Hewlett Packard Enterprise

Case Study

株式会社BSNアイネット

BSN iNET realigns its IT/storage infrastructure to drive cloud growth

HPE 3PAR StoreServ All-Flash eliminates performance bottlenecks in multi-tenant environment

Objective
Expand service infrastructure for iNET IMAGE BANK cloud service. Improve customer service experience with increased throughput in IOPs intensive environments. At the same time, design a storage environment for processing multiple cloud business level applications in parallel

Approach
Business needs paved way for an All-Flash Storage array which can offer the required quality of service along with being equally coherent with multiple applications like VMware vSphere® and OpenStack, running at the same time

IT Matters
- Eliminate performance bottlenecks related to IOPs intensive applications
- Ensure that volume management and QoS is possible with regards to virtual machine units

Business Matters
- Establish verified service level cooperation between cloud business applications with OpenStack
- Significantly reduce the data center space and power and cooling requirements

BSN iNET uses HPE 3PAR StoreServ All-Flash Storage for its iNET IMAGE BANK cloud service infrastructure. The requirements of high-performance, high-quality Infrastructure as a Service (IaaS) models are now met with assured quality of service and a variety of complex applications running in parallel without any performance impact.

Challenge

Double-digit business growth sets expectations for dynamic IT infrastructure
BSN iNET is an IT solution provider based in Niigata, Japan. With the principal focus of data center/cloud services, consulting/integration services, and application development, it is supported by a broad layer of customers including companies, local governments, and public institutions.

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>
> — Motohiko Sakata, cloud business manager, BSN iNET

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"BSN iNET was established as the Niigata Broadcasting Group Data Processing Center, and April 2016 marked the 50th year since its foundation," says Motohiko Sakata, cloud business manager. "We have a history of adapting quickly as times change, expanding business from system integration to outsourcing and data center business. Completing the second data center in 2009 and launching iNET IMAGE BANK were big turning points."

BSN iNET's iNET IMAGE BANK cloud service offers virtual server hosting (IaaS), virtual desktop (DaaS), and various application services (SaaS). Since the service started, the business has generated double-digit annual growth.

"Through this cloud service, we've used a business model that suggests an optimal structure after hearing our customers' requirements," says Sakata. "The growth is a result of lowering the hurdles for customers to introduce the cloud, and giving meticulous attention to our response to customer needs."

The virtual server hosting environment was built with VMware® at its core. It allows customers to continue business even when there is a wide area disaster, with regular duplication of virtual machine image data between multiple data centers, and automation of restoration processes using VMware® vCenter™ Site Recovery Manager™.

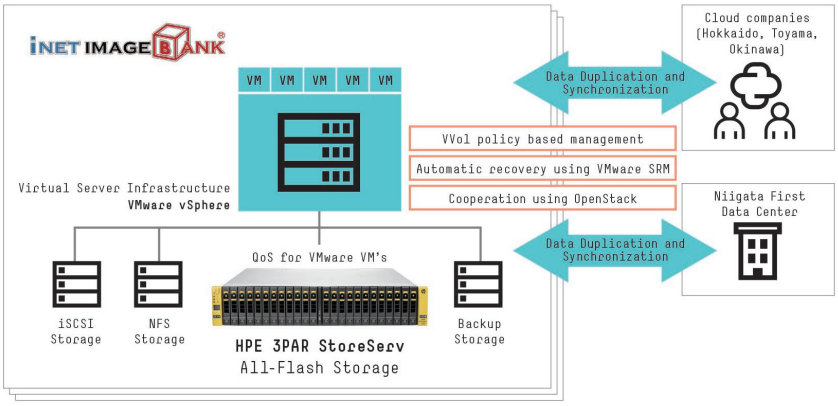
"In the last few years, the trend is to operate larger applications, which comes with a big increase in resource demand," says Satoshi Amaki, senior chief of cloud business. "There was a rapid rise in the load on the service infrastructure such as high load online processing and batch processing through long hours overnight. We reinforced the database servers, but still couldn't resolve the problem as storage I/O was a bottleneck."

A heavy load was placed on the iNET IMAGE BANK service infrastructure through increased application services by large scale business systems, SNS and EC systems, and SaaS businesses.

"With conventional iSCSI storage and NFS based file storage, it was clear that performance was not sufficient," says Sakata. "To address the problem assertively, we decided to introduce HPE 3PAR StoreServ All-Flash Storage."

Solution

HPE 3PAR StoreServ All-Flash Storage
HPE 3PAR StoreServ All-Flash Storage is positioned as a strategic product that promotes the "Shift to All-Flash Data Centers" advocated by Hewlett Packard Enterprise (HPE). The model used by iNET IMAGE BANK actively operates multiple controllers, and realizes the high storage I/O performance and low latency of All-Flash products.



- Reduced storage I/O performance bottleneck
- Shortened batch processing time up to 1/3
- Shortened time required for daily backup up to 1/8
- Cooperated with VMware VVol/SRM and OpenStack

"The excellent I/O performance characteristic of All-Flash brought visibly improved service quality. Some customers of ours were able to shorten the time required for batch processing by a third. An improved response was seen that can be sensed even with an online system such as SaaS applications. Even in a time band when access is concentrated, we can maintain a high level response," says Amaki.

