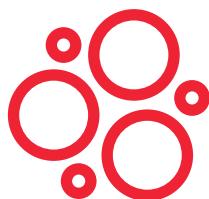


Modernize your payment infrastructure with Red Hat



“Open source technology is disrupting our industry and helping modernize banking. It sparks innovation by bringing people together to contribute to a project. We see open source as the future of all technological innovation, so we were happy to take the first steps with Red Hat.”

John Cattrall
Head of Technology Operations,
Ascend Money¹

Overview

As the [largest open source company in the world](#), Red Hat believes using an open development model helps create more stable, secure, and innovative technology. We have spent more than two decades collaborating on community projects and protecting open source licenses so that we can continue to develop software that pushes the boundaries of the software industry.

Red Hat revolutionized the operating system 25 years ago with [Linux®](#). We have built upon that experience to create a cloud platform that provides the tools (Figure 1) needed by payment organizations to operate more efficiently and innovate more quickly. It includes a robust set of application and developer tools that help organizations simplify their technology estate and be more competitive.

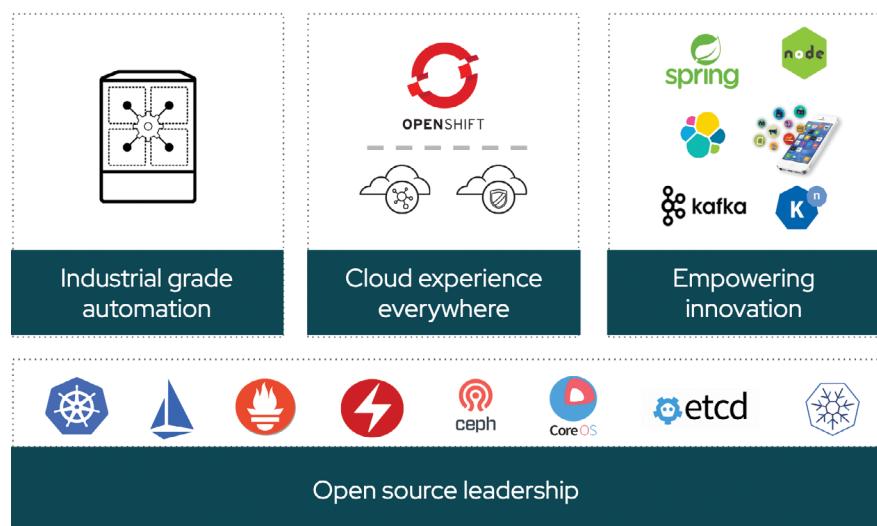


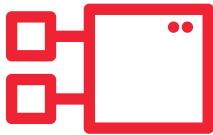
Figure 1. Tools to help you become more efficient and adaptive

With Red Hat, you can run traditional cloud-native applications across your payment infrastructure with a consistent cloud experience. This ability lets your organization progressively modernize its applications over a period of time while avoiding the rip-and-replace approach of the past.

¹ Red Hat case study. “[Ascend Money builds applications with Red Hat OpenShift and Ansible](#),” Aug. 2019.



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“Over the last six years, transaction demands have grown substantially, so we decided to move to microservices and containers. We needed to guarantee high performance and availability, and we could not afford to interrupt services with any downtime for maintenance.”

Matteo Combi
Solution Architect, SIA²

Red Hat is the second-largest contributor to the upstream [Kubernetes](#) community and is the originator of many of its key features, components, and related container technologies. We contributed to the community prior to the formal launch and have supported leading organizations to run Kubernetes in production. Today, we are working with the cloud-native community to push the boundaries of what containers and Kubernetes can do, from serverless computing to machine learning.

By tapping into the collective talent and innovation of [open source communities](#), we believe we can create better software, together. This collaboration helps fuel much of the technology we use today, from open source platforms like Linux and Kubernetes to open source browsers like Firefox and Chromium.

