Red Hat

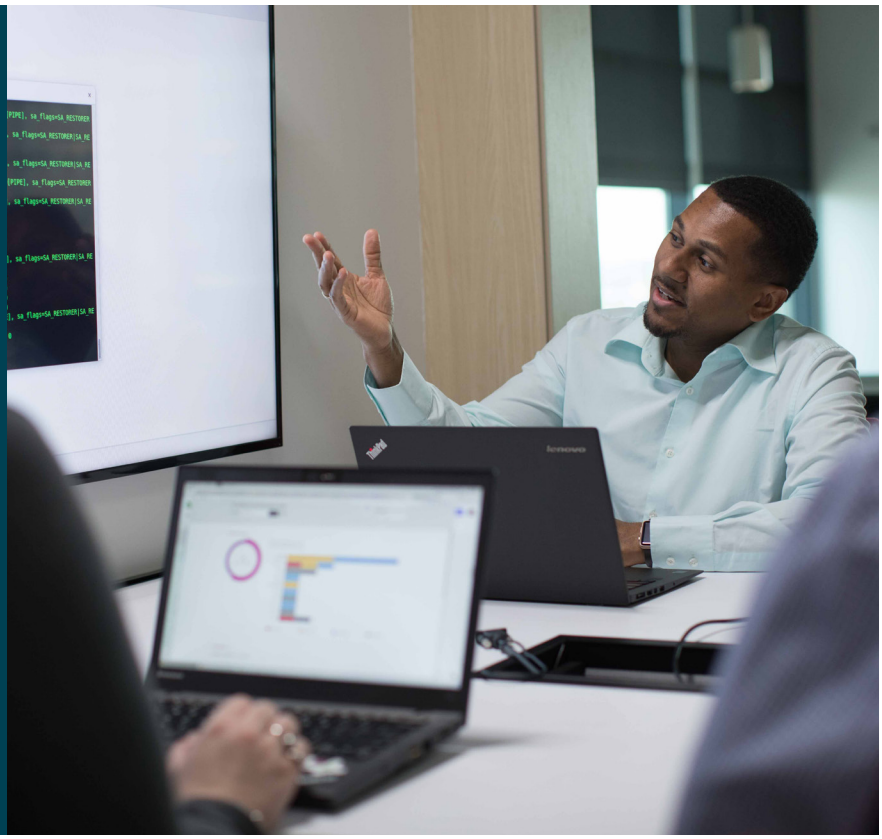
Five reasons to innovate payments the open source way

See what's inside

Why constant innovation matters for payment companies

As new innovations and players are added to the payments market landscape, both business models and customer expectations are rapidly changing. As a result, related business technology decisions are becoming even more critical for continuous business growth.

> "The global payments industry is undergoing a paradigm shift with an influx of technology, demographic, and regulatory dynamics."
>
> **Capgemini**[1]



The global payments landscape is in transition. Trends include adopting open application programming interfaces (APIs), an increase in digital payments, new solutions for cross-border payments, and growing competition from new fintechs and alternative service providers. These developments are challenging incumbents to create and deploy new, differentiated services quickly to take advantage of opportunities in the global payments business, or risk losing out to nimbler competitors.

[1] Capgemini, "Top 10 Trends in Payments–2017." https://www.capgemini.com/wp-content/uploads/2017/07/top_10_payments_trends_2017_0.pdf.

There are two primary technology challenges facing organizations competing in the payments arena today:

1

What do established payments players do with their existing payment systems (that are used by most of the world)? How do they retool to play in the new landscape?

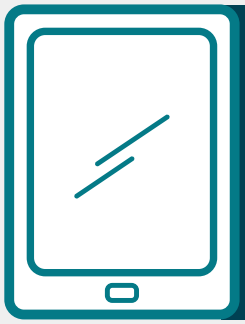
Established players must retool their organizations to compete in a dynamic marketplace and take advantage of new technologies—including application programming interfaces (APIs), containers, and cloud infrastructure.

2

How do new, or established, players build new payment platforms from the ground up with all the features, capabilities, and flexibility required for an increasingly dynamic marketplace?

