

# VIRTUAL SUCCESS

Compared to the previous solution, Dell servers with virtualization help Bumrungrad International save more than 60 percent in total cost of ownership.



Bangkok-based Bumrungrad International is a publicly-traded private hospital that annually serves 1.2 million patients, including 420,000 internationals from all over the world. The hospital has 940 doctors, over 3,000 staff, 554 beds, and sees about 3,500 patients daily. In 2002, Bumrungrad became the first hospital in Asia accredited by the US-based Joint Commission International. In 2008 it was recognized for outstanding achievement in applied medical informatics by the Association of Medical Directors of Information Systems (AMDIS).

## SOLUTIONS

- VIRTUALIZATION
- CONSOLIDATION



## CUSTOMER PROFILE

**COMPANY:** Bumrungrad International

**INDUSTRY:** Healthcare

**FOUNDED:** 1980

**EMPLOYEES:** 3,000

**WEBSITE:** [www.bumrungrad.com](http://www.bumrungrad.com)

## CHALLENGE

Bumrungrad International thrives on technology to drive its success. Following advancements in virtualization technology, the hospital was looking for a stable server platform on which to migrate its applications and services to maximize resources and reduce its server footprint.

## SOLUTION

To facilitate a smooth transition to a virtualized environment, Bumrungrad International deployed VMware® ESX 3.5 on Dell™ PowerEdge™ 1950 servers. Dell services also provided assistance in configuring the hospital's existing Dell/EMC® SAN solution onto the virtualized servers.

## BENEFITS

### Get IT Faster

- Dell server reliability supports smooth migration

### Run IT Better

- Remote server access helps simplify administration

### Grow IT Smarter

- Virtualization helps Bumrungrad to reduce its IT budget
- Compared to the previous solution, virtualization helps save over 60 percent in total cost of ownership during a recent refresh
- Virtualization helps reduce server footprint and reduce energy consumption by over 60 percent compared to the former solution





Bumrungrad International, located in the heart of Bangkok, Thailand, is a publicly-traded hospital that is also the largest private multi-specialty outpatient clinic in Southeast Asia. Serving more than a million patients annually, the hospital has 554 beds and over 30 specialty centers with state-of-the-art facilities and equipment.

As an international operation, the hospital treats over 420,000 patients from more than 190 countries annually, including expatriates residing in Thailand. The hospital employs 3,000 staff and sees an average of 3,500 patients daily.

A key component of its success has been a progressive attitude towards technology investment at all levels of operation.

“Information Technology is the backbone of everything we do in the hospital and we run anything that’s an important application-related function through the IT department,” says Chang Foo, Chief Technology Officer, Bumrungrad International. “Everyone at Bumrungrad is impacted by IT,” he adds.

Chang Foo and his team actively seek technology that can benefit the hospital and revolutionize the way it runs its business. “Our philosophy at Bumrungrad is to drive success through the use of technology. It is a big part of how we define workflows and business processes in this hospital,” remarks Chang Foo.

**“WE HAVE A COMFORT LEVEL IN OUR RELATIONSHIP WITH DELL WHERE WE DON’T HAVE TO SPEND TIME GOING THROUGH QUOTES, PURCHASING, SHIPPING, AND CONFIGURING SERVERS. WE KNOW WE CAN RELY ON DELL AND ITS SERVERS TO DELIVER THE PERFORMANCE AND RELIABILITY WE NEED, EVERY TIME.”**

Chang Foo, Chief Technology Officer, Bumrungrad International

As part of this technology focus, Bumrungrad has been testing and experimenting with virtualizing its servers to support applications more efficiently, and maximize resources. Chang Foo says, “Until this deployment, nearly every application we brought online ran on stand-alone servers, which was a huge overhead in terms of rack space, energy consumption, and staff required to manage the servers.”

Following advancements in virtualization technology in recent years, Bumrungrad began testing whether the hospital could leverage the technology and consolidate its servers. Chang Foo says, “Our goal was to reduce the server footprint in our data center and reduce energy consumption. Instead of purchasing another rack, virtualization enables us to use what we’ve invested in the server and storage cluster. It’s a very efficient way of doing more with the same resources.”

