

Nutanix Enterprise Cloud  
Platform Supports Medical  
Information System that Cannot  
Be Allowed to Shut Down



# Nutanix and Saiseikai Kumamoto Hospital

## CHALLENGE

Saiseikai Kumamoto Hospital was founded in 1935 in Kumamoto City based on the philosophy of “contributing to local society through medical care.” The hospital has four fundamental areas of focus: emergency medical care, advanced medical care, local and preventive medicine, and training of medical professionals. Based on the motto of “First-aid will not be refused,” the hospital provides advanced and expert medical service 24 hours a day as a core hospital specializing in acute care in the local region. It has 400 beds combined in the general ward and emergency center, and is staffed by approximately 1,900 employees. Featuring 19 specialty departments, Saiseikai Kumamoto Hospital is also actively engaged in strengthening ties with local medical organizations and in using team medicine focused on the patient.

The hospital has various medical information systems operating in each department and for medical treatment, and its Medical Information Department supports the ICT platform. The department oversees the system infrastructure that must provide stability and high availability. Hideki Nakaguma, Acting Manager of the Department’s Medical Information System Section, speaks of the importance of continuously taking on new challenges. “In regards to medical care, our hospital aims to be the best in Japan and at the global level. It is the same with IT. We aim to be a hospital that leads Japan in IT,” said Nakaguma emphatically. He also said that the hospital aims to create win-win relationships with its outside partners, and that it wants to take on various new challenges.

When the hospital deployed an electronic medical records system in 2011, it had to migrate a number of servers within the server room in the hospital. “To preserve space inside the system center, we migrated our operating medical information system to a new virtual environment,” recalled Section Supervisor Tadayoshi Noguchi. Subsequently, as the new system began operating in the virtual environment, storage controller performance gradually deteriorated. “Ultimately, there were about 107 medical information systems operating in the virtual environment,” said Noguchi. “However, when the system was under high load such as during backups, responsiveness degraded, resulting in slow application performance.”

Even after the storage controllers were upgraded, the scalability of the virtualization environment needed to be addressed in order to deliver a good user experience for the users, including caregivers, practitioners, etc.

At that time, support for storage in the initially constructed virtual environment ended, so the hospital began looking for a new environment. Noguchi said that the hospital was contemplating a highly scalable system that could continue to be used even if hardware support were to end. “We cannot simply shut down the system at the hospital. We wanted a system that could be migrated to a new environment even while in an operating state, and a highly scalable system with easy load balancing.”

**“By deploying Nutanix, even though it is infrastructure within the hospital, we have become able to think in terms of the cloud. Ideally, we would have a system like the cloud where we can flexibly scale up or down according to need. By using Nutanix, we have been able to get closer to this thinking.”**

- Tadayoshi Noguchi, Section Supervisor,  
Medical Information System Section,  
Medical Information Department,  
Saiseikai Kumamoto Hospital

## **SOLUTION**

It was then that the hospital came upon the concept of hyperconverged infrastructure and Enterprise Cloud Platform from Nutanix. "I was surprised by this concept that is completely different from the conventional three-layer configuration comprised of server, SAN switch, and storage. I felt like it was a system from a different dimension," said Noguchi of his initial impression. Given that the hospital had skillfully used a virtual environment, such as by increasing the number of physical servers while setting an upper limit on utilization, Noguchi said that the prospect of flexibly expanding the system by simply and non-disruptively adding nodes was very appealing. Nutanix systems were designed to deliver on the promise of long usable life through the support of multiple generations of servers and storage in the same cluster.

Noguchi also has high expectations for the unique characteristic of Nutanix, in which response will improve in proportion to upgrades made. "Not only does management efficiency increase through consolidation, I think there is also a benefit in terms of operating costs. I think hyperconverged Nutanix Enterprise Cloud Platform is the ideal choice in terms of being able to expertly use virtualization."

The result was that Nutanix Enterprise Cloud Platform NX-3000 series was selected as the new virtual environment platform for operating the hospital's departmental systems.

