

Integrated operations management software which
enables offensive IT operation in the bimodal era

HinemoS

Collection & Accumulation

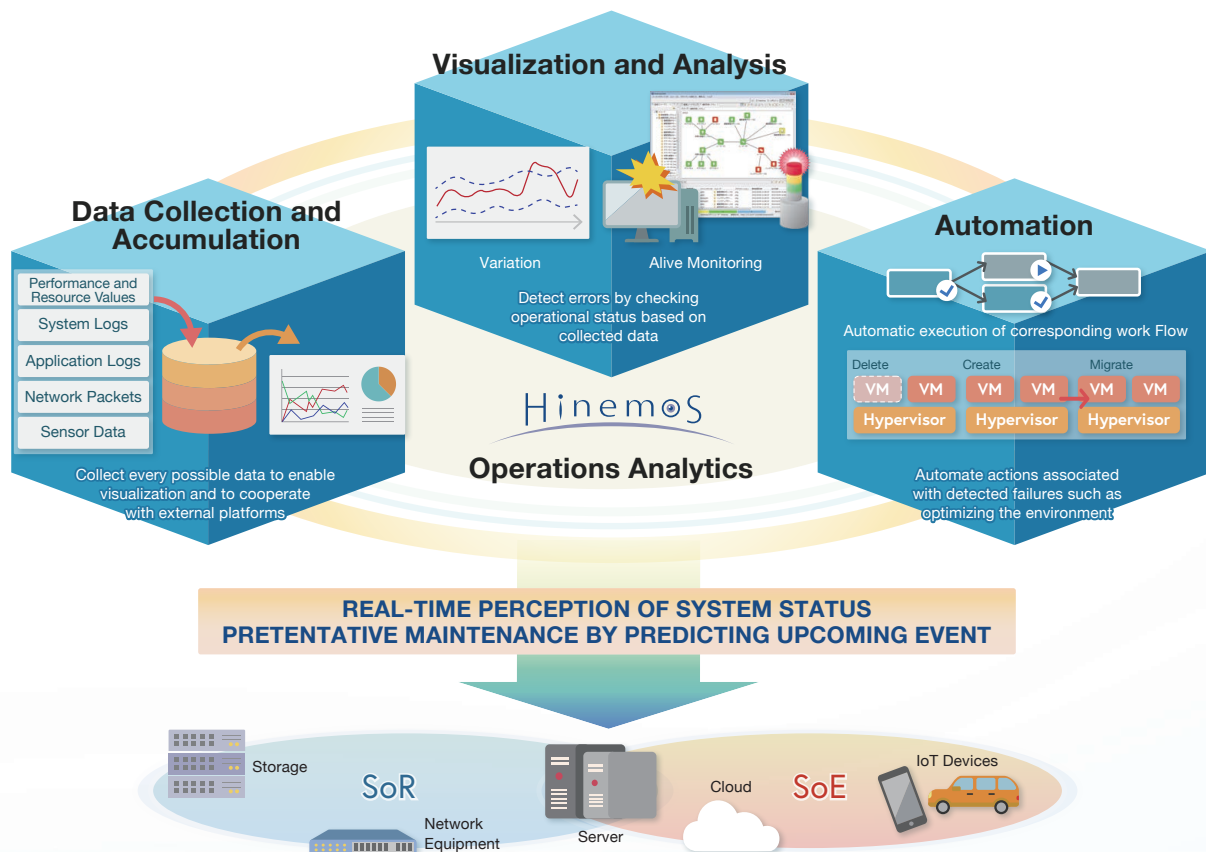
IoT
Big Data
Log Collection

Visualization & Analysis

Monitoring
AI & Machine Learning

Automation

Job Management
Environment Creation
Work Flow
Work Style Innovation



As expressed in the bimodal IT concept, two modes of IT - Systems of Record (SoR) which enable cost savings and stable operation through improved efficiency, and Systems of Engagement (SoE) which generate new values through new technologies such as IoT - have been advocated in recent years. These two need to be tied to each other. However, multiple software installation or sophisticated operations by engineers is required to integrate them under the conventional system. This costs a lot, and it has been pointed out as an issue recently. Also, systems that support SoE are required to realize not only "defensive operation" to simply ensure their maintenance and stability, but also "offensive operation" to ensure their maintenance and stability for more effective business development as well as to manage their operational costs associated with infrastructure and operation in an integrated manner.

