

Nutanix Reduces Construction Time by 5x, Ongoing Maintenance Workload by 80%, and Improved System Performance by 10x



Yokohama City Selects Nutanix for New Information Sharing Platform

CHALLENGE

Yokohama is Japan's largest government-designated city with over 3.7 million people. "The large population we serve ties directly to our IT system data processing volume," said Ryosuke Nakayama, Information Sharing Platform Manager, Residents Information System Division, Administrative Reform Office, Yokohama General Affairs Bureau. "As a result, adequate specifications and high performance are required of our server and storage system infrastructure."

The city is now systematizing its mission-critical operations related to its residents' information, taxes, national health insurance, and pensions onto a host computer. The new system for welfare services operations (including disability welfare, mother and child health services, nursing care, and public assistance) is being built on an open system.

Mr. Nakayama is responsible for supporting the data connections between systems on the information sharing platform. "The system for welfare services operations needs to reference data on other mission-critical systems, so the information sharing platform was built to enable this," said Nakayama. "Various administrative services systems operate via this information, and the welfare services operations system is one of them. The information sharing platform is comprised of a large single database and multiple servers."

In order to identify IT goals for the upcoming information sharing platform project, Nakayama conducted research on the 70 physical servers currently in use and storage equipment shared by the servers. During this process, five issues were identified:

- 1. Excessive migration time.** Migration between physical servers in the existing environment required an extended time period. As a result, a virtualization plan was adopted to meet current and future needs.
- 2. Poor storage performance.** Because multiple servers shared the storage equipment, other operations systems were affected during times of high load on a single system. Faster I/O performance was needed to reduce this effect.
- 3. Inadequate storage availability.** When a storage failure occurred, it affected other systems because of the shared storage setup. Therefore, a high availability system, including controllers and other peripheral equipment, was listed as a requirement for the new infrastructure.

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- Ryosuke Nakayama, Information Sharing Platform Manager, Residents Information System Division, Administrative Reform Office, Yokohama General Affairs Bureau

4. Inefficient resource optimization. Sizing on a system by system basis was difficult in the previous environment, resulting in uneven performance and capacity. At the time of a system upgrade, if products from different vendors were selected after the bidding process, deployment would become complicated. Therefore, flexible scalability was a requirement.

5. System consolidation. Yokohama also wanted to consolidate its IT environment onto fewer systems, in order to increase overall security.

SOLUTION

Mr. Nakayama started the search for a new virtualization platform to serve as the migration destination. He initially envisioned a configuration of independent servers and shared storage. Since this setup would be similar to the previous configuration of multiple operations sharing the same storage equipment, ample capacity and performance would be required with this approach. It would also be difficult to accurately predict how much capacity would be needed over the entire platform lifecycle. “Based on the fact that the performance of existing storage equipment was insufficient, we required higher performing storage. But we also needed to make sure we weren’t spending too much upfront,” said Nakayama.

Mr. Nakayama was then introduced to Nutanix. By choosing Nutanix, it would be possible to start small and simply implement small upgrades, with capacity and performance increasing according to the amount upgraded. After researching specific Nutanix models, the 1U server model (NX-3175) was selected. Because it operates at 100 volts, there was also no need to upgrade the data center power source.

The decision was made to deploy Nutanix in December 2015. System construction started at the end of January 2016, and construction of the entire platform was completed at the end of March. In the first stage, 76 physical servers and shared storage were migrated to the NX-3175 (6 nodes), and operations have gradually been started.

RESULTS

By deploying Nutanix, construction time was reduced. “We had anticipated three months for platform construction and migration, but we completed all of the Nutanix-related work in about one week,” said Nakayama. “As a result, we were able to spend ample time on operations system migration and verification. In addition, as a result of Nutanix’s high-speed storage I/O performance, we completed the OS and middleware installation in about one-tenth of the expected time, which surprised us.”

Because Nutanix is an appliance that integrates servers and storage into one hyperconverged platform, storage design documentation was also reduced. “With Nutanix, the storage peripheral design phase was close to being unneeded, rather than just being easy,” said Nakayama. “The design document was short, so reviewing it was also easy, which was a big help.”

Nutanix is also contributing to greater efficiency in post-migration operations and management for Yokohama City. “As a result of the upgrade to Nutanix, the servers, storage, and network can all be configured with software,” said Nakayama with a smile. “The workload on our operations employees is expected to be reduced to one-fifth of the previous level.”

He adds, "Previously, our IT equipment was combined in a complex manner, and there were limits to making management more efficient. System resources were plentiful, but due to 'silozation', there was no way to utilize them efficiently. Nutanix resolved this issue and made it possible to effectively use our resources. As for performance, storage I/O also improved by over tenfold at peak times," according to Nakayama.

NEXT STEPS

Yokohama City is preparing for another platform update next year, with the plan to double the number of Nutanix nodes. In conjunction with expansion of the Nutanix cluster, all equipment used in the existing system will be eliminated, with the current 8 racks expected to ultimately be reduced to about 3 racks. Because Nutanix supports expansion in 1-node units, "We can keep track of the situation surrounding resource usage and add to it in appropriate amounts," said Nakayama on prospects down the line.

Lastly, we asked Nakayama for advice to people in local government considering hyperconverged infrastructure. "Local governments in Japan are hard-pressed to use public cloud due to its data and operational content," said Nakayama. "With Nutanix, the benefits of a public cloud can be gained even in an on-premise system, such as a reduction in construction time, increased scalability, and a decrease in operational workloads."

COMPANY

Yokohama is a government-designated city with a population exceeding 3.7 million people. Its 18 administrative districts serve as the prefectural capital of Kanagawa Prefecture. In 2011, Yokohama was designated as a FutureCity and Comprehensive Special Zone for International Competitiveness Development.

INDUSTRY

Local Government (government-designated city)

BUSINESS NEEDS

Wanted to reduced migration time for upcoming upgrade to information sharing platform, improve application performance, and increase security for business-critical applications.

SOLUTION

- › Nutanix Enterprise Cloud Platform NX-3000 Series
- › VMware ESXi

BENEFITS

- › Reduced system construction time by 5x
- › Increased efficiency of post-migration operations and system management by 80%
- › Improved storage I/O performance by 10x at peak times due to distributed architecture



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Nutanix makes infrastructure invisible, elevating IT to focus on the applications and services that power their business. The Nutanix enterprise cloud platform leverages web-scale engineering and consumer-grade design to natively converge compute, virtualization and storage into a resilient, software-defined solution with rich machine intelligence. The result is predictable performance, cloud-like infrastructure consumption, robust security, and seamless application mobility for a broad range of enterprise applications.

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