## **RESULTS**

Over 100 departmental systems are currently running on the virtual environment, as operations from the past are migrated to the newly deployed nodes of the Nutanix Enterprise Cloud Platform NX-3000 Series. Three layers of virtualization environments of conventional servers, switches, and storage have been consolidated into one appliance. Compared with the virtual environment before migration, the hospital successfully reduced the amount of space taken up with equipment by about two-thirds.

There are also expectations for system response to improve considerably. "In our existing medical information system, there are occasions when a considerable amount of time is needed for results to be returned after a button is clicked when it's operated in high load hours. If we migrate to a new environment, response should be much improved," said Kengou Higashi, also of the Medical Information System Section. Noguchi has also experienced the effects of the new system, saying, "For example, our pharmaceutical-related server is rebooted regularly about once a month, but after migrating to Nutanix, there has been an improvement in boot-up speed noticeable to the eye. Subsequent application launch is also fast, and looking at just operating system boot-up, it launches in less than half the time."

By migrating to the new environment, the medical information system, which was previously rebuilt every time it needed to be migrated, can now be used longer. There are also expectations of being able to greatly reduce costs when it comes time to replace systems in the future. "Even if support for some nodes ends, by simply adding newer generation nodes, the system can be migrated to a new environment. We have been able to build an environment in which hardware is not affected by applications," acknowledges Higashi.

Noguchi also said, “By deploying Nutanix, even though it is infrastructure within the hospital, we have become able to think in terms of the cloud. Ideally, we would have a system like the cloud where we can flexibly scale up or down according to need. By using Nutanix, we have been able to get closer to this thinking. In any case, if a time comes when we use a public cloud, we should be able to shrink the environment inside the hospital. That type of flexibility is the appeal of Nutanix.” Commenting on this appeal, Higashi emphasized, “There is no reason not to use a system with this many benefits. Other hospitals should definitely also try it.”

Supporting the various medical information systems operating in the hospital is Kenji Matsuo, Manager of the System Solutions Department at BRESS Co., Ltd., who provided powerful system deployment backup for everything from system proposal to project construction. “I wanted to propose a system where only the needed amount could be spent upfront, and that over the long run would level out in terms of costs. With this project, we have been able to get close to this ideal,” said Matsuo. BRESS regards Nutanix as an optimal solution for system infrastructure considered at this moment.

## NEXT STEPS

Regarding the future, Nakaguma said, “As a result of lengthening the lifecycle of the system, we want to create a situation where replacement of old equipment will not be burdensome by adjusting the dates for node expansion.” Higashi also said that he will work on virtualization, including all 100 plus department servers and the electronic medical records system, and on eventually consolidating everything. “From the perspective of operation and management as well, in order to support the system with multiple people, it must be as simple as possible. In the physical environment that still partially remains, we must conduct backups on location using tape. So from the perspective of disaster prevention, there are issues remaining. While keeping in mind improvement of fault tolerance by dissolving this environment, we want to accelerate consolidation as we expand our use of virtualization,” said Higashi.

Noguchi places hopes on the Nutanix AHV virtualization platform, saying, “When considering the licensing fees for VMware vSphere that we currently use, we will be able to greatly reduce costs. I would like to consider AHV moving forward as one option.” As for virtualization of the medical information system, there are still barriers that exist depending on the department, so Noguchi wants to see a further increase in awareness of Nutanix. “When migrating to a virtual environment, there are many requests from departments for faster response. In terms of lowering the threshold for adopting virtualization, I would like to see Nutanix become a presence where people will say ‘it’s fine if it’s Nutanix.’”



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## Company

With the four fundamental focus areas of emergency medical care, advanced medical care, local and preventive medicine, and training of medical professionals, Saiseikai Kumamoto Hospital provides advanced and expert medical service 24 hours a day specializing in acute disorders in the local region.

## Industry

Healthcare

## Business Need

- › Creating systems suitable for virtual environments
- › Avoiding response degradation by consolidating infrastructure
- › Building a platform hardly influenced by end of hardware sales or service support

## Solution

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

## Benefits

- › Reduced server rack space by two-thirds
- › Significantly improved system responsiveness
- › Reduced operating system launch time by more than 50%
- › Achieved much longer system lifecycles, eliminating forklift upgrades and app rebuilds

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. Learn more at [www.nutanix.com](http://www.nutanix.com) or follow us on [Twitter@nutanix](#).

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