

# Banco Original, Brazil's first digital bank, adapts to real-time payments with Red Hat



## Software

Red Hat®  
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Red Hat Runtimes

Red Hat Smart Management

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Banco Original, Brazil's first bank with a fully mobile-based account opening process, sought to replace its traditional virtualization approach to better support the country's new national real-time payment network, Pix. The bank decided to build a microservices- and container-based environment, supported by DevOps and continuous integration and continuous delivery (CI/CD), using Red Hat technology. With this new approach, Banco Original has scaled to support a 700% increase in Pix traffic and meet compliance and performance requirements—without downtime to its public-facing services.



## Financial services

1,300 employees

## Benefits

- ▶ Scaled to support 700% increase in real-time payments—and millions of new accounts
- ▶ Improved efficiency to meet strict transaction processing speed requirements
- ▶ Enhanced in-house IT capabilities with support for expanded automation, CI/CD, and DevOps

"We've gone from 700,000 accounts in 2019 to almost 5 million in 2021. The flexible container-based environment we've built with Red Hat OpenShift has helped us adapt to this massive growth without any downtime for our services."

**Everton Queiroz**

Infrastructure Executive Manager, Banco Original

“Red Hat OpenShift provides the built-in automation capabilities and responsive support for CI/CD and DevOps, such as a microservices orchestrator, that we need to make the most of our in-house IT talent.”

**Jadson Vieira**  
Infrastructure Consultant,  
Banco Original

## Adapting to new national instant payment solution

New entrants and technologies are changing the financial market worldwide. In this increasingly dynamic industry, banks are looking for opportunities to respond to rapidly changing consumer demand by introducing innovative, digital services ahead of the competition.

Launched in 2016, Banco Original is Brazil's first bank where customers can use a mobile device to complete the entire account opening process. Its offerings are provided through a Banking-as-a-Service approach, including BOT Original—a tool that provides 24x7 virtual customer service via Facebook Messenger—and PicPay mobile wallet and payment platform.

In 2020, the Central Bank of Brazil (BC) introduced [Pix, an instant payment network](#) that lets individuals or companies make and receive payments in seconds using a mobile application or with an email address, cell phone number, QR code, or tax identification number. Support for this new payment solution is mandatory for all Brazilian banks, but successful adoption requires transfers completed in 10 seconds or less, 24x7 availability, and compliance with national and industry security protocols.

To meet these performance requirements, Banco Original sought to migrate its microservices from VMware virtual machines (VMs) running on industry-standard infrastructure to a more efficient, scalable solution.

“Our biggest challenge with any new demand is scale,” said Everton Queiroz, Infrastructure Executive Manager, Banco Original. “We’ve followed a traditional approach by increasing processing power, memory, and other resources, but the availability and responsiveness we need to support Pix for our customers requires a new approach.”

## Supporting real-time transactions with Red Hat container technology

After testing several VM solutions and completing several workshops with Red Hat, Banco Original decided to use the same solution chosen by BCB and expand its Red Hat OpenShift environment to support Pix. The bank has used Red Hat OpenShift since 2018 to host and manage its microservices with supported enterprise open source technology.

“Pix was an opportunity for us to bring in a new system, compliant with a new Central Bank of Brazil standard, that helps us provide robust services support for the customers of Banco Original and prepare for future demand,” said Luiz Machado, Infrastructure Consultant, Banco Original.

Red Hat OpenShift is an enterprise Kubernetes container platform that supports continuous, responsive development of innovative services with robust scaling, security, and automation capabilities across hybrid environments.

Banco Original runs this platform, comprised of approximately 2,000 containers, on Red Hat Enterprise Linux CoreOS, a lightweight operating system for clustered container deployments and automated OpenShift operations based on Red Hat Enterprise Linux. Red Hat support for Spring Boot, part of Red Hat Runtimes, helps the bank create and use common, standalone microservice patterns and applications. To manage this environment, Red Hat Smart Management provides optimization capabilities across the bank's Red Hat software, including vulnerability management, compliance verification, and configuration troubleshooting.

