

# INVESTING WISELY TO ENHANCE MEDICAL SERVICES

Dell PowerEdge servers with virtualization help reduce total cost of ownership and energy usage by up to 80 percent



Ramkhamhaeng Hospital Public Company Limited is a publicly traded healthcare provider with a network of 22 hospitals under its administration. The flagship Ramkhamhaeng Hospital in Bangkok, Thailand serves over 700,000 patients annually, including expatriates residing in Thailand. The hospital employs 2,500 employees and sees over 2,000 patients daily. In total, the hospital has 450 beds and over 12 specialty centers with state-of-the-art facilities and equipment.

## SOLUTIONS

- VIRTUALIZATION
- CONSOLIDATION



## CUSTOMER PROFILE

**COMPANY:** Ramkhamhaeng Hospital Public Company Limited

**COUNTRY:** Thailand

**INDUSTRY:** Healthcare

**FOUNDED:** 1988

**EMPLOYEES:** 2,500

**WEBSITE:** [www.ram-hosp.co.th](http://www.ram-hosp.co.th)

## CHALLENGE

Ramkhamhaeng Hospital was seeking to consolidate the IT infrastructure of its hospitals to deliver better patient care, reduce operational costs, and share information and resources between hospitals. The group wanted to centrally host its services on virtualized servers to achieve efficiency and lower their total cost of ownership.

## SOLUTION

Ramkhamhaeng Hospital deployed Dell™ PowerEdge™ rack servers and virtualization technology to host its application services across five of its hospitals. Dell also provided support in configuring Dell/EMC SAN solutions across the system.

## BENEFITS

### Run IT Better

- Dell PowerEdge servers with virtualization help lower downtime by up to 60 percent
- Single, consolidated infrastructure enables sharing of information and services
- Simplified remote access ensures easy administration

### Grow IT Smarter

- Virtualized Dell servers help save up to 60 percent in total cost of ownership
- Dell servers with virtualization help reduce data center space and energy consumption by nearly 80 percent



Ramkhamhaeng Hospital Public Company Limited (Ram) sits at the center of one of Thailand's largest and most respected hospital groups. With a network of 22 hospitals, Ram provides quality healthcare, serving domestic, regional and international patients. Ram boasts many internationally trained doctors with a world-class credentials and offers state of the art facilities, specifically in the Heart Center with Comprehensive Cardiac Care and Joint Replacement Center focusing on Minimal Invasive Surgery. The hospital is also well known with a refer center for its Coronary and Balloon Angioplasty Center, which is able to treat patients with complex lesion of coronary artery such as Chronic Total Occlusion (CTO) and complex cardiac arrhythmia by Invasive Cardiac Electrophysiology (EP) and CARTO system.

## **“WITH THE DELL SOLUTION, WE WERE ABLE TO REDUCE THE NUMBER OF REQUIRED SERVERS BY 80 PERCENT AND MANAGED TO LOWER TCO BY APPROXIMATELY 60 PERCENT.”**

Jermopol Bhumitrakul, hospital director, Ramkhamhaeng Hospital

With an increasing number of patients, Ram was looking to maintain its competitive edge in the healthcare industry. Two years ago, the hospital began evaluating its IT policy, resources and infrastructure. The hospital medical staff wanted an infrastructure in place that would allow physicians to integrate their patients' information periodically or check up on the result of their medical treatments precisely and efficiently. “We wanted data integration in each hospital within our network which would enable us to monitor the standard of treatment accurately as well as maintain international standard protocol through appropriate cost,” comments Jermopol Bhumitrakul, hospital director, Ramkhamhaeng Hospital.

“The hospitals in our network were served independently by their own data centers in a decentralized manner,” says Bhumitrakul. The infrastructure comprised of multiple servers from different vendors which led to increased maintenance costs and a lack of synergy between resources. “We realized that we were paying a high premium in consultancy fees to system integrators to ensure all systems were working together. It was not a tenable situation for the long term,” adds Bhumitrakul.

