

JAPANESE HOSPITAL ACCELERATES ANALYSIS AND RESEARCH

Teikyo University Hospital improves patient healthcare with a web scale modular platform that boosts the effectiveness of IT with faster provisioning.



Healthcare

Japan

Business needs

Teikyo University Hospital wanted to enhance patient care and accelerate the analysis of patient data with a highly scalable and flexible IT platform.

Solutions at a glance

- [Modular Infrastructure](#)
- [Enterprise Support](#)
- [Networking](#)
- [Software Defined Storage](#)

Business results

- Improves the development of treatments for patients
- Provides an infrastructure on which to enhance hospital operations
- Cuts deployment time in half compared with previous solution
- Lowers costs of platform by one-third with modular appliances
- Boosts the effectiveness of IT with faster provisioning

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Dr. Tomohiro Sawa, Medical Information Systems Research Center, Teikyo University Hospital

IT is more integrated than ever in hospital systems as clinicians realize the benefits of data-driven healthcare. In Japan, Teikyo University Hospital continues to adhere to its strategy of custom-driven healthcare, while also embracing the opportunities for better clinical services offered through technology.

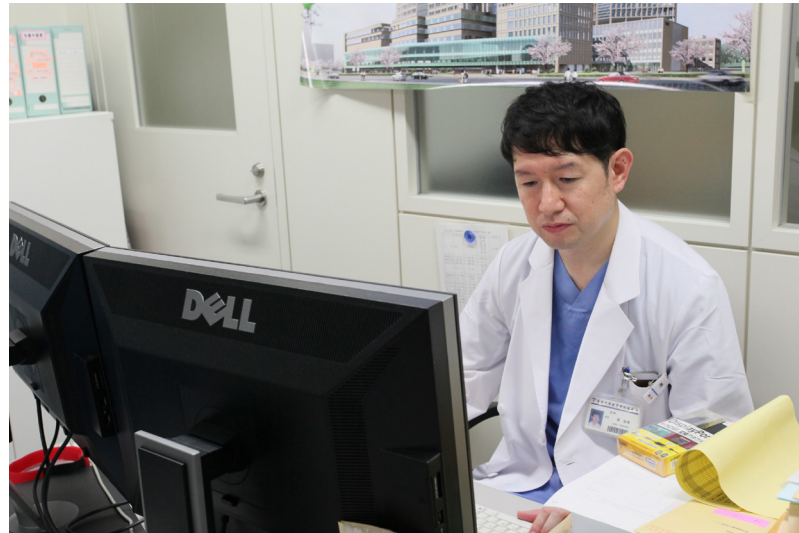
Teikyo University Hospital runs 24 clinical departments and emergency centers, averaging 866 inpatients and 1,741 outpatients each day. It launched the Teikyo University Medical Information Systems Research Center to manage the integration of IT and clinical services.

The need for IT evolution

The center successfully virtualized its systems in 2009, but weaknesses in the architecture began to appear. Demand by clinicians to analyze and validate data had increased substantially since the platform was virtualized. In turn, management time increased in order to fulfill the requests because administrators had the issue of working with multiple operating systems. Fundamentally, the infrastructure lacked capacity to keep pace with the need for ever more virtualized environments, and IT personnel had to prioritize requests.

An upcoming deployment prompts action

The tipping point came when the hospital planned to replace its electronic medical records (EMR) system. Stakeholders saw it as the right time to find a replacement for the current IT platform, and discussions began. Dr. Tomohiro Sawa of the Medical Information Systems Research Center, Teikyo University Hospital, was in favor of the Dell Nutanix™ platform. The “no SAN” technology means administrators will not have to manage individual logical unit volumes or RAID groups. Stored data can be aggregated across all nodes in a cluster with thin provisioning, deduplication and compression built in. Says Dr. Sawa, “With this type of technology, we could construct an on-premises solution with all the manageability of a cloud service.”



