Hewlett Packard Enterprise

GMO Cloud drives higher efficiency for IaaS with HPE Moonshot

Reduces total cost by 30% enabling more competitive pricing for hosting services

Objective
Achieve a higher return on investment by lowering total cost compared to the last five years, without changing the basic design of the service platform, while meeting the need for increasingly sophisticated performance requirements

Approach
Utilizing the data center facility's 100V power supplies, replace the existing half-rack server (two nodes in 1U) with HPE Moonshot to gain a superior performing and more cost-effective server infrastructure

IT Matters
- Reduced rack space by two-thirds—from 32U to 10U—thanks to the ultra-high-density HPE Moonshot System, which accommodates up to 45 server cartridges in 4.3U

- Improved performance by 30% with space-saving HPE ProLiant m300 server cartridges equipped with the low-power Intel Atom Processor C2750 (8 cores)

- Reduced operating and network equipment costs due to a simplified network configuration

- Obtained a more resilient system that maintains availability in the event of server cartridge failures or chassis failures

Business Matters
- Reduced total cost by 30% compared with the last five-year period (depreciation expense and data center costs)

- Saved costs by utilizing the data center facility's existing 100V power supplies

- Contributed to strengthened service competitiveness by incorporating the latest server technology quickly

- Enabled the possibility to introduce additional hosted services

GMO Cloud updated its server infrastructure with HPE Moonshot to run one of the largest Japanese hosting services iCLUSTA+, which boasts 40,000 contracts and 45,000 domains. The solution is comprised of ultra-high-density, ultra-low-power consumption HPE ProLiant m300 server cartridges. With Moonshot, GMO Cloud increased performance by 30%.

Single-platform update for iCLUSTA + hosting service

GMO Cloud was listed in the first section of the Tokyo Stock Exchange in October 2014. This strong industry position recognizes the company's rock-solid customer services, thanks to a hosting strategy, focused on delivering the highest-class performance and reliability while pursuing the lowest cost in the industry.

Director and group chief technology officer, Minoru Karasawa, cited, "We will further solidify the competitiveness of our three core businesses: hosting services, security services, and solution services. At the same time, we will strengthen the infrastructure to continue to provide the services which are must-haves for our customers' businesses."

> "As a long-term goal, we would like to keep taking advantage of new server offerings such as the HPE Moonshot System to obtain the best performance, reliability, and the lowest cost in the industry."
>
> — Minoru Karasawa, Director and Group Chief Technology Officer, GMO Cloud

One of this year's key themes is improving service ease-of-use from the customer's point of view.

Mr. Karasawa stated, "We will improve our service to be more user friendly by aggregating the common areas of service such as cloud, virtual private server, leased server, and dedicated server onto a single platform. Additionally, we are going to apply a mechanism that automatically bolsters the resources when traffic spreads to other services, not only for cloud."

GMO Cloud responds to the latest changes in technology quite quickly. In order to remain an industry leader, the company verifies new technology in-house, and if found to be worthwhile, adapts its service infrastructure before other hosting providers, thus giving GMO Cloud a competitive edge.

Toshinari Sato, group chief of shared hosting from the Technology Department System Operations Section, explained, "The first step in updating the iCLUSTA+ server hosting service was to identify and verify new sever technologies by real-world trial testing. Factors such as maintaining and improving our high-quality service, meeting customers` increasingly sophisticated performance requirements, as well as providing a more cost-effective service were considered in order to determine the best fit. As a result, we chose the ultra-high density, ultra-low power consumption Hewlett Packard Enterprise's (HPE) Moonshot System.
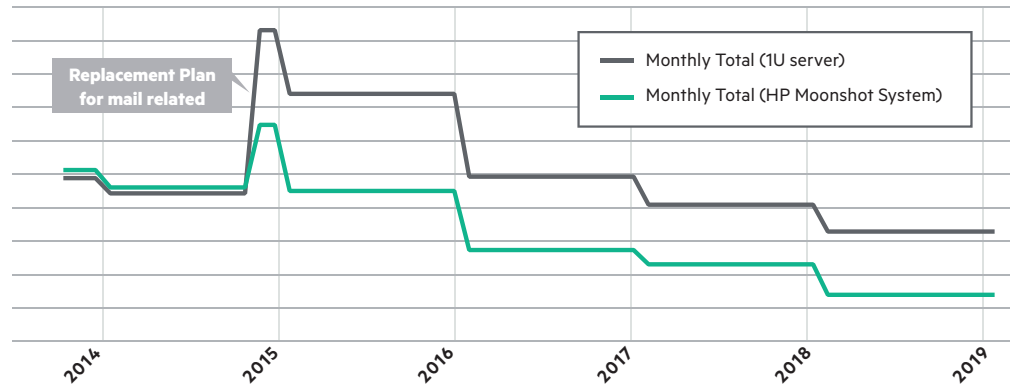
iCLUSTA+ is Japan's largest business-friendly shared leased server service and has 10 years of experience with approximately 40,000 contracts and 45,000 domains. One of the best features of iCLUSTA+ is its affordable price plan starting from 934 yen (excluding tax) per month. Redundant major equipment for its service infrastructure ensures stabile operation, which is backed by a service guarantee to refund the usage fee due to disruption, depending on the time of occurrence.