Payment modernization with Red Hat

Red Hat gives you capabilities (Figure 2) to streamline your payment infrastructure and adapt to what you cannot predict. A cloud-agnostic platform and growing ecosystem of core payment vendors maximize the options for reducing the running cost of your payment infrastructure.

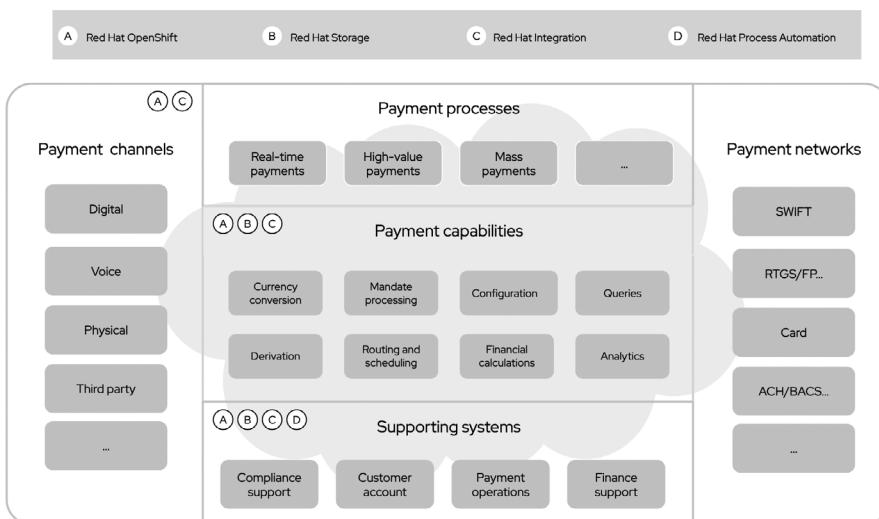


Figure 2. Payment conceptual architecture

Becoming more efficient

[Microservices](#) supported by container technology have made it possible for payment organizations to better adapt to changes by breaking large systems into smaller components. This makes it easier to test and deploy changes while improving overall system availability and performance.

To realize these benefits, organizations need an updated set of tools. For example:

² Red Hat case study. “[SIA builds scalable, efficient payment platform with Red Hat](#),” Jan. 2020.



"[Red Hat] OpenShift is a complete solution, making it quick to provision and cost-efficient to operate. Everything you need for an automated pipeline is provided."

Muharrem Gün
DevOps Manager, Akbank³

- Red Hat® OpenShift® provides an industrialized cloud platform to scale and manage microservices. It gives you the tools you need to deliver microservices consistently and quickly with built-in pipelines.

- Red Hat Integration reduces the effort to create and test microservices while connecting with systems that are needed to support payment processing. It can also increase parallel communication and automatically adjust infrastructure capacity based on demand.

These capabilities allow you to quickly adjust to changing messaging standards and connect to new systems while taking advantage of the scale and resilience of an industrial-grade cloud platform.

Using cost-effective infrastructure

With Red Hat, you have the freedom to move your payment service across the infrastructure that makes the most sense for your business. You can deploy on-premise or off-premise from providers such as Alibaba, Amazon, Google, IBM, and Microsoft. The result is that you can reduce the operational complexity and cost of running your payment infrastructure while realizing the efficiencies associated with a modern cloud platform.

Cloud platform for any infrastructure

Red Hat OpenShift includes everything needed to run critical services for your payment organization. It is powered by Red Hat Enterprise Linux, allowing you to run your payment service with confidence from the world's leading enterprise Linux platform.⁴ Red Hat Enterprise Linux runs containers natively in cloud environments (Figure 3) so that you can maximize the efficiency of compute resources and reduce ongoing operating costs as your volumes increase.

