



INDUSTRY

Public sector

LOCATION

Singapore

KEY CHALLENGES

To reduce the management and provisioning load on system engineers and drive a more efficient IT service delivery model throughout the organization

SOLUTION

Implement VMware vCenter Operations Management Suite to enhance manageability and productivity, and establish a platform to implement an internal private cloud

BUSINESS BENEFITS

- Enabled A*Star to support a 30 percent increase in virtual machine numbers without needing to purchase additional hardware
- Boosted arguments for more budget to spend on IT infrastructure resources



A*Star Lights Up its IT Infrastructure with New Management Tools

Singapore's Agency for Science, Technology and Research wanted to improve the efficiency of reporting, management and utilization of its VMware infrastructure ahead of a likely move to cloud computing. By deploying VMware vCenter Operations Management Suite, the agency has achieved its objectives, including supporting a 30 percent increase in virtual machine numbers without adding to its datacenter hardware.

The Agency for Science, Technology and Research (A*Star) is Singapore's leading public sector scientific research and development organization. A*Star's boosts insight into biomedical sciences, physical sciences and engineering, and provide scientific resources to various industries to boost Singapore's economic growth.

The Challenge

Since its inception in 1991, A*Star has evolved its IT infrastructure to support an increasingly diverse range of activities. By 2007, A*Star's growth had reached the point where it had to run three datacenters and multiple computer rooms to accommodate the servers needed to test, develop and run its customized applications in production. This forced the organization to review how it procured IT resources.

A*Star's primary goal was to consolidate and improve the utilization of its servers. By implementing VMware vSphere® in 2007, the agency increased average server CPU utilization from about 3 percent to up to 60 percent, improving its hardware investment returns. The organization was also able to provision virtual machines in minutes rather than wait several weeks to procure physical servers, improving the IT function's responsiveness.

Deploying virtual machines also enabled A*Star to scrap a server procurement charge it had levied on business users, and move running virtual machines

between one host server and another with no downtime for maintenance and to fix problems.

However, as its virtualized infrastructure matured and A*Star started to explore the potential of cloud computing, the agency wanted to improve its management capabilities. "We wanted to gain insights into how changes to some elements of our datacenter environment flowed on to other areas," explained Loong Fong Lai, Deputy Director, A*Star Computational Resource Centre. "For example, while we could identify a virtual machine that was not performing properly, we could not necessarily locate the problem if it originated elsewhere in the virtualized infrastructure."

The organization focused on the cloud to reduce the burden on IT management of provisioning new virtual machines. Users were accessing infrastructure resources with such enthusiasm that provisioning was taking up several hours of system engineers' time each week.

By implementing an internal cloud with self-service capabilities, A*Star could deploy a portal through which users

“VMware’s management tools are giving us a more streamlined and relevant view of our virtualized infrastructure, improving our productivity and resource consumption and enabling us to argue more effectively for additional resources.”

Loong Fong Lai
Deputy Director
A*Star Computational Research Centre

VMWARE FOOTPRINT

VMware vSphere featuring:

- ESXi
- vMotion
- Distributed Resource Scheduler (DRS)
- High Availability (HA)
- VMware Storage vMotion

VMware vCenter Server

VMware vCenter Operations Management Suite

APPLICATIONS VIRTUALIZED

Customized applications

PLATFORM

ESX on a mix of Dell, IBM, HP and Sun servers, featuring a mix of Intel and AMD processors with four to 16 cores and varying amounts of RAM

EMC, HDS, IBM and HP storage systems and Violin Memory flash storage

Guest operating systems: Microsoft Windows Server 2003, Microsoft Windows Server 2008, several flavors of Linux, Sun Solaris

could create and manage their own virtual machines.

The Solution

A*Star had initially deployed VMware in 2007 because no other virtualization product could offer the same flexibility, scalability and performance.

With VMware vSphere delivering considerable improvements in hardware utilization, server provisioning times, application availability and infrastructure manageability, the organization decided against implementing third-party management and cloud enablement tools. A*Star chose instead to deploy the VMware vCenter Operations Management Suite™ to optimize its infrastructure ahead of the likely deployment of VMware vCloud Director™ to help build a secure private cloud.

The organization completed the deployment of VMware vCenter Operations Management Suite in 2011 with help from the VMware Professional Services Organization. The services organization’s expertise and use of proven implementation methodologies ensured the project was completed in two weeks. “VMware Professional Services Organization undertook the crucial step of conducting an on-site workshop to determine exactly what we required,” said Lai. “We needed to be able to essentially see any problems or issues that might occur within the infrastructure before they could have an impact on operations.”

A*Star now uses VMware vCenter Operations Management Suite—incorporating vCenter Operations Manager and vCenter Infrastructure Navigator—to monitor, manage and automate a virtualized infrastructure that operates across two datacenters in an active-active configuration.

Business Results & Benefits

The enhanced management tools have enabled A*Star to consume IT resources even more efficiently, adopt a more integrated approach to performance, capacity and configuration management, and establish a platform to deliver IT resources as a service from the cloud.

A*Star is generating more detailed and relevant reports faster than previously because of the combination of automation and patented analytics. “We now have a much better view of how we are managing our virtualized environment,” said Lai. “For example we can easily determine when we need more servers or storage resources to run the VMware infrastructure.”

Additional capacity has not been an issue for the organization since it deployed the new management tools. The increase in efficiency and automation has enabled A*Star to support a 30 percent increase in virtual machine numbers without needing to purchase additional hardware. In addition, the organization can more easily pinpoint and troubleshoot problems in its IT environment that may affect virtual machines, providing greater assurance to the business that critical applications will be available and performing as required.

A*Star managers and its IT team have also gained a clear view of what infrastructure resources individual groups and teams are consuming, and can project future resource requirements accurately. The reports also support Lai’s requests for additional budget to upgrade the infrastructure. “We can explain clearly why we need resources, and where we will direct them,” he said.

Looking Ahead

A*Star plans to extend its virtualized infrastructure to support the continued growth in user demand and finalize its evaluation of VMware vCloud Director.

With this environment in place, A*Star is testing the capability of VMware vCloud Director to reduce the burden on system engineers of user requests for access to virtual machines. “VMware vCloud Director seems a logical extension of the environment we already have in place,” said Lai. “We feel the product can help to reduce turnaround times and remove the bottleneck for the technical teams that comes from large numbers of user requests.”

