MIZUHO

MIZUHO BANK MODERNIZES MIZUHO CLOUD IA TO ADAPT TO UNPREDICTABLE CHANGES

HPE Synergy and HPE GreenLake for more adaptable and scalable IT infrastructure—and a predictable IT consumption model

Industry
Finance

Objective
Build the bank's next-generation Mizuho Cloud IA infrastructure platform; provide stable services that support banking operations and information systems on an IaaS platform that can respond quickly to unforeseen changes

Approach
Enable setup automation using the representational state transfer (REST) application program interface (API) on the platform and also introduce infrastructure devices and software on a pay-per-use basis

IT matters
- Adopted the composable infrastructure platform HPE Synergy, and automated hardware setup with an Ansible playbook

- Introduced hardware featuring the latest blade architecture and simplified network cabling

- Achieved superior IOPS with sub-millisecond latency, with HPE 3PAR StoreServ all-flash array

- Adopted HPE GreenLake, gaining the use of infrastructure devices and software on a monthly consumption base

Business matters
- Combined expandable infrastructure model with a consumption model, enabling the bank to achieve the highest level of adaptability for a private cloud platform

- Improved the system's ability to respond to users' varied demands, such as faster provisioning of infrastructure and monthly pricing

- Aiming to implement predictive analysis technology of HPE InfoSight for failure detection and proactive maintenance capabilities

After completing the renewal of its accounting system in July 2019, Mizuho Bank is refreshing the infrastructure of its private cloud platform, Mizuho Cloud IA. This infrastructure consists of around 120 systems that support the bank's operations, running on 1000 servers and petabyte-class storage. The newly adopted HPE Synergy is a composable infrastructure product that allows code control and automation using REST API. Mizuho Bank has also adopted HPE GreenLake and started to deploy additional infrastructure hardware and software on a monthly IT consumption model.

"With various uncertainties affecting our business—such as future new business needs and public cloud development—the combination of HPE Synergy and HPE GreenLake has become the ideal solution for us to adapt to unpredictable changes."

– Ryota Tazuki, Deputy General Manager, IT and System Control Department No. 1, Common Platform Coordination Team, Mizuho Bank, Ltd.

CHALLENGE

Modernize the bank's private cloud infrastructure and run 3000 virtual machines

Mizuho Bank started using its new accounts system, Minori, in July 2019, after completing a large-scale data migration started in June 2018.

"The renewal of our accounting system will allow us to respond to issues flexibly and reduce time to develop new services," says Ryota Tazuki, Mizuho Bank's Deputy General Manager, IT and Systems Control Department No. 1, Common Platform Coordination Team. "We now have a complete system for developing innovative services that enhance customer convenience."

"At the same time, our common infrastructure promotion team has been constructing the infrastructure for the fifth generation of our Mizuho Cloud IA. The goal was to develop a service platform that can adapt to unpredictable changes."

Around 120 applications currently run in Mizuho Cloud IA. The infrastructure consists of 1000 servers and petabyte-class storage, running about 3000 virtual machines (VMs).

"Mizuho Cloud accommodates a wide variety of systems, from mission-critical requirements to services that emphasize speed," says Yosuke Tokuda, Senior Manager, Common Platform Coordination Team. "At the same time as delivering the right infrastructure application to the right place and the right person, we believe the next-generation service platform of Mizuho Cloud IA must also be flexible and as easy to use as the public cloud."

SOLUTION

Hardware-level automation and transition to pay-per-use model

Launched around 10 years ago, Mizuho Cloud IA has constantly evolved as developers have integrated the latest technologies and techniques. These included standardization, integration, virtualization, and operation automation.
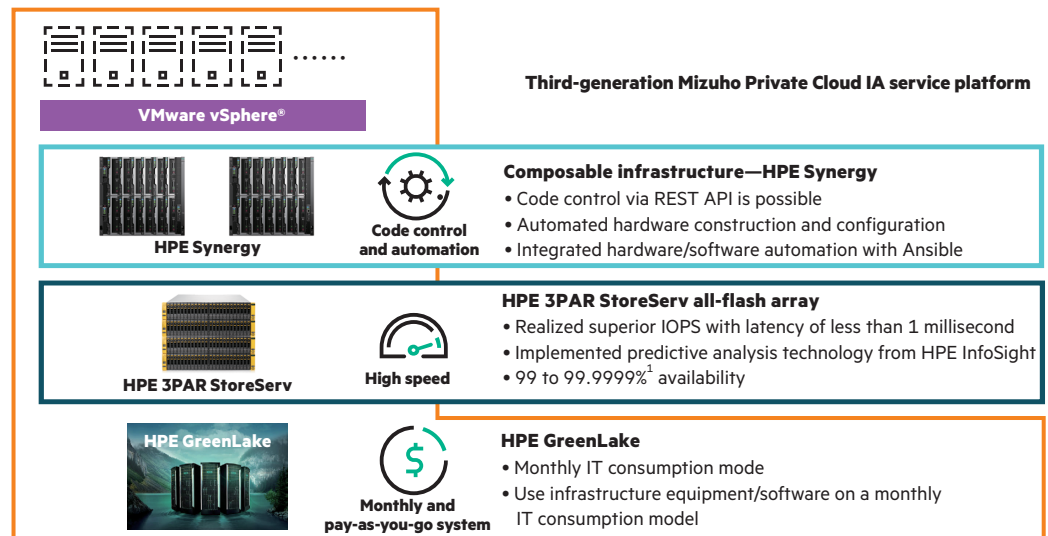
"The main objectives of this infrastructure update were the automation of hardware layer construction and migration to an IT consumption model," says Tazuki. "Our aim was to develop an environment similar to a public cloud that can be used on demand when it is needed, and the cost is determined according to how much it's used. All in a secure on-premises environment."