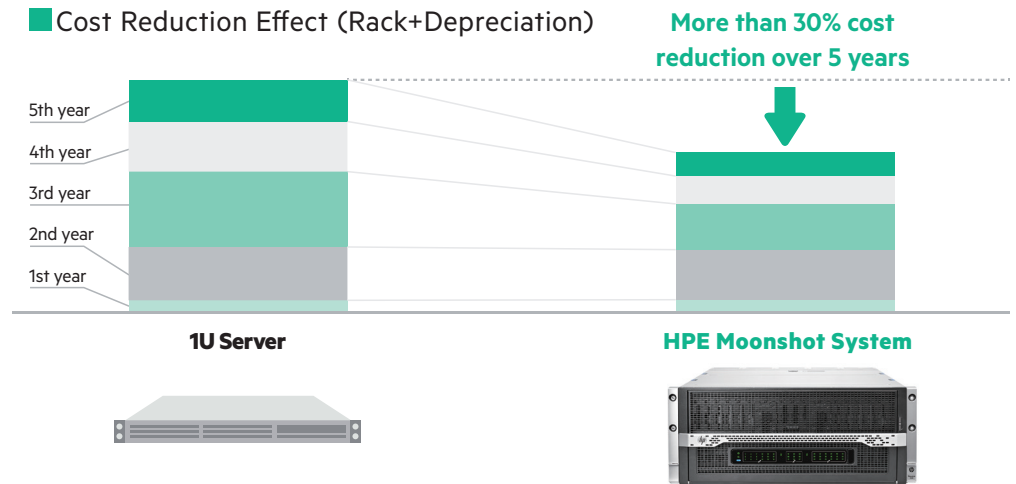## Ultra-high density, ultra-low-power HPE Moonshot System

The iCLUSTA+ server update project, led by Mr. Sato, had to meet two uncompromising expectations to be successful.

Mr. Sato explained, "The conventional environment had been mainly built with half-rack servers that could accommodate two nodes in 1U. There were two reasons for this: First, it allows the front-end web server and mail server to scale out, thereby distributing the load and in this way providing a mechanism that doesn't affect the customers' services if a server encountered a problem. Second, this structure increases the housing density of users' per-rack space in order to improve the return on investment."

■ Monthly Cost Transition (Rack+Depreciation)

Replacement Plan
for mail related

— Monthly Total (1U server)
— Monthly Total (HP Moonshot System)

2014   2015   2016   2017   2018   2019

■ Cost Reduction Effect (Rack+Depreciation)

**More than 30% cost
reduction over 5 years**

5th year
4th year
3rd year
2nd year
1st year

1U Server

HPE Moonshot System

**Achieved ultra space-saving
and ultra low power consumption**

**Intel® Atom™
C2750 2.4 GHz, 8core SoC**

**32GB (4×8GB DIMM)
DDR3 ECC Memory**

500GB SATA HDD

100V power support

Back side

● Installation of 30 cartridges in the Initial stage
● Redundancy configuration by 2 chassis of HPE Moonshot 1600

However, a major performance deficiency was discovered. The conventional infrastructure lacked sufficient processing power and memory to handle the increased number of housed domains. This was due to the standard specifications of the half-rack server introduced five years ago, which contained only two cores and 16GB of memory.

