

# News Release

**FOR IMMEDIATE RELEASE**

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**Starting the "Automation Services for Cloud Infrastructure Operation":  
Reducing Workload for Operating Cloud Infrastructure**

Installation in the Hitachi Group resulted in a 53% reduction in operational costs for cloud infrastructure

**Tokyo, April 12, 2016** --- Hitachi Systems, Ltd. ("Hitachi Systems"), a wholly owned subsidiary of Hitachi, Ltd. (TSE: 6501), today announced that the start of an "Automation Services for Cloud Infrastructure Operation", which will reduce operational workload by automating operations such as virtual machine deployment and by visualizing the structure of each cloud environment.

This service provides automation functions that are not available on the traditional list-type management interfaces of the existing cloud infrastructure, allowing operations to be performed faster. It also helps to solve common operational issues: reducing the number of operations performed by each operator, eliminating dependency on individual skills, and reducing human error. Advance installation of this service in the Hitachi Group has reduced the operational costs for cloud infrastructure by about 53%.

In recent years, the use of cloud infrastructure has rapidly increased because it allows the startup of new business in a short period of time and the flexible expansion and contraction of systems. While the utilization of cloud infrastructure has improved the convenience of IT environments, it has also produced new kinds of operations that are unique to cloud infrastructure.

When creating a virtual machine in a private cloud environment, for example, in most cases the person in charge of operations follows work procedure guidelines to manually assign resources such as CPU, memory, and disks, install an operating system, configure initial settings, and setup middleware according to the application submitted by the user. This results in a significant workload to perform operational work and manage structure. In addition, since most cloud services use a

pay-as-you-go system, costs can be reduced when the service is not used, such as weekends. However, turning off the virtual machines manually will increase work procedures and operational errors.

Due to such situations, Hitachi Systems has released the "Automation Services for Cloud Infrastructure Operation" to reduce the workload on operators by automating the operations for cloud infrastructure, based on the know-how regarding the construction and operation of cloud infrastructure that we have accumulated over the years.

Specifically, Hitachi Systems provides four services: for private clouds built with VMware vSphere, "Operational Assessment" and "Automated Operation System for VMware vSphere", and for Amazon Web Services (AWS), "Automated Operation System for AWS" and "Automated Operation System (SaaS) for AWS".

Conventionally, about two weeks is required to issue a report that assesses what operational improvements are possible by introducing an automated operation system. However, "Operational Assessment" uses proprietary visualization software to issue such reports in as little as four days.

The three types of "Automated Operations Systems" will automate cloud infrastructure operations, such as creating virtual machines. Further, these services provide functions that will graphically display the structure of cloud infrastructure, which is normally managed manually, to be displayed graphically. This allows such information to be managed more efficiently. Using these services improves the speed of operations, reduces workload, eliminates dependency on individual skills, and prevents human error.

In the future, Hitachi Systems plans to apply these services to Microsoft Azure and other cloud infrastructure, further enhance functions, and promote sales for cloud service providers and information systems departments, with a goal of achieving 3 billion yen in total sales by the end of FY2018.

### Example of Cloud Infrastructure Operation

Operation	Conventional Work	Automation Services for Cloud Infrastructure Operation	Result
Virtual machine deployment	Manual work according to procedure guidelines	Automatic execution	<ul style="list-style-type: none"> <li>• Reduced operating cost (Max. 53% cost reduction after implementation in the Hitachi Group)</li> <li>• Improved quality</li> <li>• Eliminate dependency on individual skills</li> </ul>
Resource allocation			
Initial configuration of operating system			
Middleware configuration			
Power state operation			
Backup			
Structure management	Manual input into individual ledgers	Automated collection of information and output to ledgers	
Operation assessment	Observation by system engineer (two weeks or longer)	Automated generation of assessment report with software (as little as four days)	<ul style="list-style-type: none"> <li>• Assessment in a short period of time</li> <li>• Analysis of current operations</li> </ul>