Providing new services in a way that can be monetized requires a deep understanding of customers. This understanding is fueled by today's fast-evolving machine learning (ML) and artificial intelligence (AI) technologies, along with capabilities to easily connect with other value-added partners, services, and platforms. Organizations have moved from manual intervention in the payments supply chain to rules-based processing and will soon be shifting to AI-based processing, which will require new levels of compute and storage capabilities.

Payments security is also evolving to include biometrics and ML, and security needs to be carefully considered in any new payments strategy. The threats to payment and card data are continuously evolving, and the Payment Card Industry (PCI) Data Security Standard (DSS) continues to mature and require more stringent enforcement. At scale, security and compliance may be very challenging to achieve without intelligent and dynamic decision making.



This e-book provides an overview of payments innovation trends and opportunities, including insight into how an organization can adopt new capabilities through open source technology to better meet changing customer needs and compete at a global scale.

A complex payments landscape

Organizations face a highly complex payments landscape. They need to build simpler, more adaptable architectures to become more responsive to change while reducing technical debt. As a result, leaders are relying on open source technology to power innovation in their new payments platforms.

HOW OPEN SOURCE IMPROVES INNOVATION

In the past, organizations that used enterprise software would need to wait for software vendors to create extensions, fix bugs, and push out updates to their customers.

Today, firms are innovating faster using open source solutions to make quicker updates, meet changing regulatory requirements, and speed up time to market. In this model, organizations are free to enhance open source solutions to better serve their customers. For example, Barclays partnered with Red Hat[2] to introduce a container application platform as part of its cloud strategy. The result was a faster release cadence that has freed up IT and developers to work on fresh, innovative tasks rather than everyday administrative tasks that do not provide competitive value.

Open source solutions can provide an optimal path for institutions seeking to improve developer efficiency, increase agility, and accelerate idea-to-production timelines.

The top five reasons payments leaders are turning to open source solutions.

[2] Red Hat customer success story, "Barclays adopts agile DevOps culture to stay competitive." https://www.redhat.com/en/success-stories/barclays.

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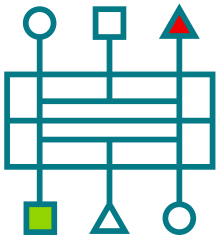
Card to cloud, microservices, containerization, and APIs



We're quickly moving toward a world where seamless payments work securely, anywhere, on any device or with any form factor—all made possible by the cloud and related technologies. Specifically, microservices-based architectures, containerization, and APIs are supporting continuous innovation in the payments space and are being used to build payments systems in a more flexible, portable manner.

ELO REDUCED TIME TO MARKET FOR NEW SERVICES[3]

Elo Cartões S.A. (Elo), a Brazilian payment card company, sought to deploy an agile, efficient IT environment that would simplify management and speed time to market. The company developed an open source solution from Red Hat that reduced service time to market by speeding server deployment from 45 days to 1-2 days, while simplifying management and providing greater automation.

"We have to move faster than traditional banks, and there's also new competition from fintech startups," said Anderson Agapito, former IT infrastructure manager at Elo. "So, time to market for new products, services, or promotions is crucial. IT cannot be a stumbling block. We want to develop a collaborative, API-based environment for our partners, including fintech companies. This change will best position us to influence
the market and compete, compared to the isolated way

> "Competition in this market is aggressive. New entrants can break through quickly. We want to be quick to spot and act on opportunities. With Red Hat, we're able to move fast."
>
> **Anderson Agapito, former IT Infrastructure Manager, Elo**

[3] Red Hat customer case study, "Payment card company cuts time to market for new services." https://www.redhat.com/en/resources/elo-customer-case-study.

2

Seamless payments on any device through almost any channel

> "With our Red Hat platform, we now have the reliability and high availability we need to handle our increasing volume of transactions. We also have the ability to scale out to serve many different customers."
>
> Tim Giometti
> Director of Engineering, Genfare

Payments trends are moving to cloud-enabled e-commerce and social media platforms, which are self-contained and don't rely on old platforms, and mobile payments are being executed in a peer-to-peer manner. This approach provides greater consumer purchasing power with companies like Facebook, PayPal, Venmo, Google, and Square, and, most recently, with Zelle, a subsidiary of Wells Fargo.

What platforms such as Spike and Square have implemented on the merchant acceptance side will also be implemented on the payments side. Additionally, many popular messaging platforms such as WeChat, Facebook Messenger, and WhatsApp will allow users to make a purchase as easily as sending a text message, without leaving the app they're in.

