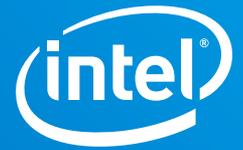


CASE STUDY

Cloud Data Center
JD.com



Providing Advanced Remote Server Management Efficiency

Intel® Virtual Gateway SDK delivers significant annual savings by providing secure, legacy system integration and remote server-group management



Business:

JD.com, an e-commerce company headquartered in Beijing, is China's largest premier online and overall retailer with a world-class fulfillment operation providing same-day and next-day service to over one billion customers.



Challenges

- Turn server groups off/on
- Remote management and health access to servers
- Eliminate unnecessary network layer for the VPN operator access
- Manage BMC configuration access

Solution

- Intel® Virtual Gateway SDK

Executive Summary

JD.com, China's biggest premier online and overall retailer with a world-class national fulfillment operation, installed the Intel® Virtual Gateway SDK (Intel® VGTW) in its server network and began to deploy the remote vKVM solution to optimize its IT infrastructure. The company sought to save time and increase efficiency by leveraging Intel® VGTW to remotely control server groups, simplify access between multiple software platforms, and improve operational efficiency. Intel® VGTW would integrate into existing management systems and eliminate the need for additional hardware, while improving server health access and control across multiple Original Equipment Manufacturer (OEM) servers. The company currently operates 150,000 servers.

JD.com deployed Intel® VGTW and began to leverage its remote access capabilities to power devices off/on as required and diagnose issues without the need for additional hardware which reduced costly downtime. The Intel® VGTW remote management capability also allowed operators the ability to manage batches of up to 50 servers at once, powering them off/on as required. Health reporting capabilities combined with automated alerts allowed operators to form and manage server groups, analyze server logs, and configure changes without the need for manual processes.

Intel® VGTW allowed JD.com to have better visibility into the health of their servers. The company performed regular remote, system maintenance enabled by Intel® VGTW's server vendor agnostic capabilities, simplifying operational efficiency. Additionally, operators were able to initialize, maintain and repair server issues like BIOS configuration, OS installation, and other routine maintenance from the convenience of their computer screens.