### "Automation Services for Cloud Infrastructure Operation" Product Lineup

Service Name	Target Infrastructure	Overview of Service
Operational assessment	Private cloud (VMware vSphere)	Visualizes the current operation conditions of the client's cloud infrastructure, and issues an assessment report in as little as four days for making operational improvements by introducing an automated operation system.
Automated Operation System for VMware vSphere	Private cloud (VMware vSphere)	Provides a graphical representation of the structure for the client's cloud infrastructure to easily understand the overall infrastructure conditions. The structure that is displayed can be downloaded as a Microsoft Excel file. In addition, you can schedule daily operations and automatically execute them.
Automated Operation System for AWS	Cloud service (AWS)	
Automated Operation System (SaaS) for AWS	Cloud service (AWS)	

### Service Features

#### (1) Operational Assessment

This service utilizes software for the visualization of operations (patent pending). This visualization software was developed jointly with Hitachi, Ltd. A flow diagram of the operations performed by the operator is automatically generated from the system log in the cloud infrastructure, allowing current operational conditions to be visualized and current operations to be analyzed. For a general system assessment, observation for two weeks or longer by a system engineer is required. However, since this service

automatically generates an assessment report from the system log, assessment is possible in a short period of time (as little as four days) with no operational workload on the client. This allows validity verification for constructing an automated operation system to be completed in a short period of time at low cost.

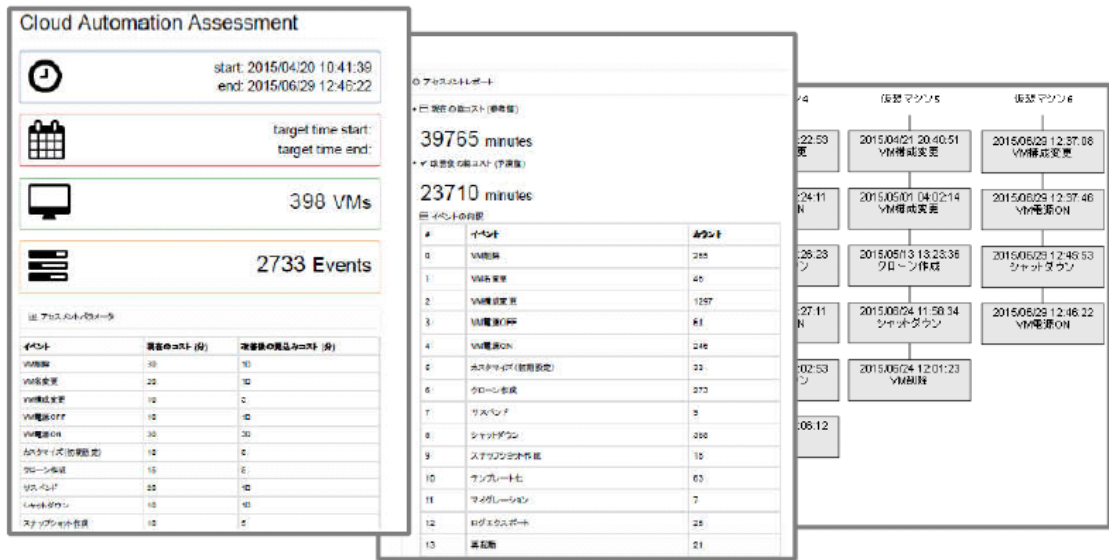
(2) Automated Operation System for VMware vSphere

This service allows operations such as creating virtual machines on a cloud infrastructure, configuring environmental settings, and acquiring snapshots, which are registered on a schedule and performed automatically. It also graphically represents the structure and resource information for virtual machines, etc. Historical management of the structure is possible, allowing the user to check past information when changes are made to the configuration. This service achieves faster operations and eliminates dependency on individual skills. Therefore, not only is the efficiency of operations improved, but operational errors are reduced and work quality is improved.