NEW DIGITAL PAYMENT SOLUTIONS TO MEET THE EXPECTATIONS OF MODERN CONSUMERS[4]

Software and services turn almost any location or device into a point of sale. A transaction can now take place at any point in a shop-and-buy timeline and can be digital or physical. For example, open source technology has allowed Genfare to provide transit agencies around the world with new digital payment solutions to meet the expectations of modern riders. Genfare introduced the first mechanical farebox back in 1880. For decades, transit agencies were happy with that basic payment solution. Riders now want multiple payment options—from coins to cards to smartphones.

Genfare completely transformed itself from a hardware company to a software company using open source solutions from Red Hat. Genfare replaced its old fare collection solution with a new multi-tenant hosted Software-as-a-Service (SaaS) offering, Genfare Link, a cloud-based platform for fare management that supports a variety of payment methods and uses Internet of Things (IoT) technology to deliver seamless communication among transit agency systems—from fare collection devices at the front of the bus to back-end systems. The solution provides better service to riders while reducing support, on-site hosting, and operational costs.

By using open source solutions, Genfare gets reliable software that is supported by Red Hat and the open source community. The open source code included in Red Hat® products is thoroughly vetted and debugged by the open source community and Red Hat, resulting in greater stability and fewer issues.

[4] Red Hat customer case study, "Genfare quickly evolves from hardware to software with Red Hat." https://www.redhat.com/en/resources/genfare-case-study.

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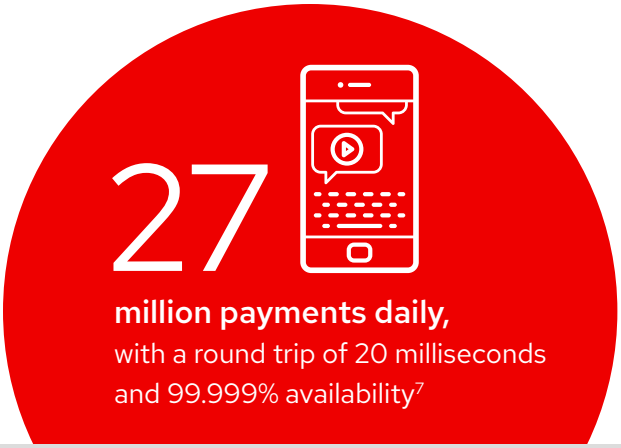
Real-time payment transactions are a reality



The world is changing. With the advent of real-time processing of payment transactions, the concept of float is going away—with significant business implications for traditional payments business models. According to CapGemini, digital payments comprised of online, mobile, and contactless cards were expected to hit $3.6 trillion in transactions globally in 2017, which is 20% growth from $3 trillion in 2015, and 60% of the growth is attributed to the contactless cards segment.[5] Increased demand from merchants and customers, and even regulatory agencies around the world, is also creating the need for real-time payments, according to a Deloitte report.[6]

SIA (Societá Interbancaria per l'Automazione), had a goal to provide services that allow their customers to use their own money anytime, anywhere, simply and securely. In late 2017, SIA launched a new real-time payments platform that lets people in 34 countries across Europe transfer and receive sums of up to €15,000 per individual transaction in seconds, 24 hours a day, every day of the year. It's a system that can process 27 million payments daily, with an average round trip of 20 milliseconds with 99.999% availability—and it's powered by Red Hat open source technology.

"SIA is undergoing a major shift from legacy technology to open source, but we are meeting this challenge head-on thanks to Red Hat solutions."

Emanuele Montrasi, Operations Solution Development, SIA[8]

SHIFT FROM LEGACY TECHNOLOGY TO AN OPEN SOURCE PLATFORM

How did SIA make its instant payment processing service a reality? It started with a shift from legacy technology to an open source platform that includes Red Hat Fuse to collect and store transaction data, Red Hat Process Automation Manager to manage business rules and related governance workflows, and a web application that uses Red Hat JBoss® Enterprise Application Platform (EAP) for custom user interfaces to manage rule-editing and versioning.

[5] Capgemini, "Top 10 Trends in Payments–2017." https://www.capgemini.com/wp-content/uploads/2017/07/top_10_payments_trends_2017_0.pdf.

