



Next-Generation Cloud Data Center Helps to Achieve Leadership in SaaS Market through Virtualization

Nihon Unisys, Ltd.

Nihon Unisys Ltd. decided to adopt the Cisco Data Center 3.0 architecture and Cisco Nexus 7010 to construct a cloud data center which serves as the foundation for its prospective primary business, SaaS. The key elements of the decision are virtualization provided through "Virtual Device Context (VDC)," high-density ports with 10-Gigabit Ethernet, and ISSU-based high availability. By virtualizing of the network, as well as servers and storage, the company automated operation of the data center and accelerated the provisioning of services. With the new cloud data center enabling quick delivery of new services, Nihon Unisys is ready to provide customers with development and/or production environments as PaaS for delivering customer-specific and third party services. This is the company's strategy for spreading "Pay for Use" services in Japan.

● SITUATION & CHALLENGE

- While achieving continuous growth centered on the SI business, Nihon Unisys, Ltd. has received high praise from customers. However, the SI business requires project-based engineering resources, and therefore the difficulty in providing engineers has been restricting the growth of the company.
- For further growth without increasing the number of engineers, the company looked for a new way to conduct business. Nihon Unisys then decided to enter the SaaS market to take advantage of its knowledge and technology in system operation and support, as well as in development and construction.
- Nihon Unisys understood that a completely virtualized cloud data center is essential to acquire a high level of competitiveness in the SaaS market. For that, the company selected the Cisco Data Center 3.0 architecture, which is based on Cisco Nexus.

● SOLUTION

- Cisco Data Center 3.0
- Cisco Nexus 7010
- Cisco Catalyst 6509E
 - Cisco Firewall Services Module (FWSM)
 - Cisco Application Control Engine (ACE)
- Cisco 7201

● BENEFITS

- **Faster service:** Virtualization of the entire network (not just servers and storages) to help the data center accelerate delivery of existing and new services to customers.
- **Automation and cost saving:** Fully automated parameter setting enables unattended operation of the data center. Consequently, all the lights in the data center can be left off, reducing electricity costs.
- **Scalability:** With the highest density of 10-Gigabit Ethernet ports in the network industry, Cisco Nexus is ready for the expansion of the data center.
- **Increase of competitiveness:** Cisco's commitment to delivery of the latest technologies along its road map helps Nihon Unisys maintain the power to "lead the SaaS market." The company hopes to establish long-term partnership with Cisco.

SaaS Business Enables a New Way to Further Growth

The current trend in the IT industry in Japan ? shifting the focus from "ownership" of systems to "usage" of services ? is accelerating. The reason is that a major player has entered the SaaS (Software as a Service) market. The player is Nihon Unisys, Ltd.

Nihon Unisys is a well-established IT company which celebrated the 50th anniversary of its founding in 2008. It is known as one of Japan's most successful system integrators, with high skills capable of developing mission-critical systems for the financial industry.

The company provides a wide variety of solutions, including those for financial systems, distribution systems, manufacturing systems, public sector systems, ERP, and CRM. The company's excellent reputation is built on its "Customer First" principle and consistent services for customer business solutions.

However, the systems integration (SI) business, which has been the pillar of growth for Nihon Unisys, is coming to a significant turning point. Because the SI business requires project-based engineering resources, the issue of providing and training engineers has been restricting the growth of the company. "It will be difficult to sustain our growth if we focus only on the SI business," says Yasushi Kado, Senior Corporate Officer, ICT Services, Nihon Unisys, Ltd. According to Mr. Kado, a break away from the "Person-Per-Work business" is necessary for the future development of the company. "We would like to move away from such resource-intensive businesses and toward knowledge-intensive businesses. SaaS can be the direction of our new business development."

He also says that the outsourcing business, like SaaS, is a field in which Nihon Unisys can leverage its advantages. The company has excellent experience and knowledge in system operation and support services as well as in system development and construction. "These are our unique capabilities that competing system integrators don't have, and we believe we can fully utilize these capabilities in the area of SaaS."

