



VMware Helps HK Electric Drive Green IT Deployment for Sustainability

One of the world's most experienced utility companies pursues its goal of becoming the most environmentally sustainable and green company possible by virtualizing its IT infrastructure and improving efficiencies across the board.

INDUSTRY

Utility

LOCATION

Hong Kong

KEY CHALLENGES

- The hardware now lacked the appropriate level of support, and would have the risk for unabling to offer a reliable service
- Balance the internal efficiencies with the always-on needs of customers, particularly in the energy sector
- Ensure 100% utilization of IT infrastructure and services to maximize access and up-time of data, in a green computing manner as efficiently and sustainably as possible

SOLUTION

Deployed vSphere and vCenter Operations Management Suite to create a virtualized environment suited for running mission-critical applications and manage to utilize the highest efficiency.

Customer Profile

HK Electric was incorporated in January 1889 and commenced operations in 1890, making it one of the world's longest-established utility companies. As a vertically integrated power utility, HK Electric is the sole electricity provider to more than half a million commercial and domestic customers on Hong Kong Island and Lamma Island.

HK Electric is committed to conducting its business in a socially responsible manner, and has a rigorous CSR program that advocates sustainability and aims to minimize the organization's environmental impact while meeting the economic and social needs of future generations. To help meet this target, the IT department was challenged to ensure that its infrastructure was as green, optimized and efficient as possible, without impacting service levels.

The Challenge

The challenge for any utility is balancing internal efficiencies with the always-on needs of customers, particularly in the energy sector. At HK Electric, the IT team noticed that the organization's demand for data capture, storage and analysis was increasing as technology improved and more information became available about everything from customer demand to usage spikes.

"Back to few years ago, the collaboration system which was running on legacy platform could not be re-installed to any new physical server hardware due to compatibility issue. The hardware now lacked the appropriate level of support, and would have the risk for unabling to offer a reliable service, meaning it had to be replaced," revealed by Steve Tsiu, Senior Manager of Infrastructure and Technology

at The Hong Kong Electric. "However, replacement also meant an increased level of energy consumption, meaning we needed to consider every environmental impact while improving the IT capacity."

The main challenge for the IT team was therefore two-fold: how to ensure 100% utilization of IT infrastructure and services to maximize access and up-time of data; and how to do so in a green computing manner as efficiently and sustainably as possible.

Other challenges included

- Simplifying software provision
- Improving resource availability and up-time
- Reduce IT infrastructure management time and complexity
- Map out a cost-effective growth strategy to cope with increasing demands of IT resources

The Solution

The IT team at HK Electric quickly realized that IT virtualization was the ideal solution, and sought a service that combined intelligent operations with performance monitoring and capacity management. The company approach VMware and quickly selected its market-leading suite of virtualization solutions to address its need. A project was successfully initiated to use a pair of physical servers to hold eight virtualized application system servers as Virtual Machines (VMs).

VMWARE CASE STUDY

BUSINESS BENEFITS

- Operating on over 625 servers which are composed of 398 physical servers and 227 virtual machines
- Currently saving over 676,000 kWh per year, excluding the cooling cost that has also been reduced
- Virtualization has contributed to a 36% saving in terms of server quantity that needs to be administrated and operated

“During the first year of virtualization deployment in 2009 we increased the application of virtual servers and reduced power consumption by a further 107,000 kWh per year. Together with other existing virtual servers, we can now save 676,000 kWh per year which excludes the cooling cost that has also been reduced.”

Steve Tsiu, Senior Manager,
Infrastructure and Technology,
HK Electric

VMWARE FOOTPRINT

- VMware vSphere
- vCenter Operations Management Suite

APPLICATION VIRTUALIZED

- Microsoft Exchange Server, Microsoft SQL Server, Microsoft Active Directory Server

PLATFORM

- HP, EMC VMAX VPLEX, CISCO

VMware used its powerful vSphere platform to create a virtualized environment suited for running mission-critical applications management across the utility company. VMware virtualized HK Electric's physical servers and moved them into the virtualization platform. Through the vCenter Operations Management Suite, the IT team was able to access performance monitoring and capacity management tools as part of a drastically simplified IT management program.

“In 2009 we started to use virtualization technology to directly enhance our green credentials. The project involved using one physical server to act as numerous virtual servers simultaneously to avoid the need for new physical servers and the associated energy consumptions. Virtualization infrastructure has given us a lot of benefits in terms of operation efficiency and service level improvement,” said Steve. “The collaboration System has now been smoothly running for nearly four years since December 2009. Since then virtualization technology had been further explored and developed for many other IT systems that are critical to the day-to-day running of the company operation”

Business Results & Benefits

As of today, by deploying VMware's solutions, HK Electric is operating on many hundreds of virtual machines running under an efficient ratio of physical servers. Virtualization has contributed to significant saving in terms of server quantity that needs to be administrated and operated. This has contributed to floor space reduction, power consumption saving, carbon footprint decrease and manpower efficiencies.

“During the first year of virtualization deployment in 2009 we increased the application of virtual servers and reduced power consumption by a further 107,000 kWh per year¹. Together with other existing virtual servers, we can now save 676,000 kWh per year² which excludes the cooling cost that has also been reduced,” Steve said. “By deploying the Operational Management tool, HK Electric is also ensuring maximum utilization of each machine, meaning the IT infrastructure is running in the most green, efficient and environmentally-friendly way possible.”

At the main office buildings, HK Electric reduced electricity consumption by 3.22% in 2013 compared to 2012³. Over the same period, it cut electricity consumption by 1.57%⁴ at the major buildings at Lamma Power Station. In 2013, HK Electric received three Carbon“Less” Certificates as well as two Energywi\$e Labels under the Hong Kong Awards for Environmental Excellence scheme. HK Electric has also implemented an Energy Management System conforming to ISO 50001 standard for Lamma Power Station's Administration Building, and was the first Hong Kong utility certified with this new standard by the Hong Kong Quality Assurance Agency.

Looking Ahead

According to an IDC report commissioned by VMware in October 2014, entitled, “Software Defined Vision 2020: Impact of Server Virtualization in Hong Kong through 2020”, virtualization has helped businesses avoid over US\$500 million in costs between 2003 and 2013 in Hong Kong. The potential economic impact for Hong Kong by 2020 using the IDC model is US\$4.5 billion, among which US\$590 million in power and cooling consumption for physical hardware in the data center will be avoided due to servers' virtualization. The IT Department at HK Electric understands well that the Green and Sustainability concept is never an ad-hoc thing; it needs lasting efforts and long-term dedication. The team is well prepared to further deploy VMware's solutions with a plan to consolidate existing data centers, to continue saving energy consumption and to run the IT capacity in the most green and sustainable manner possible.

1. “Sustainability Report 2013”, HK Electric

2. “Sustainability Report 2013”, HK Electric

3. “Sustainability Report 2013”, HK Electric

4. “Sustainability Report 2013”, HK Electric