#### **HOSPITAL CONSOLIDATES SERVER CLUSTER WITH VIRTUALIZED DELL SERVERS**

Chang Foo and his team researched virtualization technology extensively, including the hardware requirements, before deciding to proceed. The hospital was running an exclusive Dell environment, and viewed its decision to deploy Dell virtualized servers as a continuation of its strategic partnership with the company. “Dell servers have been tremendously good for our operations over the years. Their longevity and reliability helped secure Dell as a strategic partner with the hospital,” says Chang Foo.

Approximately 18 months earlier, Bumrungrad took the opportunity during a refresh exercise to replace aging servers and examine which applications they could convert to a virtualized environment operating on VMware and running on Dell servers. “We really had no reason to keep so many servers,” notes Chang Foo.

#### **HOW IT WORKS**

##### **HARDWARE**

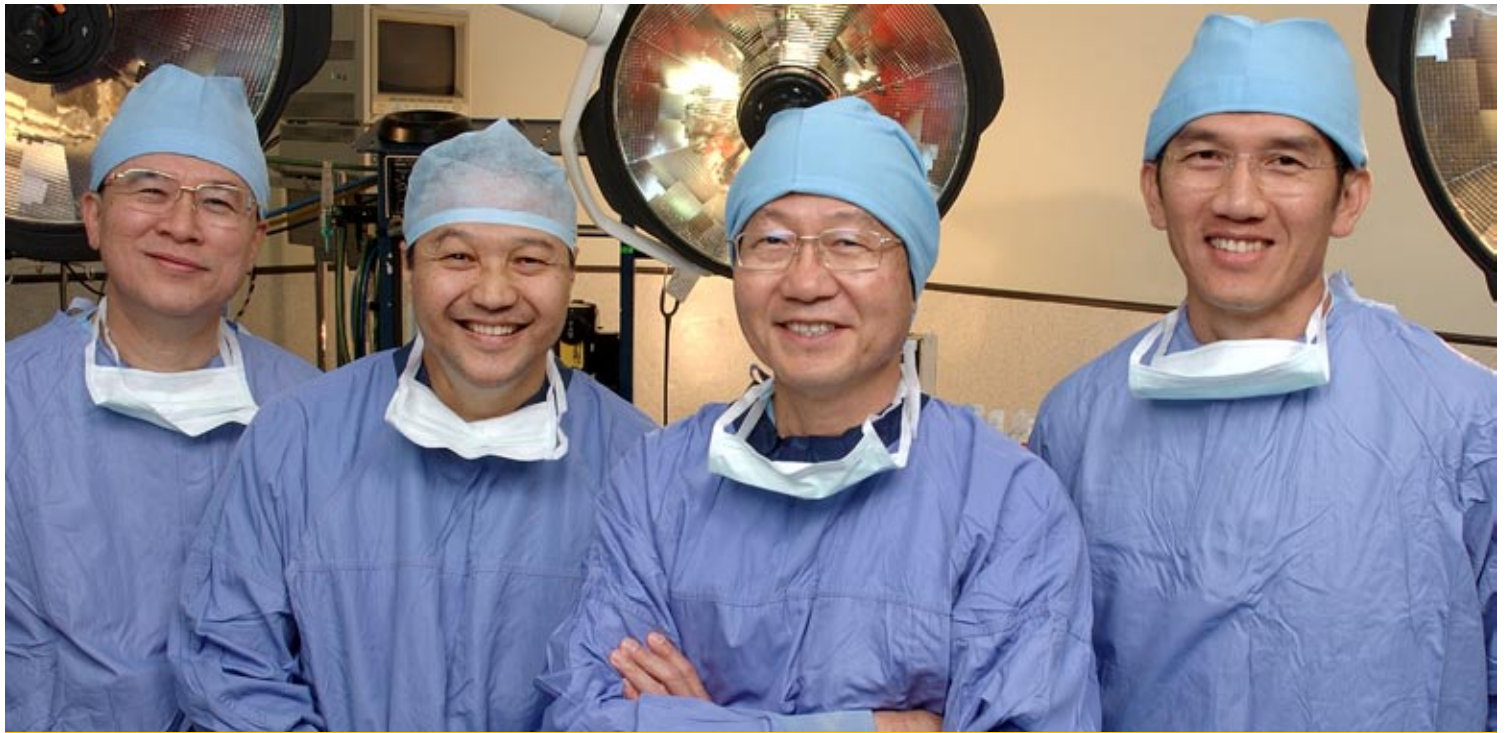
- Dell™ PowerEdge™ 1950 servers with Intel® Xeon® processors
- Dell/EMC® CX3-80

