Red Hat

Case study

# Shinhan Bank builds global platform for integrated banking with Red Hat

신한은행

To offer customer-centric services across its global subsidiaries, Shinhan Bank decided to build a central front-end processing system for its open banking service. Working with Red Hat Consulting, the bank used Red Hat OpenShift and integration technology to build a container- and microservices-based service foundation. Combined with a DevOps-supported continuous integration and delivery (CI/CD) approach, this platform has helped the bank reduce its operating costs and protect sensitive data while launching new digital services faster.

**Software and services**

Red Hat® OpenShift® Container Platform

Red Hat 3scale API Management

Red Hat Fuse

Red Hat Consulting

Red Hat Training

**Partner**

Goodmorning Information Technology


*"Our digital transformation was more than just a technology upgrade. We worked with Red Hat Consulting to strengthen our global collaboration approach and open source experience. We are now able to bring greater convenience and other benefits to not just our Korean customers but customers across all 20 of our markets."*

**Si Hyeong Bae**
CIO and Head of ICT Division, Shinhan Bank

**Financial services**

**13,500** employees

**Benefits**

- Reduced time to market for digital services by more than 50%
- Established standard CI/CD approach optimized for hybrid cloud
- Gained expert support for container and microservices adoption
- Reduced development and operating costs by 60%

## Delivering customer-centric digital banking services

Shinhan Bank is one of the oldest and largest banks in Korea. Established in 1897, it currently has more than 900 branches. The bank has led technological change in the Korean financial sector with a focus on customer-centric operations. In particular, it aims to increase efficiency to enhance its customer experience. Additionally, Shinhan Bank is expanding internationally through 163 branches in 20 countries following a glocalization strategy, an approach where global solutions are adapted locally.

*"Red Hat's comprehensive solution, offered through a subscription-based model, provides a Linux-based container platform supported by robust API management capabilities."*

**Gwang Joong Kim**
Department Manager, ICT Operations, Shinhan Bank

"In Korea, banks value stability rather than innovation due to financial market regulations. Nevertheless, banks' ICT teams must embrace agile and DevOps processes to meet rapidly changing demands," said Si Hyeong Bae, CIO and Head of ICT Division at Shinhan Bank. "We needed to adopt emerging technologies, cloud infrastructure, and modern work approaches while maintaining service reliability and meeting market regulations."

In 2017, Shinhan Bank began enhancing its cloud capabilities and migrated its foreign subsidiaries' online banking services to the cloud. In 2018, in response to growing commercialization of services using artificial intelligence (AI), cloud computing, and blockchain in the financial market, the bank decided to migrate its remaining infrastructure from its legacy solution to a cloud-ready, microservices-based enterprise architecture and Platform-as-a-Service (PaaS).

Korean banking industry regulations require separate development and operations functions, requiring Shinhan Bank to include an internal approval system in its new DevOps-supported continuous integration and delivery (CI/CD) system. The bank also sought to take advantage of new fintech solutions.

To achieve these capabilities, the bank sought to build an enterprise-scale, cloud-native front-end processing system that would help it scale its application programming interface (API)-related services quickly and efficiently.

## Building a global front-end processing system with open source technology

Shinhan Bank completed pilot projects using community-developed platform technology before seeking a supported enterprise solution. Security for global clustering and other features using the community software proved difficult for employees who were inexperienced with open source. Broader adoption of a community-developed PaaS would require significant time and financial investment.

"Beyond meeting regulations for a DevOps CI/CD process and supporting emerging technology, we needed a platform to implement cloud-native services with robust support and security," said Gwang Joong Kim, Department Manager, ICT Operations, at Shinhan Bank.

To improve the stability of innovative open source technology and access expert technical support, Shinhan Bank decided to deploy Red Hat OpenShift Container Platform as the foundation of its new cloud-based CI/CD system. Based on Kubernetes, OpenShift Container Platform supports efficient, automated development processes across hybrid and multicloud infrastructure.

"When we considered options for our cloud infrastructure, we saw open source platforms as the key to success. Working with Red Hat, the open source leader, would help us gain core capabilities more swiftly," said Gwang Joong. "Red Hat's comprehensive solution, offered through a subscription-based model, provides a Linux-based container platform supported by robust API management capabilities."

