

Tane General Hospital Boosts Operational Efficiency with Nutanix

Osaka-based hospital runs a wide range of mission-critical healthcare applications with high performance and reduced overheads

BUSINESS BENEFITS

Tane General Hospital has considerably improved their stability, performance and operational efficiency in IT. The hospital can now deploy electronic medical record systems (EMR) and run newer healthcare applications as well as explore switching to a central data aggregation model for more accurate analytics, which will help in formulating hospital plans and policies.



“Management operations have been significantly reduced, and the time saved can now be used for more business-critical operations. By making infrastructure invisible, it is now possible to implement ‘ambitious IT goals’ and advice can be given on operations from a central management perspective.”

- Yikinori Naoe, Director of Information System Department and Head of Distribution Management Office, Deputy Hospital Director for Business Improvement, Tane General Hospital

INDUSTRY

Healthcare

BENEFITS

- Improved IT financing model and reduced substantial overheads
- Great performance with higher uptime than before
- Operational efficiency boosts are channelled into business-critical IT operations

SOLUTIONS

- Nutanix NX Series
Nutanix Enterprise Cloud Platform
- Nutanix AHV
 - Nutanix Prism

APPLICATIONS

- Electronic medical record system
- Medical accounting system
- Ordering system
- Nursing support system
- Desktop environment with VDI
- Data warehouse (DWH)
- Microsoft SQL Server Database server, anti-virus server, interface server
- Testing environment

CHALLENGES

Tane General Hospital, established in 1949 is known to many patients as a core hospital of the community, and as the only private disaster-response hospital in Osaka Prefecture. In close collaboration with Social Welfare Corporation Kiboukai, the hospital has built a comprehensive healthcare system offering both acute and ambulatory care services. With over 300 patient beds, the hospital receives over 8,500 emergency visits annually.

Difficulty in managing IT architecture and data in a distributed environment

In Japan's medical industry, it is a common sight to see each hospital department procure its own specialised medical equipment or application, install them and manage them by themselves, and Tane Hospital is no exception.

“Usually, each department will implement sub-optimized servers, but often the shelf-life of equipment and servers will vary, and it is quite normal to update only the server. So from an overall perspective, resources were being wasted. For example, with backups conducted within each individual department,” explained Yukinori Naoe, Deputy Hospital Director in charge of business improvement, who also oversees the Planning Department, Information Systems Department, and Distribution Management Office for corporate headquarters.

In addition, there has been a growing call in Tane Hospital to use their medical information and data to formulate hospital management plans and policies. However, this distributed model fails to provide usable data for analytics, and hence the hospital was considering switching to a central data aggregation model.

Current system unable to run EMR and other critical healthcare applications

While other affiliate hospitals were undertaking projects to deploy EMR in their environment, Tane Hospital found that their current system was unable to handle the EMR application, as well as other business-critical applications such as medical accounting or radiology information systems (RIS).

Laborious and time-consuming effort involved when scaling legacy architecture

Naoe's team also observed that it was highly difficult to expand their legacy architecture as he “needed to coordinate with multiple vendors concerning connections to medical equipment installed in each department.” Aside from the laborious process, the team also faced system/service disruption should they attempt to embark on an expansion project. This was highly unacceptable for a disaster-response hospital and for Naoe's team.

SOLUTION

With the current list of challenges faced, the hospital sought a system that can be scalable and flexible. It must also enable business continuity which is essential for an acute care hospital, and use up less space so that all servers for each hospital can be aggregated.

“After considering the difficulties experienced in the previous traditional infrastructure configuration, we felt that the hyperconverged Nutanix Enterprise Cloud would be the best choice, as it can be implemented in a short time period and offers high degree of flexibility,” said Naoe. He recalled that they also considered going on cloud services, but high costs and concerns on how to respond during downtimes changed their mind.

Currently, a 11 nodes cluster is in operation including 5 nodes for backup use. Everything runs on Nutanix including the ordering system, primarily used for EMR, the nursing operations support system, as well as data warehouses for analytics and department systems that handle medical accounting, various standby displays for diagnosis and accounting, anaesthesia records, infection management, job attendance management, and clinical and pathologic exams. About ten virtual machines are in operation including the Microsoft SQL Server database server, antivirus server, interface server, and testing environment, and there are also plans to run a VDI environment capable of handling 600 users simultaneously.

CUSTOMER OUTCOMES

Improved IT financing model and reduced substantial overheads

One of the biggest advantages cited by implementing Nutanix is the ease of formulating a budget. "By gradually adding nodes every year, there is no need to secure a large budget when the time comes for replacement, thus minimizing the impact on management. With the highly flexible Nutanix Enterprise Cloud, new equipment added can run on Nutanix without the need for server sizing," said Naoe.

"We can create the needed environment on the ground without a large expense in a given year. It is a great bonus to be able to spend on infrastructure annually as a fixed cost," Naoe added. Furthermore, he says that the ability to lower costs compared to conventional virtualization by using AHV as the hypervisor was the deciding factor.

Typically a new medical equipment would come with its own server and infrastructure, which in essence would lead to multiple redundant servers being under-utilised most of the time. With Nutanix, Tane hospital is able to run and integrate all applications on one central platform thereby not only improving operational efficiency but also lowering the cost overhead. According to Naoe by aggregating and centralizing their infrastructure, they have significantly reduced the overall datacenter footprint.

Great performance with higher uptime than before

The Nutanix platform to-date continues to offer stable performance without any problems, to the point that it has been jokingly referred to as being "too stable". Given its use in an acute care hospital with numerous patient visits daily, Naoe was impressed by the fact that they were able to deploy Nutanix without shutting down services and that the team is now able to expand when the need arises without fear of system disruption.

"Nutanix was the obvious choice with their technology, to not only ensure a stable system but also to quickly deploy a solution that will solve our problems," said Naoe.

Operational efficiency boosts are channelled into business-critical IT operations

"Our workflow and processes have become exceedingly simple since we are able to manage servers using only one tool - Prism. Additionally, given there are no hardware problems, management operations have been significantly reduced, and the time saved can now be used for more business-critical IT operations. By making infrastructure invisible, it is now possible to implement "ambitious IT goals" and advice can be given on operations from a central management perspective," said Naoe.

NEXT STEPS

Currently, Tane General Hospital, Tane Cranial Nerve Rehabilitation Hospital, and Tane Clinic are integrated and running on Nutanix. When the maintenance contract of other subsidiaries expires in a few years, the management plans to migrate Tane Memorial Eye Hospital, Tane Second Hospital, and the senior healthcare and nursing facility to Nutanix as well.

Moving forward, the plan is to add more nodes to the current 16, as the operations platform undergoes further integration with plans to run the Picture Archiving and Communication Systems (PACS) on the Nutanix platform as well.

Tane General Hospital plans to share their integrated operations platform running on Nutanix Enterprise Cloud with the broader healthcare community vis-a-vis with MIRF, a medical information sharing forum for private hospitals. Naoe concludes by saying that the hospital will further leverage accumulated data for business improvements and developing a holistic management strategy.



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