With the introduction of the HPE 3PAR StoreServ All-Flash Storage, impact was also seen for backup environment storage. Through this synergistic effect, the time required for data backup was now shortened by 87%.

"Random I/O performance is high, and delay is extremely low — All-Flash Storage's biggest advantage is higher speed, but we also appreciate the space saving and energy saving effects that come with greater SSD capacity," says Sakata. "We look forward to even greater capacity going forward."

A 2TB SSD was installed with the HPE 3PAR StoreServ this time, but a 4TB SSD can also be selected. SSD is expected to have higher capacity going forward, and not only performance but also capacity is sure to greatly exceed that of HDD. We'll soon see the day when the cost (capacity unit price) is more advantageous with All-Flash.

"With HPE 3PAR StoreServ All-Flash Storage, having a five-year guarantee for the SSD gives a sense of security," explains Amaki. "Even if the SSD reaches the write count upper limit during five years of continuous use, the product maintenance of the system includes a free replacement. In terms of practical use, problem indications are detected automatically and notified to the HPE monitoring center in Japan. Maintenance service can be received immediately, which we feel is a big advantage."

HPE 3PAR StoreServ All-Flash Storage lengthens the life of the SSD with unique technologies such as the Zero Detection Function that reduces unnecessary writes, and System Wide Striping that evens out the writing to SSD for the overall system so as not to create hot spots. This allows them to offer a five-year guarantee that other companies cannot.

"We'd already noticed the unique capabilities of HPE 3PAR StoreServ, such as hardware based thin provisioning using ASIC, automatic performance tuning, and online RAID modifications," says Sakata. "For the storage environment, we continued using DAS as well as iSCSI storage and NAS storage, but we've come to a new stage by using HPE 3PAR StoreServ All-Flash Storage."

Case study
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Industry
IT

Customer at a glance

Hardware
- HPE 3PAR StoreServ

Verification for using VMware vSphere Virtual Volumes
VMware vSphere was used for much of the iNET IMAGE BANK service infrastructure. Amaki has the idea of expanding use of VMware technologies, one of which is VMware vSphere Virtual Volumes (VVol). With SAN storage environments using VVol, it is possible to prepare volume and set service levels in virtual machine units: "VVol is already used for part of the storage environment, and Storage QoS using I/O control is realized, in other words, customer service units. We're thinking about also using VVol for the HPE 3PAR StoreServ environment. With HPE 3PAR StoreServ, VVols can be used simply from within VMware® vCenter™. Thanks to HPE 3PAR StoreServ, there is no need to worry about an upper limit on the number of volumes created, giving us a sense of security."

HPE continues to work in close cooperation with VMware on the development of VVols. Not only is a VASA provider embedded inside the HPE 3PAR StoreServ, but all the functions provided with the latest version of VVol are supported. In fact, HPE 3PAR StoreServ Storage was the first Fibre Channel (FC) reference platform for this project (VMware VVols).

"The HPE 3PAR StoreServ Priority Optimization option can be set individually on 3PAR volumes from storage management side, and being able to set detailed level QoS is useful," says Amaki. "It is also possible to create a snapshot using the HPE 3PAR StoreServ side functions by operating from vCenter, so I think it will be very easy to do image backup in virtual machine units."

Benefit

Storage infrastructure which can scale up in a matter of seconds for cloud platforms
At BSN iNET, two bases within the prefecture operate as the company data centers, and from 2012, "Disaster Countermeasure Solutions" are also provided in cooperation with data center companies in Hokkaido, Toyama, and Okinawa. In 2015, the already installed HPE Helion OpenStack was updated to the latest version.

"Multiple data center companies in different power supply jurisdictions work in cooperation for disaster countermeasures and BCP," says Amaki. "Duplicate data is held between data centers, and when a disaster occurs, it is possible to continue service by migrating between centers. If customers connect to the iNET IMAGE BANK URL as usual, service will continue from one of the data centers. In the past, this was realized using a VMware product, but going forward, we're also looking at cooperating using OpenStack."

Sakata says an environment linking multiple cloud services and BSN's own storage infrastructure is best kept as simple as possible: "Until now, we divided use between NFS, iSCSI, and FC, but we'd like to consolidate using FC storage. We also don't have to stick to an environment that mixes HDD and SSD, and our real intention is to integrate to All-Flash FC storage."

The outstanding performance of HPE 3PAR StoreServ All-Flash Storage has already been demonstrated. Linking with the advanced functions provided by VMware and OpenStack is reliably implemented faster than any other vendor. With SSD having even higher capacity and lower cost, the superiority of HPE 3PAR StoreServ stands out even more.

"We'd like a single cloud platform that straddles the VMware and OpenStack environments," says Sakata. "To do that, a single storage infrastructure that instantly connects various technologies is essential. HPE 3PAR StoreServ All-Flash Storage is the ideal choice."

Learn more at
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