To support its OpenShift platform, Shinhan Bank also deployed integration solutions from Red Hat. Red Hat Fuse, a distributed integration platform, lets developers and operations teams develop connected solutions independently, in their preferred environments. 3scale API Management provides encryption

and Proof Key for Code Exchange (PKCE) security to protect sensitive company and customer data and resources when fintech partners access the bank's APIs for integrated services.

## Improving agility and costs with a modern platform and approach

### Accelerated launch of digital services by more than 50%

By taking advantage of Red Hat OpenShift's global clustering feature, Shinhan Bank can now centrally manage the workloads of its foreign subsidiaries. Using 3scale API Management and Red Hat Fuse lets the bank operate workloads by country, eliminating the need to adapt its core front-end processing system for each country's infrastructure.

Development with third-party fintech partners is also more efficient. Partners can check integration specifications in advance through Shinhan Bank's Dev Portal service, speeding contract negotiations. Using the Open API Specification reduces integration testing time, while flow control, billing policies, and API policies for each partner managed through 3scale API Management reduce development time while improving data and infrastructure security.

Compared to other open banking Software-as-a-Service (SaaS) options the bank considered, Shinhan Bank's global front-end processing system has helped it reduce time to market for new services—including a digital payment service and subsidiaries' digital banking experiences—by more than 50%.

### Standardized on a CI/CD approach optimized for hybrid cloud

Korea's Regulation on Supervision of Electronic Financial Transactions requires banks to complete an approval stage before distributing customer-facing services. To comply, Shinhan Bank worked with Red Hat Consulting to implement a DevOps-based CI/CD process with an integrated approval system. This solution creates a standardized, compliant foundation for transitioning services to other cloud or PaaS environments or expanding platform resources to meet future business needs.

"With Red Hat Consulting's support, we believe Shinhan Bank became the first Korean bank to establish and apply standard CI/CD processes optimized for hybrid cloud," said Si Hyoung.

### Simplified container and microservices adoption with expert support

Effective digital services are key to staying competitive in the financial services market. Shinhan Bank worked closely with Red Hat Consulting to outline its DevOps organizational structure and support its transition to CI/CD and automation approaches. With Red Hat managing the creation of its new front-end processing system platform, the bank's teams could instead focus on implementing microservices and gaining open source experience with less risk.

"Early in the project, we had a Discovery Session with Red Hat consultants to get answers to technology inquiries, learn about enterprise open source, and to align Red Hat's architecture with our goals," said Gwang Joong. "We also worked with Red Hat's engineers to learn more about open source ecosystems as we continued the project."

Several global development and ICT staff completed Red Hat Training courses on OpenShift development and administration. The bank also worked with Goodmorning Information Technology (GIT), a Red Hat partner, to strengthen its development capabilities with step-by-step support and pair programming.

"I always emphasize to my staff that they should try and gain new experience, even though they might fail. It's the best way to enhance their abilities and confidence with new technologies," said Si Hyeong. "But we can't focus on innovation without solid support, and Red Hat Consulting provides that reassurance."

### Reduced development and operating costs by 60%

Shinhan Bank's new platform and integration capabilities have also cut operating costs by 60%. With more efficient management and scaling of system and operational infrastructure, foreign subsidiaries no longer need to operate independent dedicated systems.

"With global clustering capabilities from our Red Hat solution, we do not have to custom develop a FEP [front-end planning] platform for each country," said Gwang Joong. "As a result, we now have a more efficient architecture that minimizes operating costs."

## Expanding successful approach and technology to new innovation

By replacing its traditional development methods with a microservices-based, cloud-native technology platform and DevOps-based CI/CD approach, Shinhan Bank can better focus on its customers while complying with industry regulations.

The skills and capabilities gained by the bank's teams have created opportunities for future expansion of its cloud-native architecture to new projects, such as its Integrated API Platform and direct use of containers without container-based virtualization.

"Our digital transformation was more than just a technology upgrade. We worked with Red Hat to strengthen our global collaboration approach and open source experience," said Si Hyeong. "We are now able to bring greater convenience and other benefits to not just our Korean customers, but customers across all 20 of our markets."

## About Shinhan Bank

Established in 1897, Shinhan Bank is the oldest bank in Korea. As a representative bank, it currently has more than 900 branches in Korea and has led the technological change in the Korean financial sector. Globally, Shinhan Bank is expanding overseas services through its 163 networks in 20 counties.




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