One of the key challenges to Ram was convincing the executive board that the best approach for the company was to consolidate the IT infrastructure onto a single vendor platform. The platform would be managed by Ram's IT department with support from the vendor, allowing the hospitals to benefit from centralized IT resources and expertise. Bhumitrakul states, “In the past, we focused on low costs to acquire IT resources, however this strategy led to acquisition of lower-cost solutions with varying degrees of quality.”

The IT department, headed by group consultant Nop Sivarak, proposed a high-value, cost-effective infrastructure that would centralize all IT resources across Ram in Bangkok and four network hospitals: Synphaet and Sukumvit hospitals in Bangkok and Chiang Mai Ram and Lanna hospitals in Chiang Mai. The goal was to exploit economies of scale by sharing information and expertise across all users through a single platform. “Ultimately, we wanted to show the executive board that even though we were spending more, we were investing wisely,” asserts Bhumitrakul.

### **HOW IT WORKS**

#### **HARDWARE**

- Dell™ PowerEdge™ 2950 servers with Intel® Xeon® processors
- Dell PowerEdge 1950 servers with Intel Xeon processors
- Dell/EMC CX3-20 SAN array
- Dell/EMC CX3-10 SAN array

#### **SOFTWARE**

- Microsoft® SQL Server® 2005
- Active Directory®
- SAP® Business One
- VMware® ESX Server 3.5
- VMware Virtual Desktop Infrastructure



**IT Executive Board (L-R):** Racha Somburanasin, Chairman, Jermopol Bhumitrakul, Ramkhamhaeng Hospital Director, Siripong Luengvarinkul, Ramkhamhaeng Deputy Managing Director, Thawatchai Tansathit, Chiang Mai Ram & Lanna Information Management, Davin Narula, Sukhumvit Hospital Director

## **“WHAT IMPRESSED US MOST ABOUT DELL WAS ITS BUSINESS MODEL. WE COULD ORDER DIRECTLY FROM THE FACTORY, WHICH WAS NOT POSSIBLE FROM THE OTHER VENDORS. DELL IS A GOOD MATCH FOR US.”**

Jermopol Bhumitrakul, hospital director, Ramkhamhaeng Hospital

### **HOSPITAL CONSOLIDATES SERVER INFRASTRUCTURE WITH DELL SERVERS**

To fulfill the project's objective of seeking high-quality solutions, the IT team initially turned to existing vendors. However, these vendors could not support Ram's requirements without the services of system integrators. "We found the additional fees for support and integration too expensive, and when the vendors could not complete the deployment successfully, there were opportunity costs for project delays," comments Siripong Luengvarinkul, deputy managing director, Ramkhamhaeng Hospital.

At this point, Ram sought the assistance of Dell to turn the project into reality. Luengvarinkul notes, "What impressed us most about Dell was its business model. We could order directly from the factory, which was not possible from the other vendors. Dell is a good match for us." He adds, "We used Dell's website to draft a hardware purchase plan, and Dell representatives helped recommend an optimal solution." The final selection included Dell™ PowerEdge™ 2950 and 1950 rack servers with Intel® Xeon® processors and Dell/EMC CX3-20 and CX3-10 SAN arrays.

Luengvarinkul continues, "From working with Dell, we gained a lot of knowledge about selecting the right servers and storage options," says Luengvarinkul. "Dell provides complete solutions from desktop PCs to servers, including storage. Dell also fully supports server virtualization, which was essential to the project's success."

### **DELL SERVERS WITH VIRTUALIZATION HELP LOWER TOTAL COST OF OWNERSHIP BY 60 PERCENT**

A key component in implementing Ram's "investing wisely" philosophy involved virtualizing applications to maximize its hardware utilization. Bhumitrakul notes, "Our plans included consolidating six data centers across five hospitals, each with the same set of applications. This would have been too costly with physical servers." He continues, "With the Dell solution, we were able to reduce the number of required servers by 80 percent and managed to lower TCO by approximately 60 percent."