Nihon Unisys started planning for entering the SaaS market in the summer of 2007. In October of the same year, executives of the company had an offsite meeting to determine the direction of the new business. Then, in January of the following year, a provisional department to prepare for deployment of the business was established. During the next

Nihon Unisys, Ltd.



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Yasushi Kado,
Senior Corporate Officer, ICT Services Division,
Nihon Unisys, Ltd.

three months, the company worked out the details of the business, including the target market, infrastructure configuration, and partner companies.

In April 2008, ICT Services was established to launch full-scale operation of the SaaS business. In July of the same year, the underlying cloud data center for SaaS was constructed. And then in October, Nihon Unisys started to provide SaaS for customers.

Network Virtualization as Key for Quick Response and Low Cost

The Cisco Data Center 3.0 architecture was adopted as the infrastructure for the cloud data center mentioned above.

“The cloud data center is the foundation for deployment of our SaaS business and has two major requirements,” says Hiromi Hirota, Director, Infrastructure Modernization Department, ICT Services.

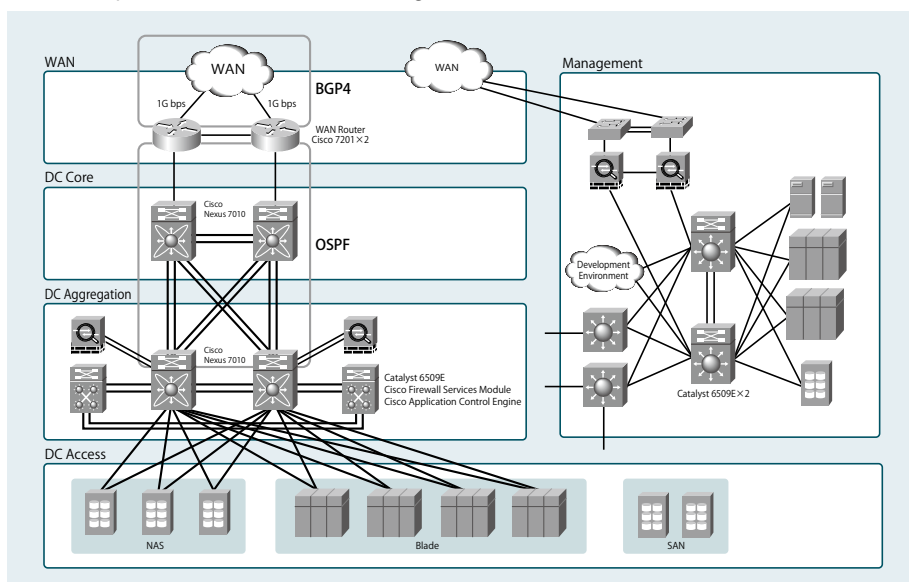
The first is quick response to customer needs, and the second is significant reduction of operating costs. “Although it is common in the SI business to take about one year from requirement definition to system operation, customers won’t allow it in the SaaS business. There are also strict cost conditions because the range of target customers may expand to include small businesses and consumers. To achieve quick response and low cost, the maximum level of integration and automation is essential,” says Mr. Hirota.

“Virtualization is the key for integration and automation,” Mr. Hirota stresses. Various types of virtualization are deployed at the new cloud data center. In addition to servers and storage, the network is virtualized. “The scope of virtualization is usually limited to servers in data centers, and limited to storage as well in some data centers. It is rare for a network to be virtualized. We are convinced that by virtualizing of the network, as well as servers and storage, we can establish the most advanced data center in the industry.”

In April 2008, Nihon Unisys started the selection process for devices to virtualize the network at the data center. It was essential that the most advanced leading-edge devices be used, and they would also need to allow for network virtualization. Finally, in June of the same year, the company decided to use the latest Cisco products.

The network configuration of the data center, shown in the diagram on the right, consists of four layers: WAN, data center

Nihon Unisys Data Center Network Configuration



Nihon Unisys, Ltd.



“To achieve quick response and low cost, which are keys for a successful SaaS business, it is necessary to virtualize the network as well as servers and storage.”