To make this happen, Mizuho Bank has adopted the composable infrastructure product HPE Synergy and HPE GreenLake for its on-premises environment and consumption model.

"Previously, creating virtual machines and configuring operating system settings on the virtualization infrastructure were automated by creating templates," says Akihiro Sakamoto, the Banking System Group IT Infrastructure Division Manager at the Mizuho Information & Research Institute. "However, hardware settings depended heavily on the manual work of the engineers. There was a strong desire to get closer to the speed of the public cloud."

The institute is responsible for implementing IT strategies in the Mizuho Financial Group. Sakamoto's team operates Mizuho Cloud IA and has played a central role in this project, from evaluating the technology to designing and constructing the infrastructure, and implementing the automation technology.

VMware vSphere®

Third-generation Mizuho Private Cloud IA service platform

HPE Synergy

Code control and automation

Composable infrastructure—HPE Synergy
- Code control via REST API is possible
- Automated hardware construction and configuration
- Integrated hardware/software automation with Ansible

HPE 3PAR StoreServ

High speed

HPE 3PAR StoreServ all-flash array
- Realized superior IOPS with latency of less than 1 millisecond
- Implemented predictive analysis technology from HPE InfoSight
- 99 to 99.9999%[1] availability

HPE GreenLake

Monthly and pay-as-you-go system

HPE GreenLake
- Monthly IT consumption mode
- Use infrastructure equipment/software on a monthly IT consumption model

"It normally takes several weeks to procure hardware," Sakamoto says. "A large-scale deployment such as our annual resource augmentation also increases temporary costs and idle assets. At the same time, in the department where the company system had been introduced, there was growing feedback that they wanted 'to use resources immediately when needed' and 'only pay for what we use.'"

As a result, the common infrastructure promotion team faced the challenge of how to realize its objective to obtain what the bank calls a flexible IT infrastructure on-premises.

"We had an idea to combine the latest infrastructure devices and financial services to create a scalable IT infrastructure," says Tazuki. "We conducted various studies and decided that we could create an environment that is closest to our ideal with HPE Synergy, which allows infrastructure control by API, and the addition of HPE GreenLake. This allows deployment of an on-premises environment on a consumption basis."

Realizing a service platform that can adapt to unpredictable changes

HPE Synergy is the world's first composable infrastructure product, pioneering a new category of products. By integrating compute, storage modules, and networking into one infrastructure, each resource can be combined to quickly and automatically build an environment optimized for each workload.

"First, what caught our attention was the high adaptability to code control by HPE Synergy API," says Akihiro Furuta, IT Infrastructure Headquarters Department No. 2 IT Engineer at the Mizuho Information & Research Institute's Banking System Group. "As we proceeded with the evaluation, we realized that it was compatible with the configuration management tool Ansible that we had already been using and was the best platform for us to automate hardware setup."

In HPE Synergy, integrated control of hardware is possible with the management module HPE Synergy Composer/HPE OneView. This supports the REST API. Also, HPE offers Ansible modules for HPE OneView and HPE Synergy, making it easy to implement Ansible automation.

> **"HPE GreenLake has dramatically increased the freedom we have in using technology. Not only is it possible to use on-premises devices on a pay-per-use basis, it is also enabling us to build scalable IT infrastructure with HPE Synergy. It is a big deal. With the increasing uncertainties in both business and technology, developing a service platform with excellent adaptability to change is a major achievement."**

– Ryota Tazuki, Deputy General Manager, IT and System Control Department No. 1, Common Platform Coordination Team, Mizuho Bank, Ltd.

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"By using the Ansible module, we were able to automate the hardware setup and integrate it into the existing automatic construction mechanism," says Furuta. "Specifically, we inserted the compute module into the HPE Synergy frame. After that, IP address assignment, VMware ESXi™ installation, VMware vCenter® connection, and subsequent basic settings are automated."

At the same time, Mizuho Bank adopted HPE GreenLake and introduced infrastructure devices such as servers, storage, VMware vSphere, and server OS on a monthly consumption basis.

"This has brought us closer to the cost-processing model of pay as you go in the public cloud," says Sakamoto.

By adopting a pay-per-use system, it is possible to reduce IT investment risk and total cost of ownership, even in an environment where it is difficult to predict the resources that will be required in the next few years.

