

Tokushukai Information Systems Moves Mission-Critical Environment to Nutanix Enterprise Cloud OS

Successful Migration Serves as First Step in Upgrading the Entire Server Environment

BUSINESS BENEFITS

The Nutanix Enterprise Cloud platform has enabled Tokushukai Group to upgrade to newer, hyperconverged infrastructure, while leveraging its older environments. Nutanix's support for multiple vendors enables Tokushukai Group to cost-effectively procure new systems. They have also reduced the need for hardware replacements, due to Nutanix's high data compression rates and efficient use of storage.



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INDUSTRY

Healthcare

BENEFITS

- Obtain the ability to centrally manage separate servers used for various operations
- Minimize downtime for mission-critical systems
- Create a new infrastructure environment that supports hassle-free upgrades

SOLUTION

Nutanix Enterprise Cloud Platform

- Acropolis Software, including built-in hypervisor, AHV
- Prism management plane

Applications

- PACS applications
- HR and Payroll systems
- Drug and material ordering systems
- Business intelligence applications
- SQL Server

CHALLENGES

The Tokushukai Group operates 71 hospitals across Japan, and approximately 340 clinics, senior homes, nursing, and welfare facilities. Tokushukai Information System, Inc. — the information systems arm of the Tokushukai Group — is tasked with deploying and operating the company's electronic medical charting picture archiving, and communication systems (PACS), human resource and payroll systems, and drug and materials ordering systems within its group of hospitals and clinics.

In addition to supplying infrastructure that includes applications, servers, and networks, Tokushukai Information System also creates BI (business intelligence) environments in the form of hospital operation and management tools that serve as a platform for analyzing and utilizing medical big data on over 10 million people stored in the group's hospitals. The company also actively provides various information that leads to improvement in medical settings, including operational analysis, clinical indicators, medical safety, and workload volumes.

When deploying its business operational systems in group hospitals, Tokushukai Information System has been building separate server platforms for each system. "Because there are operational servers for each task, it is difficult to manage all of the hardware, and thus a method was needed to efficiently manage everything centrally," said company president Katsuhiko Ozaki.

The company's mission-critical electronic charting systems are regularly backed up, and during a system failure, the only recourse has been to manually switch to the backup system, which could cause downtime from about 30 minutes to one hour. "Within hospital operations, the electronic charting system cannot be off-line, so we needed a system environment that could reduce downtime as much as possible," said Noriyuki Takahashi, Director and Introduction Management Division General Manager.

Availability has been secured by building a virtual environment on physical servers, but every time the physical server environment was upgraded, the entire environment had to be updated. Issues were also arising during platform replacement. "We had to upgrade different servers at various times, including not only our electronic charting system, but also the department systems. This was occurring at 70 hospitals nationwide, with some kind of upgrade taking place every year. The result was a situation in which many man-hours were being spent on upgrading tasks," said Takahashi. "We wanted to move to a newer platform in which server replacement could be performed flexibly without hassles."

SOLUTION

It was then that Tokushukai Group turned their attention to hyperconverged infrastructure (HCI), which offers cloud-like scalability even in on-premise environments, and enables moving away from complex 3-tier configurations. "I became aware of this concept at an overseas exhibition, so I discussed whether it would be possible to build a virtual environment capable of managing multiple operational applications with our partner businesses that provide us with electronic charting systems and servers," recalled Ozaki.

Multiple products came up as candidates, but ultimately it was Nutanix's Enterprise Cloud OS that caught their eye. "We were very impressed by the ease of deploying new types of hardware during an upgrade, while still being able to leverage our existing environment," said Ozaki. He said that they felt a strong attraction to Nutanix because of its ability to implement an upgrade cycle in which the systems could continue to be used, even after the hardware maintenance contract expired. And if the hardware failed, it could be discarded and new hardware added with the system continuing to be operational.

