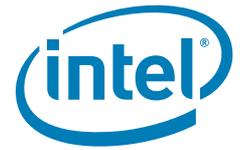


CASE STUDY

Intel® Virtual Gateway
Data Center Efficiency



Improving Gateway Operations for Remote KVM Managing 6,000 Physical Servers

The Intel® Virtual Gateway's multiple vendor support and simple APIs free engineers from software development and maintenance tasks and add key functions such as the component level health monitoring.



Sakura Internet Inc.

Headquarters: 1 Chome-8-14 Minamihonmachi, Chūō-ku, Ōsaka-shi, Ōsaka-fu
Founded: August 17, 1999 (Service launch: December 23, 1996)
Capital: 895.3 million yen
Employees: (Group) 339
(As of the end of March 2016)
Business description: Providing internet connection services, server operation and management services on the Internet, various information services using the Internet
<http://www.sakura.ad.jp/>

"Thanks to the flexibility of linking up with mixed-vendor servers via simple API, we expect to reduce the reliance on developers and achieve increased maintenance efficiency."

Hikaru Furusawa
Middleware Group, Technology Department
Sakura Internet Inc.

Challenge

- **Streamlining gateway development:** Sakura Internet had to change and update the gateway which provides KVM functions for remote maintenance each time a new server service is being rolled out.

Solution

- **Intel® Virtual Gateway:** This gateway delivers virtual KVM (keyboard-video-mouse) capability for remotely maintaining and managing multiple servers from different vendors.

Benefits

- **Eliminated vendor-specific development:** The cross vendor compatibility of the Intel® Virtual Gateway streamlined development operations and reduced the reliance on skilled individuals.
- **Increased development and operational efficiency:** Simple APIs standardized server connections and reduced maintenance workloads.

Business Value

- **Optimized engineering resource assignments:** Frees up engineers from development and maintenance duties so they can concentrate on the high priority development tasks.
- **More flexibility for server services:** Gateway development is no longer needed, so engineers have greater freedom to add new server services.

Vast gateway changes: A burden to developers

Sakura Internet provides high-quality, low-cost data center services as one of the leading data center businesses in Japan. They currently offer services such as shared hosting services, dedicated servers, virtual private servers (VPS), cloud services, and data centers to meet user needs.

This Internet service company recently decided to use the Intel® Virtual Gateway as virtual KVM (keyboard-video-mouse) gateways for remote maintenance in their dedicated server (hosting) services providing physical servers based on Intel® Xeon® Processors. The target was to reduce the massive development workload encountered in their existing gateway.

Their dedicated server service provides users with an internally developed Control Panel that allows users to run various server operations from web browsers. Within the panel, Sakura Internet also developed internally and provided the "remote KVM" function that enables console tasks during maintenance. However, the gateway that connects remote KVMs and physical servers had to be modified according to specification changes each time a new server model is introduced, or the server firmware changes. The server models are updated roughly once a year in conjunction with new processor and server equipment releases, and firmwares are also revised as needed. In addition, each server vendor offers multiple models. Therefore, changes to the gateway must be made for each vendor

Providing a remote control function optimal for data centers

and each different firmware version, and these massive program revamps create a burden for developers. Senior producer Naoto Kato from the dedicated server team of Technical Department's Hardware Group explained as follows:

"We plan to continue expanding our server model line-up, but the resources spent on gateway development and operation become a bottleneck. The number of developers has always been limited, and it has been difficult to transfer skills and expertise effectively, so we aimed to standardize gateways and streamline development."

Intel® Virtual Gateway reduces workload with simple APIs

Sakura Internet was considering the implementation of a multi-vendor compatible gateway, and found the Intel® Virtual Gateway, which requires no dedicated hardware and for which firmware-based functions are integrated into servers. Considering its timely support for new server models and ease of implementation, the Technical Department made a decision. Intel® Virtual Gateway is provided as software, and allows for a large cost reduction compared to the hardware KVM and eliminates the complexity around the server rack. Hikaru Furusawa from the Middleware Group explained, "The key factor for the decision was the superior flexibility from having simple APIs and being able to coordinate, loosely coupled, with the mixed-vendor physical servers. The simple APIs unify operations on any vendor's server, so we are no longer heavily relying on developers, and we expect increasing maintenance efficiency as well."

In addition, another contributing factor was the "health check function", provided as an optional service of Intel® Virtual Gateway. According to Hikaru Furusawa, now engineers can share server and hardware status including CPU, memory, fan, and power source with the user, so they can respond quickly when a failure occurs.

Sakura Internet decided to implement the Intel® Virtual Gateway at the end of

2015, and performed tests on the non-production servers as soon as 2016. They are starting tests in a real environment in September 2016, and plan to begin the production use of the Intel® Virtual Gateway in early 2017.

There are roughly 10,000 physical servers managed with the company's dedicated server service, among which roughly 6,000 will be managed using Intel® Virtual Gateway. The Intel® Virtual Gateway will be integrated into their Control Panel provided to users. If the user clicks the Remote Console button, a request will be sent to the physical server via the API of Intel® Virtual Gateway, and the console screen of remote KVM appears.

Allocating resources to other high priority tasks

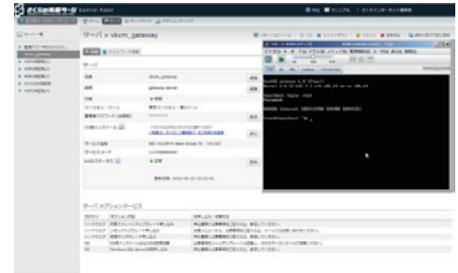
Through the implementation of Intel® Virtual Gateway, the problem of gateway development efficiency that Sakura Internet has been facing is expected to improve greatly. Naoto Kato commented, "With there no longer being any need to develop and modify the gateway for each vendor and firmware version, development and maintenance resources are freed up and can be reassigned to other priority tasks. In addition, when newly expanding the server services such as white box servers, now we can rely on the Intel® Virtual Gateway for implementations. We expect a greater freedom for expanding server services as well as cost reductions."

Moreover, because anyone with the API knowledge can develop and maintain the gateway, dependency on specific developers is expected to end, and standardization be successfully achieved.

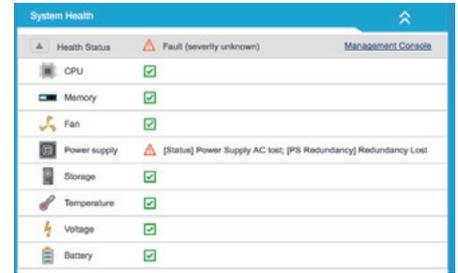
According to Hikaru Furusawa, a big advantage with Intel® Virtual Gateway is having peace of mind that any engineer can learn and use it, across generations.

Implementing the health check

Moving forward, studies are continuing on implementing a "health check function"



Control panel for dedicated server service



Component overview of health check function

for Intel® Virtual Gateway. Naoto Kato expressed optimistically that system management information can be acquired once the gateway links with KVM, allowing the company to gain additional benefits.

Furthermore, because the method for implementing KVM on servers will be switched from JavaScript to HTML5, they plan to gain knowledge of HTML5 together with Intel while implementing it in the remote KVM function.

For the server service businesses, system management functions are critical to user satisfaction and customer retention. Sakura Internet will continue to use Intel's solutions effectively, while improving functions to increase the service level.

For more information on the Intel® Virtual Gateway, see:
<http://www.intel.co.jp/virtualgateway/>

Contact: dcmsales@intel.com



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