The project team listed the following two specific requirements:

1. Update only the server to enhance the processing performance without making any changes to the existing architecture.

2. Achieve a higher return on investment on total cost, compared to the last five years.

The core features the team looked for when selecting a solution included a generic x86 1U server, ultra-high density, and ultra-low power consumption. Consequently the HPE Moonshot System was a perfect fit. While many servers met the first of the two requirements, most ultra-high-density servers require a 200V power supply, which would not fit GMO Cloud's low-power consumption requirement.

Mr. Sato stated, "HPE Moonshot System supports 100V power supply despite it being an ultra-high-density server. This product is friendly to the Japanese data center configuration."

The key to making a decision was cost efficiency.

Mr. Sato continued, "The cost trend of the total cost over five years of operation, inclusive of the initial cost for installation being amortized with the declining balance method of cost depreciation, showed that the traditional 1U server is slightly advantageous in the first year, but the HPE Moonshot System becomes more cost-effective after the second year. The HPE Moonshot System is capable of approximately 30% in cost reduction when compared with a 1U server over the last five years."

Reduced rack space and simplified the network

The HPE Moonshot System is an ultra-high density, ultra-low power consumption platform that holds 45 server cartridges in a 4.3U chassis. The HPE Moonshot System for GMO Cloud is configured with HPE ProLiant m300 Server Cartridges powered by Intel® Atom Processor C2750 with eight cores, 32GB of memory, and 500GB of HDD storage. Such a small server cartridge almost fits in the palm of your hand yet delivers performance comparable to an entry-class 1U server.

"In the initial stages, we installed two HPE Moonshot 1500 Chassis each with 15 server cartridges," Mr. Sato said. "A chassis can also be redundant to have extended availability. With 30 physical servers in just 10U we were able to reduce the space by two-thirds compared to 32U with traditional servers."

Since the HPE Moonshot System can accommodate up to 45 server cartridges in one chassis, it's possible to increase the space efficiency when adding more servers.

Mr. Sato adds, "The performance per server has improved by 30% thanks to an increased number of cores and higher memory capacity. In addition, the physical environment can be greatly simplified because the power supply, fan, management module, and the network switch are all shared in the same chassis. This not only improves operational efficiency, it also reduces network equipment and server cabling."

The iCLUSTA+ service platform requires a redundant configuration with a large number of physical servers for load balancing and service continuity. The big advantage of the HPE Moonshot System is interchangeable servers that enable quick recovery with simple plug-and-play replacement.

Customer at a glance

HPE Hardware

- HPE Moonshot System

- HPE Moonshot 1500 Chassis

- HPE ProLiant m300 Server Cartridges

There is not a big difference between the HPE Moonshot System and conventional x86 servers in terms of usability and operation. What makes HPE Moonshot the best fit for GMO Cloud are features such as central management of multiple server nodes and streamlined resource provisioning.

"Up until now, we have used conventional CD-ROM based booting utilities. We needed to do some up-front work to migrate to the PXE-based network boot used by the HPE Moonshot System. However, once the networked boot environment is established, subsequent work should improve exponentially," asserted Mr. Sato.

Next big step: aim for a common platform

Currently there is stiff competition in the hosting/server-leasing business due to the prevalence of cloud services. Mr. Karasawa, from the Systems Operations Section, spoke of GMO Cloud's strategy to keep a competitive advantage.

"We must continue to challenge ourselves to keep up with the latest technology, not only replacing conventional servers in order to meet the performance requirements, but also to keep curbing costs," he said. "As a long-term goal, we would like to keep taking advantage of new server offerings such as the HPE Moonshot System to obtain the best performance, reliability, and the lowest cost in the industry. We started with integrating the features and infrastructures that are common in multiple services, but ultimately we aim to establish a simple low-cost common platform in the future."

Mr. Sato concluded, "iCLUSTA+ is the flagship product of GMO Cloud. We have big expectations for it in terms of usability for our customers. We would like to continue to improve our services by seeing what is needed from our customer's point of view."

Mr. Karasawa ended by emphasizing the hosting and leased server business's mission: "It is important to provide added value to meet our customers' needs with user-friendly services. We are a business that wants to make our customers' desires become reality."

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