

Dongguk University Medical Center Secures Healthcare Service Continuity Across Five Affiliated Hospitals with Nutanix

Dongguk University Medical Center Implements a Data-Driven Integrated Hospital Information System (HIS) in a Private Cloud for its Five Affiliated Hospitals Across Korea

Dongguk University Medical Center operates five affiliated hospitals including Ilsan Hospital, Ilsan Oriental Hospital, Gyeongju Hospital, Gyeongju Oriental Medicine Hospital and Bundang Oriental Hospital. The medical center is known for its unique system that combines Western and Oriental medicine. The Ilsan Hospital, which opened in 2005, is a general hospital consisting of 26 medical departments and more than 1,000 inpatient beds. It is equipped with a “paperless” digital hospital system.

“We implemented our new hospital information system with Nutanix Cloud Platform to become a data-centric hospital. Now we have more focus on accumulating, organizing, and analyzing data for patients and our medical professionals, which has enabled us to improve the medical services we provide”

– Ki-Hwan Koh, Hospital Information Technology Team Manager
 at Dongguk University Medical Center

INDUSTRY

Healthcare

BENEFITS

- Standardized patient data across its five hospitals, providing a consistent, high quality medical service in all locations
- Clinical staff can accelerate and improve decision making and medical process with faster loading and processing of patient data
- Improved workload performance by 50%, enabling seamless storing and processing of patients’ health and medical data
- Now easily managing and updating 80 operating systems and 140 workloads used by the five hospitals
- Cut maintenance costs by more than 30%, IT resources and operation costs by 30% and physical space for IT infrastructure by 50%

SOLUTION

Nutanix Cloud Platform

Applications

- Electronic Health Record (EHR)
- BESTCare 2.0
- Picture Archiving and
Communication System (PACS)
- Clinical Data Warehouse (CDW)
- Enterprise Data Warehouse
(EDW)
- Groupware

With the modern infrastructure enabled by Nutanix, the hospital implemented a data-driven, integrated hospital information system (HIS) and is currently in the process of centralizing data management across its five affiliated hospitals. This helped to standardize medical data across all locations, unifying medical professionals working in the facility to deliver advanced medical treatments and services to patients.

CHALLENGES

Initiated by the Ministry of Health and Welfare and the Korean government, the healthcare industry is one of the most dynamic industries undergoing digital transformation. “Smart hospitals” are being promoted to strengthen patient safety and improve medical quality. Following this initiative, Dongguk University Medical Center set a roadmap on implementing an integrated HIS across its five hospitals in the aim to become a true digital leader of the Fourth Industrial Revolution era. In order to initiate this project, the hospital first needed to modernize its infrastructure and standardize all medical information.

However, the existing legacy infrastructure hindered the hospital from managing, maintaining, and upgrading IT infrastructure and systems. In addition, the unique environment of the hospital meant that each medical department operated independently, resulting in medical devices and applications running in several disparate servers and systems. High complexity in management and maintenance costs were racked up to ensure uninterrupted power for each device. This was a critical issue as it directly affects patients’ lives.

SOLUTION

Dongguk University Medical Center adopted Nutanix Cloud Platform based on hyperconverged infrastructure (HCI) and built their datacenter on a private cloud environment and virtualized its IT infrastructure. Centering around its main hospital Ilsan Hospital, it moved all infrastructure, workloads and applications from the five hospitals to the private cloud based on the Nutanix Cloud Platform.

CUSTOMER OUTCOMES

Improved workload and application performance for clinical staff to accelerate and improve decision making and medical process

The modern infrastructure enabled the clinical staff to load and process medical data, videos, images and results faster. The clinical staff can now save time and make decisions quicker based on the data, which increases diagnostic accuracy as well as overall patient care. Clinicians can see more patients.

“Our business goal is to achieve ‘One Source, One DB Schema.’ We aim to build a system that supports an integrated management so that we can have fast decision-making based on the actual data,” said Ki-Hwan Koh, Hospital Information Technology Team Manager at Dongguk University Medical Center.

The workload performance improved by approximately 50%, including electronic health records (EHR), diagnostic and monitoring devices, and its picture archiving and communication system (PACS), all of which were previously managed in independent servers by each medical department. This has enabled seamless storing and processing of patients’ medical data as well as high-capacity diagnostic quality video and images.

“Images and videos from PACS account up to 200 megabytes to 300 megabytes. It used to take a lot of time to upload this kind of large files when using the legacy system. We can now upload and access faster using the virtualized server built on Nutanix Cloud Platform,” explained Soohyuk Park, IT manager at Dongguk University Medical Center.

Thanks to the enhanced simplicity of the HCI cloud platform, the hospital can now easily manage and update around 80 operating systems and 140 workloads used by all five hospitals. It also saved a significant amount of time and resources spent on system operation and management. It cut maintenance costs by more than 30%, IT resources and operation costs by 30%, and physical space for IT infrastructure by 50%.

Standardized medical data across five hospitals allows sharing of patient medical data accurately to improve medical research and provide a consistent high-quality healthcare service across the country

The integration of resources and centralization of data management facilitated the standardization of medical data across the five hospitals. Efficient data sharing is breaking down silos among medical departments and hospitals. It is also unifying clinical staff working in the facility. These five hospitals are now able to share medical data, patient histories, treatment experiences and best practices to secure diagnostic accuracy and provide a consistent level of patient care. These hospitals can now assure the continuum of care, high quality of service and excellence across all five hospitals for their patients and their carers. For example, a patient who had a medical surgery in Ilsan Hospital can go to the one in Gyeongju and receive the same experience without having to provide the medical record and surgery history.

Centering around the Ilsan Hospital, Dongguk University Medical Center is providing a centralized, collective

medical experience even in suburban areas, narrowing the gap in medical infrastructure between the capital area around Seoul and Southeast Korea. Regional hospitals now can take advantage of the latest technology thanks to the modern infrastructure.

Furthermore, with the new infrastructure, the hospital can now successfully comply with the government's new regulations and policies in bioethics and safety, and redundant servers for backup. It is now fully prepared to become a data-centric hospital. The private cloud environment is also ensuring security to store sensitive patient data.

NEXT STEPS

Under the “One Source, One DB Schema” goal, Dongguk University Medical Center plans to build an integrated hospital information system centered on data. The hospital aims to take advantage of the latest technology including big data and cloud to promote information business and become a leader of digital transformation in the healthcare industry.



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