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Medical Information Systems Research Center,
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Dr. Sawa began to assess the Intel® Xeon® processors, Nutanix Acropolis and Prism software. Speaking to Dell, he raised concerns about finding a replacement for the current IT platform in time to meet the planned deployment of the EMR solution. “I was told the Dell XC Series was easy to install because the solution is an appliance,” he says. Stakeholders also liked the Dell option because, unlike other solutions, it was compact, helping the hospital save space, power and cooling in the data center. In addition, the solution could deliver the level of stability the hospital required. Dr. Sawa comments, “We knew Dell has a proven track record in manufacturing quality. Moreover, they offer excellent support when it comes to hardware. We decided the Dell XC appliance would best meet our needs.”

Deploys a web-scale solution with 10 gigabit Ethernet (GbE) data switching

Teikyo University Hospital deployed three Dell XC web-scale modular appliances, with Dell XC630 compute and storage nodes featuring Intel Xeon processors. The appliances come with two 200GB solid-state drives and four 1TB hard disk drives. For networking, the hospital deployed two sets of Dell Networking S4048-ON TOR switches for switching traffic between Dell XC computer nodes. The switches include 10 and 40GbE ports for fast data speeds and support the open source Open Network Install Environment for zero-touch installation. These ultra-low latency switches support 10 VMware-based virtual machines for the research and development teams at the hospital. The teams process data in real time and require a network that can scale rapidly to meet their demands.

Drives the development of better treatments and medicine

The hospital predicts the Dell platform will enable better medical treatment to patients by improving the efficiency of internal processes and data analysis.

The platform performs as a gateway to support the new EMR system, enabling quicker provisioning of virtual machines and a more efficient system through faster fault detection. The IT team will now be able to deliver a better level of service to clinicians, who in turn can serve patients more effectively.

The Dell platform is also used for medical research projects. The Medical Information Systems Research Center conducts joint research and data collection with Teikyo Academic Research Center. They collect and analyze data from clinical trials to help in the development of drugs. Using the Dell XC Series platform with the Dell Networking S4048-ON switches, researchers can run their analysis faster and draw conclusions much quicker. Says Dr. Sawa, “We will be able to identify the side effects earlier when developing new drugs with the Dell XC Series.”

Reduces virtualized platform deployment time by up to half

Teikyo University Hospital saved significant time during the solution’s deployment phase thanks to the simplicity of the technology. Says Dr. Sawa, “Our old virtualized solution took a few months to install, but we completed the implementation of our Dell XC web-scale modular appliance solution in a third to half of that time. We were able to install it on time and in line with our schedule.”

Lowered platform costs by one-third with modular appliances

Stakeholders also dramatically reduced costs by switching to the Dell reference architecture. In the past, the hospital built a consolidated database running on a separate operating system to the main platform and connected the two via a gateway. The gateway balanced loads through a separate server equipped with Business Process Execution Language (BPEL) to enable a Service Oriented Architecture (SOA). Dr. Sawa, says, “With all the messages to clear every day, and so many transactions, we needed five servers just for the gateway.” The process has now been simplified by the Dell XC Series appliances running on Intel Xeon processors and the Dell Networking switches. Dr. Sawa continues, “We can store everything in our Dell XC web-scale modular appliances and share the data between systems. We have increased performance, and we have cut costs down by one-third.”

Improves the efficiency of IT with faster provisioning

The IT team at the Medical Information Systems Research Center is more effective, again helping to promote the development of better treatments. Under the previous infrastructure, it was time-consuming to launch new environments. The team had to rewrite the gateway application using the .NET Framework, then follow five cycles of verification and modification before an environment was launched. Today, the Dell XC platform appliances enable the IT team develop and verify an environment in the same time frame, helping the center drive its research programs much faster.

Discovers a platform to enhance overall hospital operations

Teikyo University Hospital continues to transfer environments from the old virtualization platform to the Dell solution. Stakeholders expect the Dell infrastructure to be expanded over time as it refreshes other areas of their IT environment. Dr. Sawa is particularly confident about the Dell platform, not least because of the support in

place. They work closely with Dell ProSupport Plus, which provides a Dell Technical Account Manager to help manage the relationship with the hospital. Comments Dr. Sawa, “We receive responsive support and insight into technology that could benefit the hospital. This is what makes Dell and Dell ProSupport Plus very attractive.”

He continues, “We look forward to receiving this balance of Japanese service and American innovation from Dell. We expect to continue working with Dell in the future as our needs evolve.”



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