



## KEY HIGHLIGHTS

INDUSTRY: TECHNOLOGY

**CHALLENGE**

- High cost of supporting server sprawl
- High power consumption
- Shorter time needed to provide a new user environment

**SOLUTIONS**

SAP Japan virtualized its internal systems on VMware Infrastructure 3, with the target of virtualizing 80 percent of all servers currently operated by SAP Managed Services / Product System Services (PSS), which provides demo environments for its sales, support, and consulting teams. The virtualization ratio now tops 50 percent, and key SAP applications on the SAP NetWeaver® technology platform, such as SAP ERP, SAP CRM, SAP PLM, SAP SCM and SAP SRM, are operating on VMware Infrastructure and utilized in demos for customer support, training, and consultation purposes.

**VMWARE AT WORK**

VMware Infrastructure 3 Enterprise, featuring:

- VMware ESX Server
- VMware vCenter
- VMware vMotion
- VMware Distributed Power Management (DPM)
- VMware Consolidated Backup (CB)

*“Before, it took anywhere from one day to one week to set up a new user environment. With the implementation of VMware Infrastructure, the setup now takes less than one hour, sometimes as little as 20 minutes. During weekends and nights when system traffic is limited, the VMware DPM is used to turn off the server power. This contributes to the promotion of ‘Green IT’, one of our corporate management measures.”*

Glenn Cadman

Senior Consultant, SAP Managed Services / Product System Services

## SAP Japan

Established in 1992, SAP Japan Co., Ltd. (SAP Japan) is the Japanese subsidiary of SAP AG, the world’s largest ERP software provider employing 43,000 people. Reflecting its long-held interest in virtualization technologies, SAP Japan verified VMware ESX 2.0 as soon as it was released and determined that it met the strict requirements of the company. Accordingly, SAP Japan began a phased migration to the virtualization environment. Subsequent VMware ESX product releases expanded the product’s memory space, making it a compatible platform for SAP’s key applications, which require large memory capacities. As a result, SAP Japan expanded the scope of applications that it runs on VMware Infrastructure. As of now, 50 percent of all internal servers are virtualized.

“We began verification with small-scale systems, and finally confirmed that ESX would provide an amply stable system,” says Glenn Cadman, senior consultant for PSS. “Accordingly, we began expanding the target systems and since then expansion effort has gathered speed. Now, SAP ERP, SAP CRM, SAP PLM, SAP SCM, SAP SRM and other applications on the SAP NetWeaver® technology platform provided by PSS are operating in a virtual environment. They are utilized in the demos for customer services provided by SAP Japan’s sales representatives, as well as in internal training and consultation.”

PSS plans to virtualize all servers except for certain network and security servers that it prefers to run on physical servers. The final virtualization target is 80% of all servers providing a demo environment.

### Four benefits: Cost reduction, green technology, quick server setup, and flexibility

The virtual environment at SAP Japan consists of ten VMware ESX hosts, each equipped with 64 GB of memory and running an average of eight virtual machines, as well as one VMware host for building virtual machines. “Before making virtual machines operational in the production environment, they are started by the build host for trial,” explains Cadman. “Then, we migrate the machines to the production environment using VMware VMotion.”

Each server is connected to SAN storage via a Fibre Channel switch. In addition, two hosts running VMware Consolidated Backup are connected to a tape library via SCSI to back up the virtual machines without using a LAN.

“Implementing VMware Infrastructure has four benefits,” says Cadman. “One: cost reduction via integration of physical servers, which was our primary reason for introducing virtualization. Two: we’re making a big contribution to our green IT efforts with reduction of power consumption. Three: it takes much less time to set up a new server; and four, we get much greater system flexibility that allows us to provide a system meeting our users’ needs very quickly.”

Green IT is a big benefit, according to Cadman. "When we started virtualizing, we quickly realized we could reduce server power consumption and cut CO2 emissions. The total savings on power consumption now stands at approximately 200,000 kWh per year. This is equivalent to the power consumed each year by 60 houses in Germany, or 30 houses in the United States.

"SAP AG makes it a policy to adopt green technologies to help prevent global warming," he continues. "Under this policy, SAP Japan is actively utilizing virtualization technologies. These technologies should cut more power consumption going forward, through savings from reduced air-conditioning usage and lower utility bills for our data centers."

Contribution to green IT does not come only from running fewer physical servers. Servers provided by PSS are used for education and consultation purposes, which means that these systems are mainly used during office hours on weekdays. As a result, the utilization ratio of PSS servers drops substantially during night and on weekends. Accordingly, SAP Japan utilizes VMware DPM with distributed power management function on almost all systems that provide a demo environment, using VMotion to consolidate virtual machines dynamically onto several ESX hosts on weekends and at night when server demand is low, and the idle hosts can be turned off.

"VMware DPM allows for automation of not only traditional resource management, but also power management for idle servers," Cadman explains. "We only run three of seven servers on weekends, and the remaining four are turned off. On Monday morning when we begin using the systems, the idle servers are started automatically and the virtual machines are returned to their original hosts. We realized that this way, we can save another 10,000 kWh of power annually in the current environment.

"The third benefit is that we can shorten the time needed to provide a user environment. Before, it took anywhere from one day to one week to provide a new user environment. With VMware Infrastructure, we need less than one hour, sometimes as little as 20 minutes. Upon receiving a user request for a demo to a customer, PSS can quickly implement a new SAP application and provide a server under a new host name and network address. This enables a system environment where no business opportunities are missed.

"The fourth benefit relates to our ability to provide optimal solutions to meet user's requests by building highly flexible systems. SAP Japan is the first company in the SAP Group to migrate BI training to a virtual environment in order to meet the demand of education service agents wanting more flexible training systems. As a result, training can now be provided at night and on weekends when students have more time. This not only resulted in greater customer satisfaction, but it also brought valuable training income to SAP Japan."

Cadman and the team at SAP Japan are building a virtual environment with VMware technology, helping to drive the growth of SAP and expand its business in Asia-Pacific.

## DEPLOYMENT ENVIRONMENT

### Servers:

- 10 HP DL585 G3:
  - o CPU - Dual Core Opteron 2.3 GHz
  - o Memory - 64 GB
- 1 HP DL385 G2 x 1 (ESX build host)
  - o CPU - Dual Core Opteron 2.3 GHz
  - o Memory - 16 GB
- 1 HP DL380 G2 x 1 (to run VMware vCenter – located in Hong Kong)
  - o CPU - Xeon 3.6 GHz
  - o Memory - 5.5 GB
- 2 DELL 2650 x 2 used for VMware CB backup)
  - o CPU - Xeon 2.8 GHz
  - o Memory - 2 GB

### Guest Operating System:

- Microsoft Windows 2003 Server
- SAN storage DELL/EMC CX3-10 x 1
- DELL/EMC AX4 x 3

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Glenn Cadman  
Senior Consultant, SAP Managed Services / Product  
System Services

## Results

- Cost reductions due to reduction of server numbers and server space
- Lowered power consumption with reduction of server numbers and power-down of idle servers
- Quick response to customer needs by reducing the server setup time to as little as 20 minutes
- Increased system flexibility to provide solutions meeting customer needs

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