"We have a big advantage that we have prepared buffer capacity in advance for server and storage spare resources, and can use them when needed," says Tazuki. "I believe we can accommodate resource requests immediately, even without prior notice, at the speed equivalent to public cloud."

"HPE GreenLake was flexible enough to meet our needs. We believe we had enough time to review and scrutinize payment schemes and have settled into a satisfactory arrangement. With various uncertainties affecting our business—such as new business needs and public cloud development—the combination of HPE Synergy and HPE GreenLake has become the ideal solution for us, as it allows us to adapt to unpredictable changes."

BENEFIT

Using predictive analytics technology to move toward an ideal private cloud platform

HPE 3PAR StoreServ 8450 all-flash array was adopted for the new environment's integrated storage. This delivers superior IOPS performance with sub-millisecond latency.

"We paid attention to the predictive analysis technology HPE InfoSight, which can be used in HPE 3PAR," says Sakamoto. "It would be a great relief for us to be able to detect signs of infrastructure failure with high accuracy and respond with maintenance before problems become apparent. We hope to make use of it once we've resolved network connection issues."

HPE InfoSight provides powerful, highly accurate failure detection and automatic performance optimization. This has been proven with HPE Nimble Storage and HPE 3PAR StoreServ and, as of July 2019, HPE InfoSight also supports HPE Synergy and HPE ProLiant Gen10 servers.
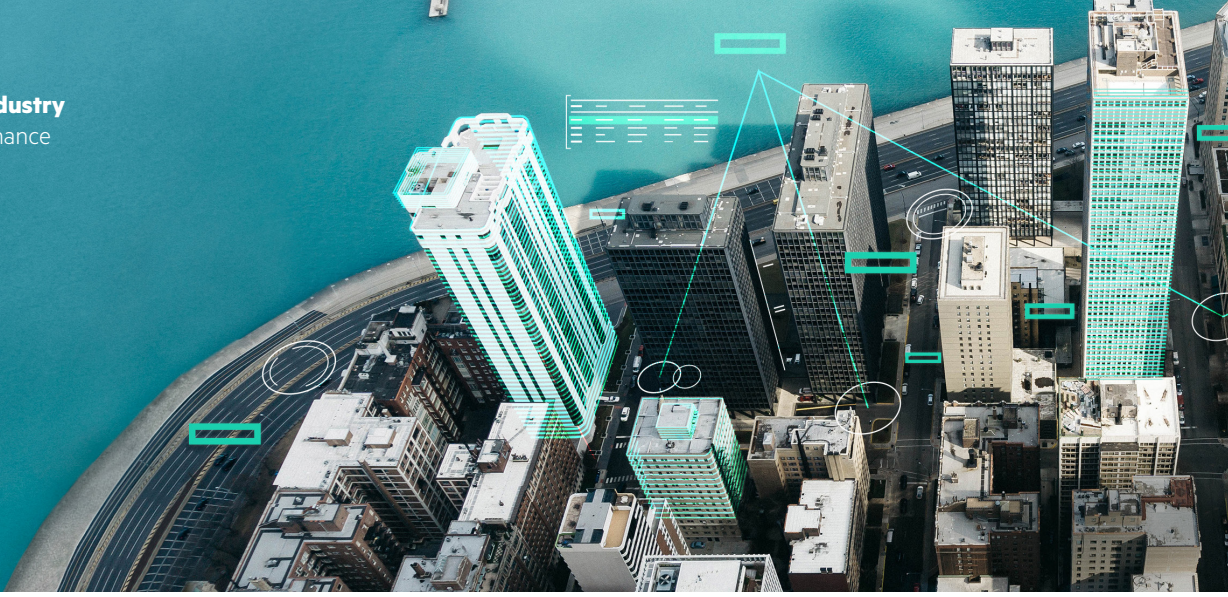
Customer at a glance

Hardware
- HPE Synergy
- HPE 3PAR StoreServ all-flash array

Software
- HPE InfoSight

HPE Pointnext Services
- HPE GreenLake

With the bank achieving its goals for its infrastructure-as-a-service platform, what is next for Mizuho Cloud IA?

"We will be able to fulfill the necessary functional enhancements for delivering better services to customers as soon as possible," says Tazuki. "We'll consider platform-as-a-service (PaaS) options first. It is also very attractive that there are very few restrictions with HPE Synergy, in terms of the new challenges we are addressing, such as utilization of API and containers."

Looking back on the project, Tazuki adds, "HPE GreenLake has dramatically increased the freedom we have in using technology."

"Being able to use on-premises devices on consumption basis is a big advantage, and HPE Synergy is also a tremendous benefit in building a scalable IT infrastructure," he says. "It is a big deal. With the increasing uncertainties in both business and technology, the development of a service platform with excellent adaptability to change is a major achievement. With this project as a springboard, we look forward to working with HPE for our future challenges."

LEARN MORE AT

HPE Synergy

HPE 3PAR StoreServ storage

HPE GreenLake

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