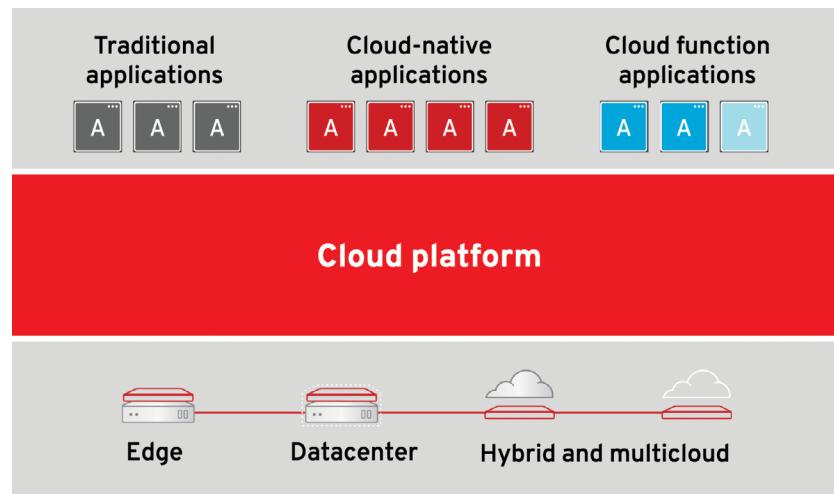


Figure 3. Cloud platform conceptual architecture

³ Red Hat case study. "Akbank launches digital banking app with Red Hat OpenShift," Feb. 2020.

⁴ IDC. "Worldwide Operating Systems and Subsystems Market Shares, 2018." Released Nov. 2019.



"We can support peaks and high volumes of customers on the system—and grow—without drama. It's a worry-free approach where everything works as expected, and we can monitor it all."

Luis Uguina
Chief Digital Officer, Macquarie's Banking and Financial Services Group⁵

Table 1. Infrastructure features and benefits

Feature	Benefit
Run on any infrastructure.	Freely move modules across cloud providers and take advantage of the best cloud infrastructure for your needs with consolidated management of cloud infrastructure.
Automate provisioning.	Get automated installation and over-the-air upgrades across cloud providers. Application services from Operator Hub can be deployed as auto upgradable.
Add capacity automatically.	Automatically expand or contract infrastructure based on payment volumes. Scale to thousands of instances across hundreds of nodes in a matter of seconds.
Exchange data between clouds.	Exchange data across cloud infrastructure with a high-performance messaging backbone for communication across cloud environments.

Tap into leading open source communities and foundations such as the [Cloud Native Computing Foundation](#), [Apache Software Foundation](#), and the [Linux Foundation](#). These open source projects are tested together and distributed as Red Hat OpenShift, which provides an industrialized cloud platform spanning any type of infrastructure.

Cloud-native messaging and integration

Efficient cloud-native messaging and integration are critical for payment systems to quickly clear and settle payments in real time. Red Hat Integration (Figure 4) provides the tools you need to integrate payment data and scale automatically as volumes increase.

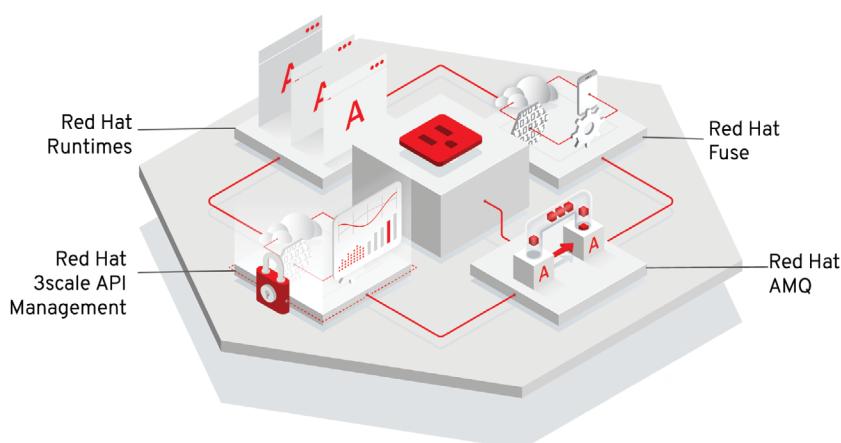


Figure 4. Components of Red Hat Integration

⁵ Red Hat case study. "[Macquarie transforms digital banking with Red Hat OpenShift](#)," Apr. 2017.