Hinemos collects, accumulates, visualizes and analyzes various data to provide "Operations Analytics" which automatically and autonomously gives responses connected to the detected abnormalities. This enables "real-time system status monitoring" and "forward-looking preventive maintenance". Hinemos enables not only "defensive operation" that seeks systems' maintenance and stability, but also "offensive operation" that effectively pursues business development by managing operational costs associated with infrastructure and operation in an integrated manner.

Table of Contents

Basic Feature	Collection & Accumulation	Collects and accumulates all sorts of data for big data analysis.	3
	Monitoring & Performance	Checks system operation status and realizes visualization and tendency analysis.	4
	Automation	Automates operation processes, from environment configuration, business processing to operations by operators. . . .	5
	Common & Basic Feature	Enables integrated operations management by integrating Hinemos features.	7
Additional Feature	Enterprise	Visualizes enterprise systems and makes their operations more efficient	8
	VM & Cloud Management	An exclusive feature that maximizes benefits from virtualized/cloud environments	9
	Mission-Critical	A feature that makes systems redundant, including mission-critical systems	10
Operation Platform & How to Implement		Contact for more information	11

Features of Hinemos

All-in-one package

Hinemos is neither a mere monitoring tool nor a mere job management tool. It is an integrated operations management software that combines both characteristics of them.

There is no need to plan a complicated configuration by picking and combining separate products on a feature-by-feature basis when implementing Hinemos. All of its features become available on a single interface after it goes live.

This enables users to simply move forward from the planning phase to the operation phase.

Made-in-Japan software for global use

Hinemos was originally developed by NTT DATA, the largest IT system integrator in Japan, to meet the requirement of systems operation in Japanese IT systems.

Now, Hinemos is re-designed to meet not only the requirements in Japan, but also for system operation requirements overseas.

All graphical interface, documents, technical support is provided in both English and Japanese, for both Global and Domestic customers.

Easy-to-operate interface for everyone

Hinemos is designed not only for engineers, but also for system operators. It is designed to be used without requesting any high-level understandings of the product, nor additional development for implementation.

Not only the daily operation, but also the configuration changes of Hinemos' setting can be done easily from graphical interface of Hinemos Client.

Compatibility with virtualized/cloud environments

Many other products with a job management feature have been announced as being compatible with only some virtualized/cloud environments. Hinemos aims to support various virtualized/cloud environments as early as possible, as long as Hinemos-compatible OS runs in them.