[6] Deloitte, "Real-time payments are changing the reality of payments." 2015. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/strategy/us-cons-real-time-payments.pdf.

[7] Red Hat Summit presentation, "How to build a European scale instant payments platform." May, 2018. https://www.redhat.com/files/summit/session-assets/2018/How-to-build-a-European-scale-instant-payments-platform-Distribution.pdf.

[8] Extra customer success story, "SIA increases processing speed and reduces costs using Red Hat JBoss Fuse Middleware." https://www.extrasys.it/en/pre-billing-in-sia-via-jboss-fuse-and-jbpm.

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Open source = scalable transactions without borders

Helping people without credit cards in underserved and third-world countries participate in digital payments continues to show robust growth, powered by technologies that ease the transformation to low-friction, digital payments.

RIDING ON THE GROWTH OF MOBILE PAYMENTS IN SOUTHEAST ASIA WITH RED HAT[9]

Ascend Money turned to Red Hat open source technology to create its mobile wallet app to provide digital payment services across developing economies in Southeast Asia.

"On our road to digital transformation, it was critical for us to move to open source and take advantage of innovative technologies—like Red Hat OpenShift® Container Platform and Red Hat Ansible® Automation—to host and scale applications across hybrid and multicloud environments."

Jason Jackson, Group Chief Technology Officer, Ascend Money

As the company rolls out its new application foundation, Ascend Money plans to use Red Hat OpenShift Container Platform to more quickly create, host, and scale applications across multicloud environments. Built on open innovation and industry standards—including Red Hat Enterprise Linux® and Kubernetes—OpenShift Container Platform helps Ascend Money unite its developers and IT operations teams on a single platform for modern and traditional applications with shorter development cycles and increased efficiencies. Ascend Money also uses Red Hat Ansible Automation and Red Hat Satellite Server to provide effective management and automated provisioning of infrastructure across all environments.

" We hope to ride on the growth of mobile payments in Southeast Asia by scaling our business footprint in the region in a cost-effective and efficient manner with Red Hat's technologies."

Jason Jackson, Group Chief Technology Officer
Ascend Money

[9] Red Hat press release, "Ascend Money Selects Red Hat Solutions to Accelerate Electronic Payment Systems Across Southeast Asia." May 28, 2018. https://www.redhat.com/en/about/press-releases/ascend-money-selects-red-hat-solutions-accelerate-electronic-payment-systems-across-southeast-asia.

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Payment security: automation, contactless, token, and biometrics

Threats to payment card data are continuously evolving, and the PCI DSS continues to mature and require more stringent enforcement. Implementing technology platforms that support protective measures will be necessary to reduce the risk of increasingly advanced threats.

CONQUERING THE CHALLENGE OF PCI COMPLIANCE WITH OPEN SOURCE

Open source technologies, such as Red Hat Enterprise Linux, offer a server platform and supplemental tools that help organizations achieve and maintain PCI DSS compliance. A technology platform that is supported commercially and by the community helps organizations successfully deploy new systems while managing all PCI-relevant configuration changes to in-scope systems. Management of Red Hat Enterprise Linux systems with Red Hat Satellite Server provides the necessary controls to efficiently deploy, update, monitor, and manage systems that are in scope for PCI DSS compliance.

Open source benefits include enhanced automated compliance and security. These solutions help companies like Elo protect customer and company data from threats and errors and meet compliance requirements.

For example, with **security audit reports**, **role-based access**, and **server auditing** provided by Red Hat Satellite Server—as well as guidance for using Security-Enhanced Linux (SELinux)—Elo has now achieved PCI-DSS certification.[10]

[10] Red Hat customer case study, "Payment card company cuts time to market for new services." https://www.redhat.com/en/resources/elo-customer-case-study.

Open source will power the payments platforms of tomorrow

Open source technology is transforming the payments landscape. The industry is now building on top-quality open solutions that are backed by thriving communities of innovators and problem-solvers. For financial institutions with thousands of engineers, this approach helps them better tackle problems within the organization and build upon the work of others across teams.

Red Hat's broad portfolio of open source solutions uses that same community to power some of the world's most demanding datacenters, including 100% of the commercial banks in the Fortune Global 500 who all rely on Red Hat.[11] You can too.

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[11] Red Hat client data and Fortune Global 500 list, September 2018.