Red Hat OpenShift now supports Banco Original's Banking-as-a-Service (BaaS) solution that supports API-based partner integration and several services, including Payment Slip, Pix, and loans.

To support implementation of a more resilient microservices-based architecture at scale, Banco Original worked closely with its Red Hat Technical Account Manager (TAM), a dedicated technology expert. The bank also purchased [Red Hat Learning Subscription](#)— an annual subscription that provides access to all online learning courses, video classroom courses, course materials, lab time, and field-expert lessons—to help its in-house teams build and expand their DevOps skills.

### **Meeting strict service performance requirements at scale**

#### **Scaled to support 700% increase in Pix use—and millions of new accounts**

Just a short time after the introduction of Pix, Banco Original now supports eight times more users for the platform than the previous national digital payment solution—with traffic increasing almost 700% in five months. The bank has seen similarly rapid growth in its other services.

“We’ve gone from 700,000 accounts in 2019 to almost 5 million in 2021,” said Queiroz. “The flexible container-based environment we’ve built with Red Hat OpenShift has helped us adapt to this massive growth without any downtime for our services. We can even introduce new features without any negative impact to our customer experience.”

#### **Reduced transaction time to meet strict national requirements**

With a high-performance platform built on Red Hat’s Kubernetes solution, Banco Original can meet BCB’s strict requirement to complete each Pix transfer in less than 10 seconds.

“Pix is the foundation of a new financial transaction model in Brazil, so complying with the related service level agreement (SLA) and regulatory requirements is extremely important to keeping us a key player in the market,” said Machado. “We’ve also seen a positive improvement in our response times in other transaction channels, such as mobile and internet banking.”

#### **Improved efficiency with support for CI/CD, DevOps, and increased automation**

Its new continuous integration and continuous delivery (CI/CD) and DevOps approaches, combined with an increase in automation, has helped Banco Original reduce the amount of manual, routine tasks completed by its IT department.

“Beyond just Kubernetes containers, Red Hat OpenShift provides the built-in automation capabilities and responsive support for CI/CD and DevOps, such as a microservices orchestrator, that we need to make the most of our in-house IT talent,” said Jadson Vieira, Infrastructure Consultant, Banco Original. “There are also integrated security certificates for things like PCI DSS [Payment Card Industry Data Security Standard] that help our operations team work more efficiently.”

### **Exploring technology improvements to continue enhancing services**

In the near future, Banco Original plans to enhance its container environment by starting to use Red Hat OpenShift Service Mesh, a built-in component of Red Hat OpenShift that supports a distributed microservices architecture with more effective communication. The bank is also considering further expansion of its automation capabilities with Red Hat Ansible® Automation Platform, an agentless solution that uses human-readable, reusable playbooks to help teams support more projects and processes without increasing staffing.

To continue learning how to support its open banking strategy with best practices from experienced technology experts, Banco Original is also considering a Red Hat Open Innovation Labs engagement. This immersive residency program helps teams learn the skills, tools, and processes to deliver better software faster.

"We see Red Hat as a true partner. They helped right from the beginning: during the cluster design and architecture planning processes, throughout the implementation, and even during the after-sales support phase," said Machado. "We are excited to see what new opportunities Red Hat can help us take advantage of to continue supporting Pix and our other services."

### About Banco Original

Banco Original is a private Brazilian financial institution with almost 5 million customers. It was the first bank in Brazil that allowed the opening of a checking account 100% through mobile devices. It operates in the retail segments (individuals and entrepreneurs), companies (small, medium and large companies), fintechs (through the Banking as a Service unit) and digital portfolios (through its subsidiary PicPay). Banco Original also offers acquiring services for its corporate clients. The Banco Original application is the most complete among the digital ones and is available for both iOS and Android and allows the request to open an account and its full transaction (payments, transfers, loans, investments, among others). The institution is also fully integrated with the PIX, using artificial intelligence to assist the process. Access our sites and learn more: [original.com.br](https://original.com.br) | [openbanking.com.br](https://openbanking.com.br)



### About Red Hat Innovators in the Open

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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 develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. [A trusted adviser to the Fortune 500](#), Red Hat provides [award-winning](#) support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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