The project was implemented in two phases. The first phase included standardizing Ram's IT infrastructure, such as Active Directory® service and file and print sharing. The second phase included implementation of front-end office applications for hospital information; picture archiving and communication; labs; accounting; and business intelligence. With Dell's support, Ram aggregated numerous services to virtual servers, including its Active Directory service, customer relationship management application, development and management servers, and domain controllers.

### **REDUCED SERVER FOOTPRINT LOWERS ENERGY CONSUMPTION BY 80 PERCENT**

While consolidation was the primary goal of the project, the virtualized Dell servers have greatly reduced Ram's energy costs. Hospitals which have not deployed the

virtualization solution require an average of ten servers each to run applications. "At hospitals where the virtualization project was completed, we're running the same applications on just two Dell PowerEdge 2950 servers. Based on an average of U.S. \$60 per month per server in energy costs, annual cost savings total to U.S. \$5,760 per hospital," Luengvarinkul explains.

### **ENHANCED STORAGE SOLUTIONS INCREASE FLEXIBILITY AND AVAILABILITY**

Previously Ram deployed a variety of local storage solutions, including servers, which were only accessible at data centers where they were installed. This meant data access was isolated to each hospital and could not easily be shared with staff in other hospitals.

To address this, Ram had initially considered solutions from other vendors but found costs and integration fees too expensive. Ram turned to Dell for assistance, selecting the Dell/EMC CX3-20 and CX3-10 SAN arrays for the five hospitals. Bhumitrakul says, "We found a number of Dell/EMC SAN arrays online. As with server selection, Dell provided valuable advice on what was most appropriate for our needs." He adds, "The IT team found this to be an efficient planning exercise and cost effective as well."

Bhumitrakul notes, "Previously, each hospital stored information on local servers, which meant there was no way to access data remotely or share information with other hospitals. With the Dell/EMC SAN array, we now have the capability to share vital information across hospitals."

# “DELL PROVIDES COMPLETE SOLUTIONS FROM DESKTOP PCS TO SERVERS, INCLUDING STORAGE. DELL ALSO FULLY SUPPORTS SERVER VIRTUALIZATION, WHICH WAS ESSENTIAL TO THE PROJECT’S SUCCESS.”

Siripong Luengvarinkul, deputy managing director, Ramkhamhaeng Hospital

## SHARING INFORMATION ACROSS ONE PLATFORM

On the previous platform, doctors from one hospital could not provide their opinions nor share medical information with another hospital in the group. “In the past, if we required the help of a medical specialist in Chiang Mai to review a patient’s case history in Bangkok, we would have to fly the personnel over,” explains Bhumitrakul.

Deploying a single platform using Dell application servers with virtualization technology enabled Ram hospitals to share information easily and tap into specific medical expertise residing across the group. “With the current infrastructure, we can even extend access to patient’s information in Bangkok to our doctors in Chiang Mai,” notes Bhumitrakul. Additionally, through the use of Virtual Remote Desktop, Ram doctors can now log into patient databases and records through a virtual private network to monitor and review patients across any hospital within Ram.

## SCALABLE PLATFORM HELPS LOWER DOWNTIME BY UP TO 60 PERCENT

A key strength of the consolidated infrastructure is its ability to scale rapidly. “Working with a single vendor like Dell means we can deploy an additional server and have it online in minutes,” says Luengvarinkul. He notes that through Dell’s online catalog, the Ram team can order servers and have them deployed in only two working days. The team has also reduced the time to solve server problems, taking one hour instead of the usual three, due to the ease of working with VMware® ESX Server 3.5. “This speed is essential to the hospitals because many of the applications are mission critical. We cannot afford any system disruptions as they impact patient care,” he continues.

**For more information on this case study or to read additional case studies, go to [www.dell.com/casestudies](http://www.dell.com/casestudies) and [www.dell.co.th](http://www.dell.co.th)**

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