“Nutanix has a strong track record in mission-critical environments, and this was another factor that gave us confidence,” said Ozaki. Nutanix was also recommended by a partner that has supported the company’s server environment for many years. “We received a proposal to deploy Nutanix software on its own, because Nutanix software can be operated without dependence on any particular hardware vendor. Doing this would allow us to continue to procure hardware from our existing vendors, enabling us to create an environment in which we could procure needed equipment at optimal cost-effectiveness,” said Ozaki.

After testing Nutanix with multiple products (with cooperation from the partner business that supplies the company’s electronic charting system), it was confirmed that stable performance could be achieved with Nutanix AHV, the Nutanix embedded hypervisor. Because data sizes of electronic charts become very large, real data was used during the testing process to confirm deduplication and compression rates. Ozaki was very impressed that compression using Nutanix AHV surpassed all expectations, saying, “We also compared competitive products that use hardware compression, and their compression rates were approximately 30%. But with Nutanix AHV, testing revealed that compression of about 50% could be achieved.”

As for operation and management, the ease of use of Nutanix’s Prism management plane was also highly regarded. Everything, including the physical server area, can be centrally managed with Prism, and creating new virtual machines or adding new hardware can be achieved with just a few clicks. After being touted for its serviceability that minimizes downtime while reducing workload, Nutanix’s Enterprise Cloud OS software was selected as the platform for the electronic charting system.

CUSTOMER OUTCOMES

Tokushukai’s new electronic charting system platform has been deployed at three large hospitals of the group—Chiba-Nishi General Hospital, Chubu Tokushukai Hospital (Okinawa), and Yao Tokushukai General Hospital. The system operates not on the previous Dell XC, but on the newly deployed Dell EMC PowerEdge servers. Built on top of this is the Dell XC Core, which is offered in a new format separately licensed with Nutanix Enterprise Cloud OS software. As before, Nutanix Enterprise Cloud OS runs on Dell EMC PowerEdge. On this platform, an environment necessary for the electronic charting system—including the domain server, file server, Microsoft’s SQL server as the database, and web server—operates as a virtual machine. A testing environment and antivirus server also run on top of Nutanix AHV.

Takahashi speaks of the high expectations in the workplace on continuity, in terms of being able to deploy new hardware while leveraging the company’s existing environment, which have been made possible by building the platform on Nutanix. “Model changes are not made very often with typical medical equipment. It is not uncommon to continue to use them for over 10 years, so there are times when it is difficult for people in the workplace to understand why servers must be replaced so often. But because the Nutanix environment can be updated every few years at only the cost of adding new pieces, we have been able to create an environment where people in the workplace can accept this.”

Because Nutanix software supports multiple vendors, it is simple to make replacements with cost-effective hardware. “By not relying on specific vendors, we will be able to flexibly build the environment while being mindful of cost-effectiveness, something only possible with Nutanix,” said Ozaki glowingly.

NEXT STEPS

Tokushukai Group now plans to implement Nutanix in its other facilities, and is considering rolling it out to other hospitals. However, while the sizes of the three hospitals first chosen for deployment are large, there are also smaller hospitals within the company group, so the company is looking forward to seeing a configuration suited for small facilities that can be implemented. “In small hospitals, there isn’t much accessing of electronic medical charts. The possibility of using the cloud is definitely conceivable, since there are no problems with operation in terms of response times,” explained Ozaki. He continued by saying they would continue to consider building a platform in a hybrid environment in which Enterprise Cloud OS would be used on-premise for hospitals with large data volumes and frequent access, while public clouds would be used for small facilities.

While currently only the electronic charting system is being run on Nutanix AHV, the company is considering running other operational applications, including peripheral operations, on the same platform. Takahashi concluded, “Ultimately, we want applications pertaining to operations such as systems for prescriptions and ECGs to be run on the same platform. Because we not only have packaged software, we also have systems we’ve developed ourselves, Enterprise Cloud OS should be useful as a disaster recovery target, as we can install these systems on the Nutanix platform and automatically switch to them if there is a system failure.”



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