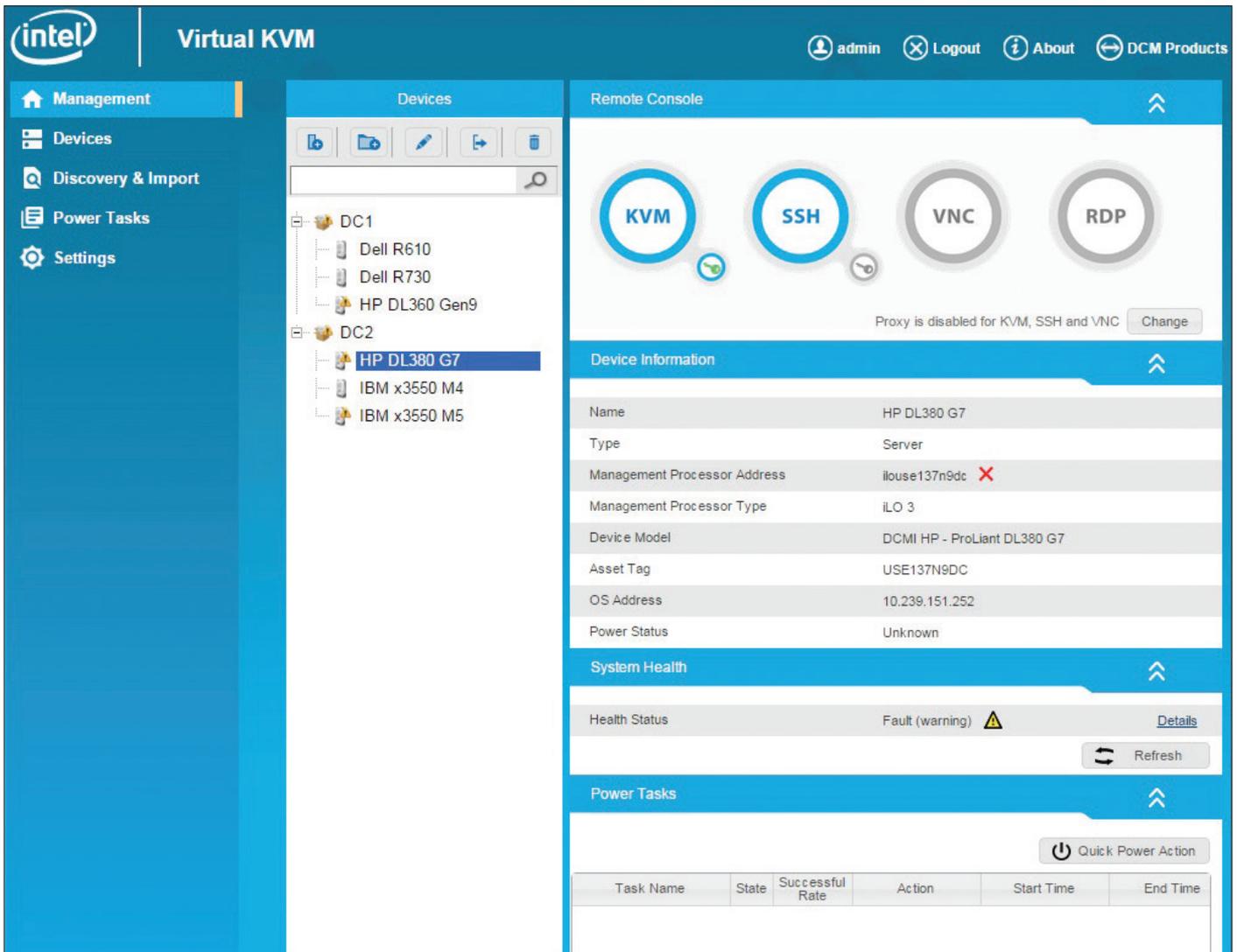


Figure 1. Intel® Virtual Gateway Console

Additionally, Intel® VGTW facilitated the integration of the JD.com office and production networks, simplifying access for operators by eliminating a redundant credentialing step. Finally, Intel® VGTW allowed IT managers to control access levels thereby eliminating configuration errors. The convenience and time savings this provided their team significantly improved the overall efficiency of the operation.

The time-saving benefits of Intel® VGTW SDK led to a reduction in labor costs and substantial annual cost savings of \$750,000 USD.

Background

JD.com installed Intel® VGTW and began to deploy the solution in its data center network operation. IT administrators began implementing its advanced features like its Comprehensive Failure Report Analysis which provided insight into the component health of their servers. The company currently operates 150,000 servers.

Intel® Virtual Gateway (formerly known as Intel® Virtual KVM) remotely diagnoses, troubleshoots, and monitors the health of data center servers using a firmware based capability embedded in the servers. This eliminates the need for complicated and expensive KVM hardware.

JD.com IT administrators leveraged Intel® VGTW SDK monitoring and diagnostic features to gain comprehensive cross-platform insight into the health of their broad spectrum of OEM servers. The solution produces clear, consistent component health analysis regardless of server model, allowing operators to discover failed or failing devices, while diagnosing fixes to reduce costly downtime. This feature isolates the root cause such as CPU, memory, storage, fan, and power supply, and provides statistical analysis reports for an entire operation, helping operators identify important trends.

Intel® VGTW Remote Health Checking and Reporting

Manual health checking can be time consuming and relies on assumptions without any clear view into actual data. Intel® VGTW automated health checking provides real-time server status from high levels all the way down to the component level. Additionally, Intel® VGTW management tools allow data center operators to access multiple servers, providing an integrated view into the component and thermal health of servers, which may be difficult when managing large numbers of multiple OEM devices.

Intel® VGTW Remote Management of Servers

Manual processes rely on assumptions which can result in inefficiency and overwork without obtaining needed results. These challenges can compound within a high-capacity operation. Intel® VGTW automates the receipt of alerts in real time and provides remote access to servers providing data center staff with cross vendor OEM support.

Intel® VGTW further enabled deep visibility into the health of their OEM servers. The company performed regular remote, system maintenance enabled by Intel® VGTW vendor agnostic server capability, simplifying operational efficiency. Additionally, operators were able to initialize, maintain and repair server issues like BIOS configuration, OS installation, and other routine maintenance from the convenience of their computer screens.

Intel® VGTW Simplifies Integration of Existing Software Systems and Networks Including Access Level Management

In a recent survey sponsored by Intel, Morar Consulting found that 83 percent of respondents failed to gain complete visibility of their data center operation because they struggled with the various technologies they currently deploy. The Intel® VGTW solution integrates smoothly into existing software and is perfect for ISVs looking to add KVM functionality to any existing ISV solution. Additionally, the solution gives devices full coverage of In-Band (IB) and Out of Band (OOB) communications. This interface through either channel allows for interoperability with any vendor's system, whether the system is up or down.

Intel® VGTW eliminated the need for additional operating system rights or privileges, simplifying the hardware tracking process cross-platform. Intel® VGTW allowed the JD.com IT team to integrate their two-layer network by allowing operators the ability to access server BMC via a one-step login without internal VPN. The solution further simplified BMC management by allowing IT managers to control the permission to access BMC configuration thus preventing human error. VGTW eliminated the need to backtrack and fix operator errors, thus reducing manual processes in the company's server operation.