Hiromi Hirota,
 Director of Infrastructure Modernization Department,
 ICT Services Division,
 Nihon Unisys, Ltd.

core, data center aggregation, and data center access. Two Cisco Nexus 7010s are placed. The aggregation part, which contains lines to each server and NAS (Network Attached Storage), consists of two Cisco Nexus 7010s and two Cisco Catalyst 6509Es. Each of these Cisco Catalyst 6509Es has a Cisco Firewall Services Module (FWSM) and a Cisco Application Control Engine (ACE) as service modules to provide virtualization-enabled firewalls, load balancing, and resource distribution functions. This makes it possible to meet customer needs for quick deployment.

Also, although just one set of aggregation is connected to the core at this time, it is possible to add sets of aggregation so that the data center can be expanded in a flexible manner. This configuration can be referred to as the ideal configuration of "Data Center 3.0."

Cisco Provides Three Technical Advantages and Gains a Strong Reputation as a Partner

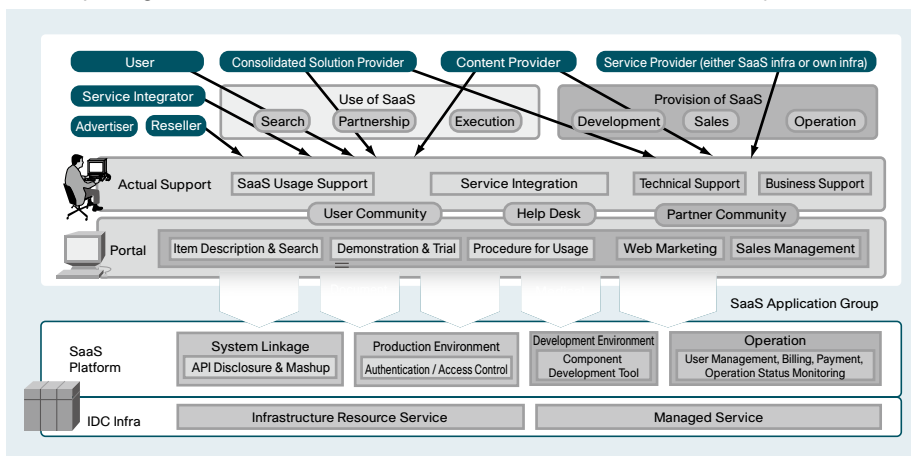
Why did Nihon Unisys select Cisco? Yasuyuki Asai, a specialist in the Infrastructure Modernization Department, ICT Services Division, explains, “Cisco products have three major technical advantages.”

First of all, they can deliver, virtualization functions. The Cisco NX-OS which ships with Cisco Nexus supports "Virtual Device Context (VDC)." VDC allows users to segment operating systems and hardware resources to be used as virtual devices. In addition, in January 2009, Cisco announced the release of the Virtual Port Channel (VPC), which can aggregate two switches into one. These technologies enable highly flexible virtualization. “There are no products other than Cisco’s that can virtualize network devices at the level needed for our scale of production operation.”

Second, Cisco products can support 10-Gigabit Ethernet ports, the highest density in the industry. The cloud data center of Nihon Unisys requires all servers and storage to be connected via 10-Gigabit Ethernet. Therefore, the number of supported 10-Gigabit Ethernet ports was crucial.

Third, Cisco products can provide high availability. Cisco Nexus has an ISSU function, which allows users to perform non-disruptive software upgrades without the need for redundant hardware configuration. At the time of adoption, Cisco Nexus was the only product that could provide such a function.

“Concept Diagram of SaaS Business Park and SaaS Platform” of Nihon Unisys



Nihon Unisys, Ltd.



“Considering that the target products are based on new technologies, it would not be an exaggeration to say this was an incredibly short period.”

Yasuyuki Asai,

Specialist, Infrastructure Modernization Department,
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Furthermore, Mr. Asai says, “We have high regard for Cisco not only because of its advanced technologies and products but because of its commitment. Cisco is a reliable company, and we believe that the relationship between our two companies will continue for a long time.” Cisco is playing another important role in helping the cloud data center at Nihon Unisys to evolve.