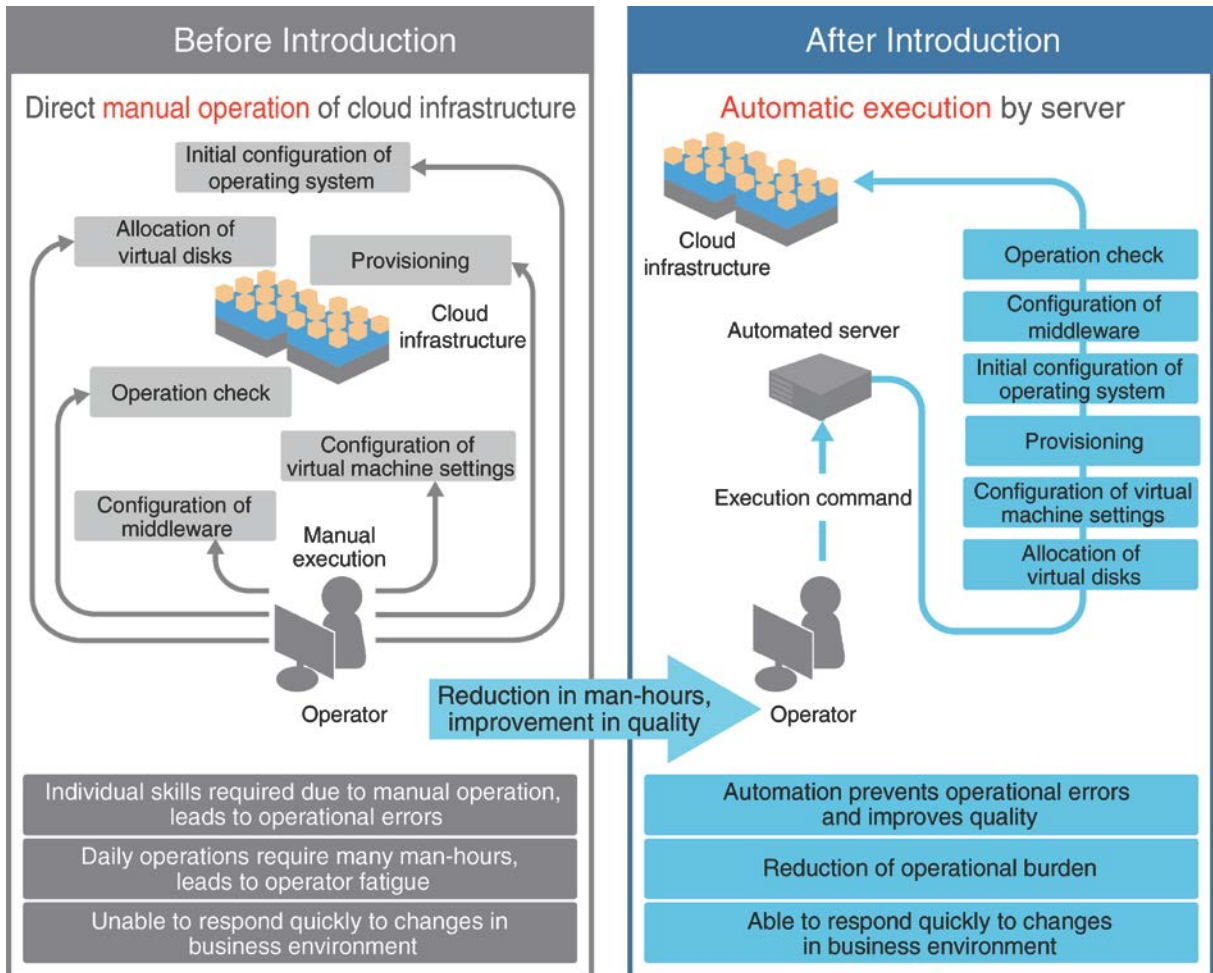
(3) "Automated Operation System for AWS" and "Automated Operation System (SaaS) for AWS"

These services automate daily operations such as the starting, stopping, and backing up of virtual machines on AWS by registering them on a schedule. In addition, the structure for virtual machines and load balancers can be displayed graphically (patent pending), which makes overall infrastructure conditions easy to understand. The structure that is displayed can be downloaded together with detailed property information as a Microsoft Excel file (patent pending) and utilized as configuration management documentation. These services achieve faster operations and eliminate dependency on individual skills. Therefore, not only is the efficiency of operations improved, but unnecessary changes can be avoided through the planned shutdown of virtual machines, which helps to reduce cost and prevent human error.