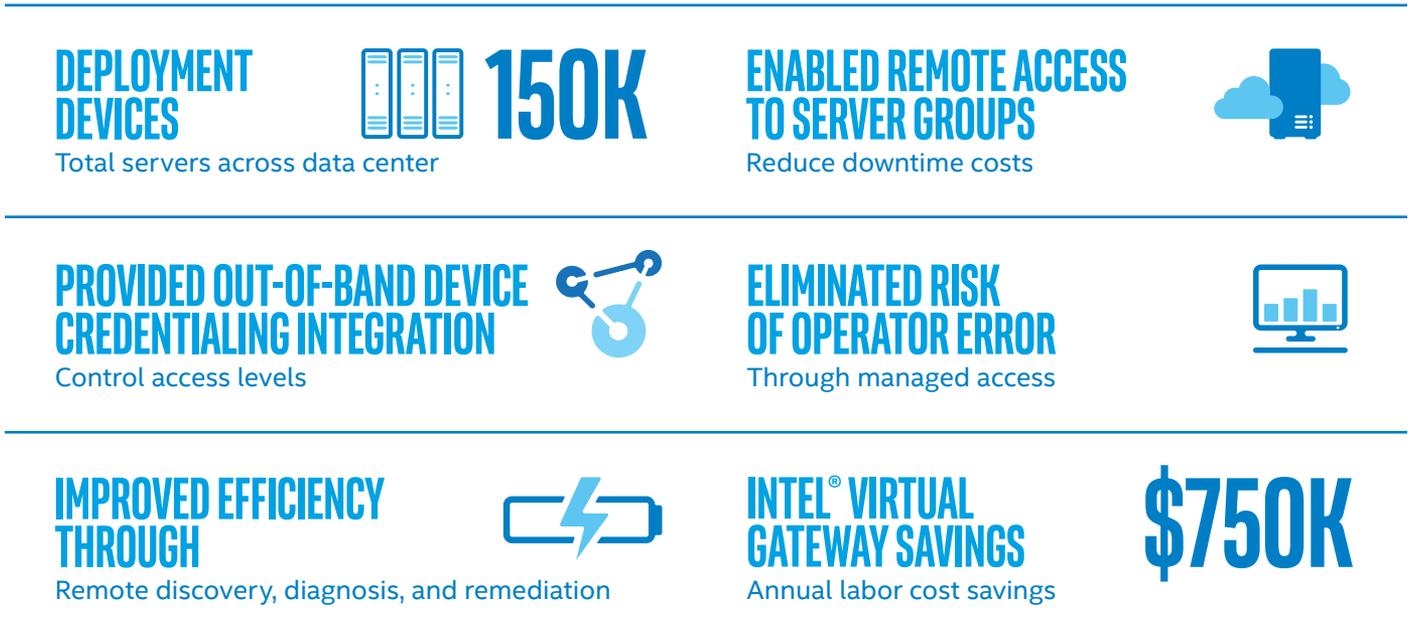


Figure 2. Key Benefits of Intel® Virtual Gateway SDK

Intel® Virtual Gateway SDK Deployment Results

Using Intel® Virtual Gateway SDK, JD.com integrated access between their office and production networks making it easier for IT staff to work remotely from their computers. The solution provided comprehensive real-time status awareness across their 150,000 heterogeneous server environment. This granular insight into the health of their servers helped operators discover failed or failing devices, power them off/on as required, and diagnose fixes to reduce costly downtime without the need for manual intervention. Intel® Virtual Gateway's remote access capability eliminated the need for costly KVM hardware.

- The Intel® VGTW, a one-to-many solution, enabled operators to access and control up to 50 concurrent KVM servers sessions at one time. This firmware-based solution is embedded into servers and allows operators to remotely initialize, maintain and repair server issues, managing BIOS configurations, OS installations, and other system maintenance processes in their day-to-day operations.
- Intel® VGTW's support of in-band and out-of-band device management allowed IT administrators to integrate existing two-layer network credentials while controlling access levels to prevent operator error.
- Using Intel® VGTW, the staff was able to do remote remediation and schedule and automate tasks, eliminating manual monitoring processes. This increased efficiency reduced staff-hours by almost 30 percent while optimizing network efficiency.

Based on Intel® Virtual Gateway SDK deployment results, the anticipated annual savings of deploying the solution across the JD.com server network is \$750,000 USD.

Where to Get More Information

For more information on Intel® Virtual Gateway, visit intel.com/virtualgateway or contact dcmsales@intel.com

For information on what is the difference between an API and an SDK, visit <https://nordicapis.com/what-is-the-difference-between-an-api-and-an-sdk/>

About Intel® Virtual Gateway

Intel® Virtual Gateway is a cross-platform, virtual keyboard-video-mouse used for diagnosing, troubleshooting, and monitoring the health of data center hardware. A firmware-based capability embedded directly into the server, Intel® Virtual Gateway eliminates the need for complicated and expensive KVM infrastructure.



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