For example, prior to production operation of the data center, an evaluation test on the relevant devices was performed in the CPOC (Customer Proof Of Concept) test center to confirm whether redundancy, virtualization, automatic operation, and other functions would work successfully. Mr. Asai says, “At first, we were concerned about it because it was the first evaluation test in Japan of Cisco Nexus for which the operating system was not a conventional IOS. However, with the help of Cisco engineers, we were able to complete the test in only one month. Considering that the target products are based on new technologies, it would not be an exaggeration to say this was an incredibly short period.

Virtualization of the network as well as servers and storage helped in dramatically accelerating service provisioning. Previously, it was common for Nihon Unisys to take about one month from signing of the contract to service provisioning, but the cloud data center allowed the company to reduce the time to just five days. Furthermore, in the case of changes in the provisioning of contracted services, the process takes only one day.

“We can even add a new system in only one hour, provided that required settings are specified in advance,” Mr. Hirota says. Thanks to the combination of resource virtualization and automated of the configuration flow, almost all tasks in the data center can be performed without human intervention. “Once parameters are manually specified, they can be automatically processed in the data center. Because there is no one in the data center, all lights are turned off.”

The primary analysis performed on failure is automated using RCA (Root Cause Analysis). This helps to reduce the number of required skilled engineers and consequently facilitates expansion of the data center.

Leadership in Japan's “ Pay for Use” Market through PaaS

Nihon Unisys is already providing the following services at the cloud data center:

- RENANDI - Education Solution
- PowerWorkPlace – Workstyle Reform Concept
- GOCE – Global Mail Hosting
- Microsoft Dynamics CRM 4.0 – CRM Solution
- ICT Internal Control Compliance Evaluation Services
- Financial Statement Express - Internal Control / IAS-Compliance Solution

In only four months from the time it started delivering services, Nihon Unisys has quickly developed its services. Furthermore, the scope of business of the company is going beyond providing its own services. Nihon Unisys is planning to provide SaaS

development and operation environments which will be established in the cloud data center, as PaaS (Platform as a Service) in order to acquire the ability to achieve end-to-end provision of third party services as well as customer-specific services.

“We call this initiative “SaaS Business Park,” Mr. Kado says. According to the initiative, Nihon Unisys intends to increase choices for “Pay for Use” services for domestic companies. Thus, the new cloud data center will also serve as an engine for deployment of the SaaS business in Japan.

Based on its concept of the next-generation IDC architecture “Modeled iDC Farm (MiF),” Nihon Unisys announced the year 2010 version of the concept in April 2009 and plans to implement a storage cloud. The company aims to achieve a backup-free data center by linking several data centers in the country thorough virtualization and by integrating data. “Now that we have decided to enter the SaaS market, we would really like to lead the market. Cisco’s cutting-edge technologies are essential for us to achieve this goal.”

Profile

Nihon Unisys, Ltd.

Headquarters: 1-1-1 Toyosu, Koto-ku, Tokyo, Japan
Establishment: March 1958
Paid-in Capital: 5,483,170,000 yen
Number of Employees: 4,386 (Group employees: 9,512 as of March 31, 2008)
Sales: 337,759 million yen (Consolidated, FY08Q3)

Nihon Unisys is a well-established company which celebrated the 50th anniversary of its foundation in 2008. It is known as one of Japan’s most successful system integrators, capable of developing mission critical systems for financial institutions. The company provides a wide variety of solutions, including those for financial systems, distribution systems, manufacturing systems, public institution systems, ERP, and CRM. The company’s excellent reputation is built on its “Customer First” policy and consistent services for customer business solutions. In October 2008, Nihon Unisys launched full-scale operation of the SaaS business. Taking advantage of its next-generation cloud data center, the company will lead “Pay for Use” services in Japan.

<http://www.unisys.co.jp/>

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Cisco Systems G.K.

Midtown Tower, 9-7-1, Akasaka, Minato-ku, Tokyo, 107-6227 Japan

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