Table 2. Messaging and integration features and benefits

Feature	Benefit
Exchange messages in real time.	Share information with the support of almost any messaging protocol and messaging client.
Connect to almost anything.	Model, test, and deploy integrations with support of more than 200 connectors.
Enforce security policies efficiently.	Monitor and observe microservice components for system issues and automate corrective actions. Consistently enforce security policies across components with a built-in service mesh .
Reduce resource usage.	Achieve faster startup times and better infrastructure utilization with Red Hat Runtimes . It provides access to a wide array of runtimes, including Quarkus , a low-memory, high-throughput Java™ runtime.

AMQ streams, a component of [Red Hat AMQ](#), is based on the [Strimzi](#) community project and provides a cloud-native messaging backbone that allows microservices and other applications to share data with each other. It supports high-throughput and low-latency exchange of data, meeting the needs of highly available real-time services. [Red Hat Fuse](#) adds cloud-native integration capabilities to your payment infrastructure so that your organization can quickly connect and integrate systems without relying on a team of centralized technical specialists. [Red Hat 3scale API Management](#) provides the ability to apply effective security and billing policies for external access.

These components work together so that payment organizations can support real-time payment processing and capture the promise of open banking.

Cloud-native decision and process management

Maintaining or improving high levels of straight-through process requires the ability to quickly assess and adjust payment processes and decisions. This means that payment exceptions need to be intelligently routed and assigned so that they are quickly resolved.

[Red Hat Process Automation](#) (Figure 5) provides the ability to apply real-time intelligence in payment processing that is optimized for cloud and containers. [Red Hat Decision Manager](#) includes [Drools](#), a highly scalable rules engine capable of processing large rules and datasets efficiently in real time. You can apply standard rules or machine-learned predictive rules to your process. These rules can be used in conjunction with built-in artificial intelligence for optimally routing payment instructions, such as payment exceptions, to the best resource to handle them.

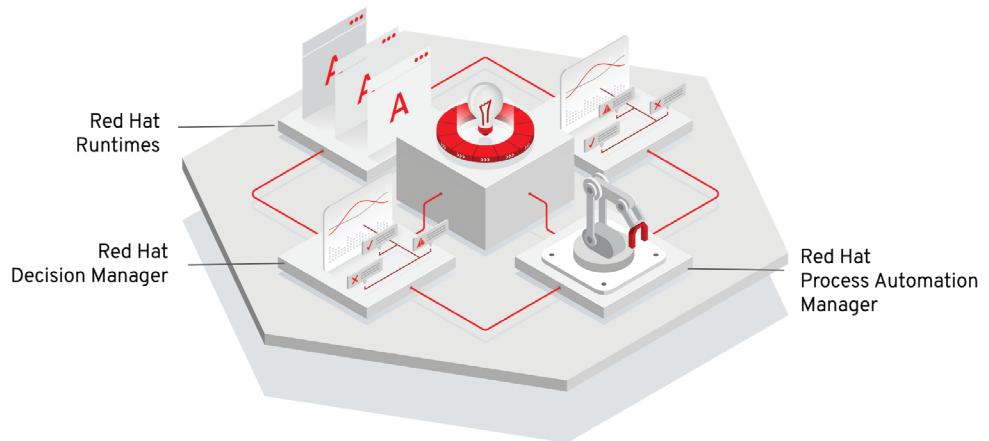


Figure 5. Components of Red Hat Process Automation

Table 3. Decision and process management features and benefits

Feature	Benefit
Optimize resource utilization.	Optimize exception handling with intelligent routing and task assignment to streamline work and complete exception processes more quickly.
Adjust decisions without coding.	Empower individuals to define payment processes and decisions using web-based authoring tools. Deploy changes automatically without manual intervention.

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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