##### **SOFTWARE**

- VMware® ESX 3.5

##### **SERVICES**

- Dell Global Infrastructure Consulting Services



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Chang Foo, Chief Technology Officer, Bumrungrad International

Chang Foo and his team began the process of planning the transition to a virtualized environment. They consulted Dell and purchased additional Dell™ PowerEdge™ 1950 servers to facilitate the transition. Not wanting to deploy an entire server farm, Chang Foo and his team monitored the server and CPU utilization so they could determine if and when they needed to ramp up with additional servers. Chang Foo says, “We really didn’t want to over invest, and due to Dell’s excellent server support and responsiveness, we knew it could provide an additional server if required in just a few hours. It’s a comfort level we have in our relationship with Dell.”

Over the next six months, Chang Foo and his team transitioned 70 percent of the installed software applications onto virtualized Dell PowerEdge 1950 servers. Dell also assisted the Bumrungrad team in configuring their Dell/EMC® CX3-80 storage solution for the servers. “We only left out select applications that we felt could require more CPU intensive capability than would have been provided with VMware® ESX 3.5,” says Chang Foo. Current services and applications running on the virtual machines include the domain controller, infrastructure, and administrative support services.

**DELL SERVER RELIABILITY HELPS SMOOTH MIGRATION**

The transition process involved working late at night to avoid any disruptions to hospital operations. Chang Foo comments, “With over 3,500 patients treated daily at Bumrungrad, we couldn’t risk any disruption, especially during the day.” But after the first few applications were migrated to the virtualized environment, Chang Foo and his team knew that the load could be migrated safely. Chang Foo notes, “Through this transition, the Dell servers performed very well. They were very stable so we knew we could handle the transition to VMware effectively.”

The virtualization project has been an unqualified success for Bumrungrad. “The transition was transparent to the hospital employees; we received no complaints about any application downtime. I think it’s a very good sign that the whole process worked seamlessly,” remarks Chang Foo.

**VIRTUALIZATION HELPS LOWER TOTAL COST OF OWNERSHIP BY OVER 60 PERCENT**

Switching to a virtualized environment lowered Bumrungrad’s total cost of ownership. “During our recent server upgrade, we originally selected 18 Dell

rack servers. However with a virtualized environment, we purchased only six servers instead of 18. Over a 12-month period, that works out to 66 percent reduction in total costs for that refresh cycle period,” says Chang Foo.

The savings in floor and rack space translate into greater options for future expansion in the data center. “At Bumrungrad, we’ve been good at keeping our IT budgets at three percent compared to the industry average of 10 percent,” says Chang Foo. “This virtualization project is just one example of where we’ve managed to make forward investments in technology, achieve tremendous cost savings, and maintain budget levels,” he adds.

**REDUCED SERVER FOOTPRINT TRANSLATES TO REDUCED ENERGY CONSUMPTION**

The hospital has achieved a large reduction in energy consumption. “While efficiency and reliability was the primary goal, an added benefit was the reduction of energy consumption. It is clear there’s been a significant drop in energy use in the data center,” observes Chang Foo.

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Chang Foo, Chief Technology Officer, Bumrungrad International

Chang Foo notes that if the hospital had stuck to its original intention to purchase 18 servers, the total energy consumption costs would have peaked at U.S. \$12,960 annually at an average of U.S. \$60 per month per server. “By not refreshing the 12 servers we virtualized, we actually save U.S. \$8,640 annually. That’s nearly 66 percent in energy savings as a result of deploying only six virtualized servers,” adds Chang Foo.

Chang Foo observes that one of the more salient benefits of virtualization has been the boost to staff morale and job satisfaction. “Rather than spend hours managing and configuring individual servers, the virtualized servers minimize our administration effort, allowing my staff to focus on more value added tasks,” says Chang Foo.

“We have a comfort level in our relationship with Dell where we don’t have to spend time going through quotes, purchasing, shipping, and configuring servers,” says Chang Foo. “We know we can rely on Dell and its servers to deliver the performance and reliability we need, every time,” he continues.

With the success of its virtualization project, Bumrungrad is examining opportunities to virtualize the remaining 30 percent of its application base.

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