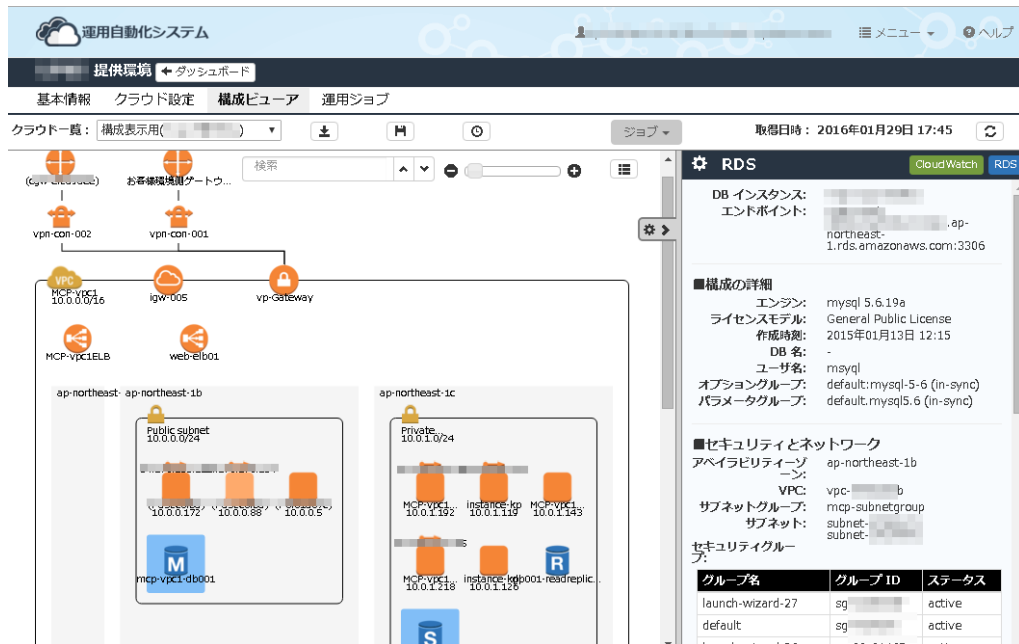
## "Operational Assessment" Report



## Introducing "Automated Operation System for VMware vSphere"



## Screen for "Automated Operation System for AWS" and "Automated Operation System (SaaS) for AWS"



### Price (excl. tax)

- "Automated Operation System for VMware vSphere" and "Automated Operation System for AWS": Quotation provided upon request
- "Operational Assessment": Starting from 598,000 yen
- "Automated Operation System (SaaS) for AWS": Starting from 32,000 yen/month as a cloud service

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**About Hitachi Systems, Ltd.**

Hitachi Systems, Ltd. is an IT services company with strengths in high-quality operations and maintenance services. Hitachi Systems works closely with customers through a network of roughly 300 service sites and contact centers across Japan, through which it offers a wide range of business system design and integration services, as well as outsourcing services that take advantage of its robust data center infrastructure. A leader since the dawn of the IT era in Japan, Hitachi Systems leverages its track record and expertise in IT services to offer one-stop services covering the entire IT life cycle – from system consulting to integration, installation, operation and maintenance. Hitachi Systems also pushes beyond the boundaries of IT to create new value for customers, with the aim of becoming a global service company to which customers can entrust any operation.

For details: <http://www.hitachi-systems.com/eng/>

**About Hitachi, Ltd.**

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, delivers innovations that answer society's challenges with our talented team and proven experience in global markets. The company's consolidated revenues for fiscal 2013 (ended March 31, 2014) totaled 9,616 billion yen (\$93.4 billion). Hitachi is focusing more than ever on the Social Innovation Business, which includes infrastructure systems, information & telecommunication systems, power systems, construction machinery, high functional materials & components, automotive systems, healthcare and others. For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

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