SIEMENS

Virtual Infrastructure Setup

Siemens IT Solutions and Services China currently operates on a highly available virtual IT infrastructure under close cooperation with NetApp and VMware. Customers benefit from both the brand-new technology and our experience in IT infrastructure setup. More stable and more flexible than traditional physical servers, the new virtual servers have become a better alternative to the traditional physical servers. Moreover, virtual IT infrastructure provides various possibilities that traditional IT infrastructures simply can't fulfill.

Business Needs

Siemens IT Solutions and Services China provides hosting and file services to a sophisticated user base. To be able to keep up with client requirements to deliver on-demand computing services as well as to ensure business continuity is the key objectives of Siemens IT Solutions and Services. To support user application requirements, Siemens IT Solutions and Services China needs an infrastructure that is stable, flexible, and scalable which ensures consistent system operation, performance, and less lead time.

The Challenge

Reduce storage costs and complexity while maximizing flexibility, performance and availability in a VMware environment.

In order to be responsive to clients' changing business needs, Siemens IT Solutions and Services China made the decision to implement a leading-edge virtualized infrastructure. To support the virtual environment, Siemens required a highly flexible storage solution that would enable both rapid provisioning and non-disruptive scaling of storage

capacity. The existing hosting infrastructure—a physical server environment comprised of some 500 systems utilizing a combination of direct-attached storage and FC SAN technology—was difficult to scale and manage. Administration of storage was increasingly complex, and lead time for new capacity was in excess of two weeks.

Moreover, the existing infrastructure required lengthy backups of discrete systems and data restoration made it difficult for Siemens IT Solutions and Services China to deliver non-disruptive services to its customers.

The Solution

By adopting NetApp and VMware's solutions, Siemens IT Solutions and Services China managed to build the state-of-the-art and highly flexible virtual server infrastructure for its customers.

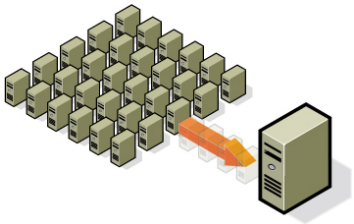
The major tasks during the virtual infrastructure setup include;

- System recovery upon system failure
- Expand utilization of the disk space
- Trouble shooting upon hardware errors of a physical server

It is to Siemens IT Solutions and Services' wish to avoid downtimes and system crashes wherever possible. However it is impossible to make the system failure-free all the time. By adopting NetApp's snapshot feature, the system can now recover quickly without causing negative business impact during downtime. Besides, the feature of VMware and NetApp to realize Vmotion, a technology to migrate virtual machines from one physical server to another without downtime, also ensures the service continuity in case of the downtime of a physical server.
In addition, Siemens IT Solutions and Services China uses NetApp's Thin Provision function to improve the disk space utilization, which also leads to favorable price offer to the customers.

Business Benefits

The customers of Siemens IT Solutions and Services China directly benefit from these and other cost savings. Beginning with that the customer only need to pay for the actual computer power they use instead of paying for the entire physical server to passing on additional savings to the end users because of NetApp's technology improving storage capacity utilization.

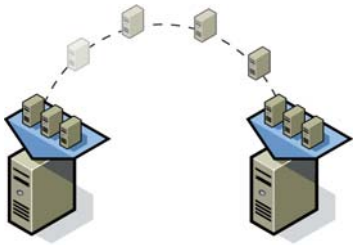


Additional savings are generated by reduced hardware, licensing, administration, data center real estate and power costs.

The virtualization platform is expected to generate an average annual savings of €2,000 per virtual machine for five years. Siemens IT Solutions and Services China is expecting to transit 50 machines the first year and another 100 each year thereafter which five-year savings potential should exceed €2.5M. If all savings are considered a 52% reduction in TCO will be achieved.

Another advantage of virtual IT infrastructure lies in its stability, flexibility and capability to react to customer's business change.

The virtual machines can now be set up in a more time-efficient way (less than one day, as compared to the several days required in the non-virtualized configuration).



Moreover, the computing power of virtual servers can easily be increased or even transferred to another physical server. The servers can also be easily relocated without actually moving the server hardware.

The availability of the virtual system is higher, based on Storage Area Network (SAN) structure. For instance, virtual servers can be migrated to another physical node without downtime.

Furthermore, the backup times can be reduced by an average of 50 %. NetApp Snapshot technology, for example, enables VMware users to make fast and frequent point-in-time copies of data that can be recovered in minutes, not the hours that it previously took to restore data from tape.

Further Developments

The virtual environment setup with NetApp and VMware solutions is the first of its kind within Siemens China. Siemens IT Solutions and Services China expect the virtual environment to help Siemens business segments increase their application and service capabilities, market share, and standing as business and technical innovators.

Based on the experience during implementation, Siemens IT Solutions and Services China will consolidate more servers

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based on the virtual infrastructure and replace dedicated servers to reduce administration costs and required space in the data center.
In the meantime Siemens IT Solutions and Services China will optimize the structure to improve the system availability by making deep use of NetApp's advanced features.

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