotelplan Group's experience.

Interoperability and adaptability

You need to run a variety of applications within your IT infrastructure. Ensuring that all are compatible with your IT foundation is critical—if they aren't compatible, they may not run well, or at all. As technology advances, you also need to be able to adapt your IT foundation to take advantage of new products and features. Standardizing on open source and industry-standard platforms and tools ensures interoperability with your critical applications while giving you flexibility for the future.

Select solutions that encompass:

- **Industry-standard and open source platforms.** Solutions based on open source projects and industry standards provide compatibility with a wide range of applications and technologies.
- **Vendors that value partnership and collaboration.** Choosing vendors that are committed to collaboration can help you implement technologies that will interoperate and adapt with other vendors' technologies over time.
- **Flexible, extensible infrastructure.** Adaptable, innovative technologies let you to deploy what you need today while preparing for change at your own pace.

Customer highlight: Turkcell

To stay competitive, communications service provider Turkcell sought to transform its mobile network in Turkey by moving it to a cloud-based network function virtualization (NFV) platform. Using open source platforms to create an NFV solution, Unified Telco Cloud, Turkcell has cut launch time for new services by 66%, achieved return on investment (ROI) three times faster, and has avoided vendor lock-in with flexible, enterprise open source technology.

Reduced costs and removed vendor lock-in

Cut new service launch time by 66%

Eliminated service outages

Read the customer success story to learn more about Turkcell's experience.

Red Hat

Standardizing on a consistent, optimized infrastructure can provide

35%

lower three-year cost of operations and

32%

lower infrastructure costs.[5]

Total cost of ownership

Even as IT budgets have started to grow again, teams must still manage and control their costs. Saving costs is a top priority for 54% of enterprises.[4] IT teams must ensure they get the most value from their investments. Balancing total cost of ownership with derived value is essential. Platforms with lower total cost of ownership (TCO) can help you support existing business operations while freeing budget for innovation.

Choose offerings that deliver:

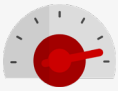
- **Streamlined operations and automation.** Platforms that simplify operations, increase consistency, and automate common and tedious tasks improve efficiency and reduce operational costs.
- **Open, industry-standard platforms and hyperconverged infrastructure.** Hyperconverged systems based on open source and industry standards allow you to use the same hardware for multiple uses in your environment, reducing initial capital expenses and giving you the ability to cost-effectively add hardware over time.
- **Resource life-cycle management.** Tools that track resource life cycles help to reduce virtual machine sprawl and increase resource efficiency, reducing the footprint of your infrastructure.
- **Support for a variety of applications and workloads.** Platforms that can be used for multiple applications help you avoid operational silos and increase resource efficiency.

CorpFlex
A Cloud do seu negócio em boas mãos

Customer highlight: CorpFlex

Managed IT services provider CorpFlex sought an enterprise open source virtualization solution to reduce its virtual infrastructure costs and fund new digital innovation projects. The service provider migrated to an open source virtualization platform and unified management tool. With this flexible yet highly available solution, CorpFlex has reduced infrastructure costs and improved its workload performance, creating a foundation for continuing service innovation.

Reduced virtual machine costs by 87%



Improved Linux® workload performance

Ensures availability with expert support

Read the customer success story to learn more about CorpFlex's experience.

Support

Production IT environments must be supported to ensure business continuity. IT teams require timely access to high-quality patches and updates to fix bugs and security gaps. Accurate, tailored resources and guidance can also help teams better understand and optimize their environments. A solution that includes enterprise-grade support, expert services, and a library of resources can help you avoid downtime, keep your IT environment running efficiently, and protect your business.

Look for vendors that provide:

- **Enterprise-grade support offerings.** Production-grade support ensures that your environment is supported by professionals that will help you keep your business up and running.
- **Experienced support staff.** Knowledgeable, highly trained staff can provide faster resolution with better results.
- **Online and on-demand support resources.** Comprehensive resource libraries let you access information at any time to help you optimize your infrastructure and remediate issues quickly and without needing to contact support.
- **Automated patch delivery and application tools.** Advanced management tools can rapidly identify systems that need patching, download applicable patches, patch systems, and verify that systems have been patched, increasing efficiency, protection, and uptime.

DEVELOPMENT BANK

Customer highlight: Development Bank of the Republic of Belarus

The Development Bank of the Republic of Belarus (DBRB) needed to lower virtualization costs while maintaining performance. Decreasing vendor lock-in with flexible, open source, subscription-based software has helped the bank reduce TCO for its virtualized IT environment while improving system reliability and gaining new automation capabilities.

Improved system reliability through standardization

Reduced costs and vendor lock-in

Resolved issues quickly with fast, expert support

Read the customer success story to learn more about the bank's experience.

"Our Intel and Red Hat solution has helped us reduce costs while still getting the availability, power, and performance that's required in a clinical environment."

BRET LAWSON
DIRECTOR, INFRASTRUCTURE AND OPERATIONS, INTERMOUNTAIN HEALTHCARE

Read the customer success story to learn how Intermountain Healthcare automated their IT to deliver innovative patient services faster.

Red Hat and Intel's approach to IT optimization

Red Hat and Intel deliver a modular, customizable architecture based on modern, industry-standard platforms and hardware optimized for cloud workloads and hybrid cloud deployments. Key components include:

- Red Hat® Enterprise Linux, a flexible, enterprise Linux platform for bare-metal, virtual, container, and cloud environments.
- Red Hat Insights, a proactive identification and remediation tool for threats to security, performance, availability, and stability.
- Red Hat Virtualization, an open, software-defined platform that virtualizes Linux and Microsoft Windows workloads.
- Red Hat OpenStack® Platform, an enterprise-grade, open source cloud computing platform.
- Red Hat Ceph® Storage and Red Hat Gluster® Storage, flexible, software-defined storage for a variety of workloads across bare-metal, virtual, container, and cloud environments.
- Red Hat Hyperconverged Infrastructure, integrated software-defined compute and storage in a compact footprint.
- Red Hat Smart Management, a management offering helps you more securely manage environments supported by Red Hat Enterprise Linux.
- Second-generation Intel Xeon Scalable processors, high-performance processors designed for hybrid cloud environments and optimized across workloads.
- Intel Optane® DC solid-state drives (SSDs) and persistent memory, high-speed, high-density nonvolatile memory that boosts performance for demanding applications.
- Intel Ethernet 800 series network adapters, high-throughput, low-latency networking for demanding cloud and enterprise workloads.

These security-focused, cloud-ready solutions are ideal for IT optimization.

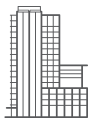
Consistent, hyperconverged infrastructure helps you standardize and increase security and compliance. Progressive, real-time security features in both hardware and software detect threats and protect your business. Production-grade technologies deliver reliability and stability. Unified management tools boost consistency, visibility, and control. Flexible automation streamlines operations, raise accuracy, and offloads tedious tasks to free time for innovation. Open source and industry-standard components give you more choice and flexibility and while reducing TCO. Enterprise-grade, award-winning support resolves issues quickly and provides the resources you need to run your IT infrastructure optimally.

Red Hat and Intel also provide expert consulting and training services to help you get started faster and maximize your return on investment.

Next steps

IT optimization can help you reduce the technical debt of your current infrastructure and free time and budget for strategic projects that support business innovation. Red Hat and Intel offer modern, modular solutions to help you optimize IT today and prepare for hybrid cloud operations in the future.

Learn more at red.ht/OptimizeIT.



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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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