Benefits of implementing Hinemos



Integration of system management

Automation of prediction & prevention

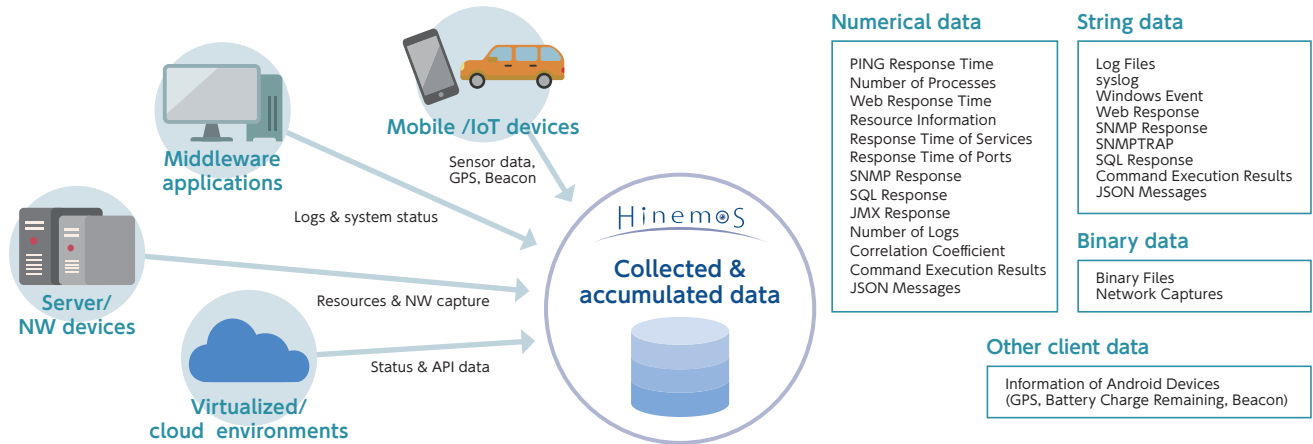
Reduction in operational costs

Hinemos Official Character: Monita



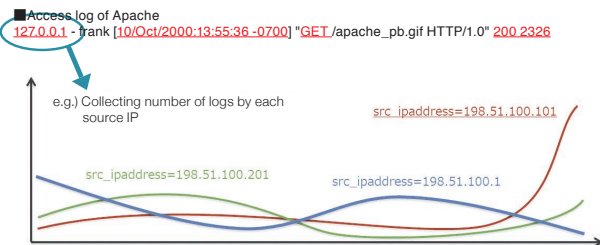
Collects and accumulates all sorts of data for big data analysis

Hinemos collects, accumulates and manages not only system infrastructure information, including server and NW performance data, but also various devices information, from middleware, applications to mobile and IoT devices. It collects NW capture and binary logs from Hinemos Agent, and also has a mechanism to receive data thrown into Hinemos from user applications. Hinemos collects, accumulates and uses such data, regardless of its type or form, to enable automated analysis and operation.



Log message extraction and aggregation based on tags

Middleware and application logs have their own unique format. It is difficult for operators to use the logs in consideration of their format after they are collected. On Hinemos, users are able to assign metadata to the meaning of a log message in the form of a "tag" by defining its format in advance.



Count of number of logs based on tag information

Log message interpretation and efficient search

In case of Java Stack trace or Oracle Database, multiple lines of a log form a message with a single meaning. On Hinemos, users are able to use such log data in units of "meaningful messages" when searching and monitoring by defining delimiting conditions in advance.

Java Stack Trace

```
java.lang.NumberFormatException: For input string: "1.1"
    at java.lang.NumberFormatException.forInputString(Unknown Source)
    at java.lang.Integer.parseInt(Unknown Source)
    at java.lang.Integer.parseInt(Unknown Source)
    at ExceptionPrintDemo.formatInt(ExceptionPrintDemo.java:7)
    at ExceptionPrintDemo.main(ExceptionPrintDemo.java:14)
```

Oracle Alert Log

```
Sat Feb 07 12:35:53 2015
create tablespace TEST_SPACE datafile size 5m autoextend on
Completed: create tablespace TEST_SPACE datafile size 5m autoextend on
Sat Feb 07 12:38:40 2015
alter database datafile
'/u01/app/oracle/oradata/CDB122/O/datafile/01_mf_test_spa_bfc20s53_dbf'
resize 8m
```

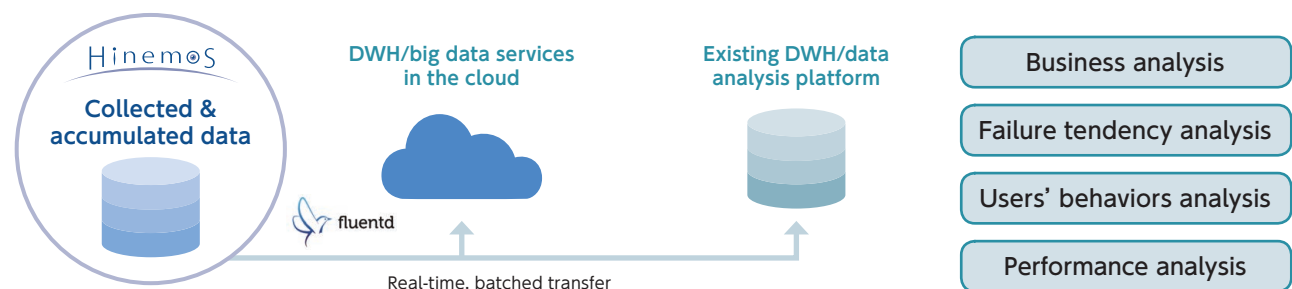
Linux System Log

```
Jun 29 17:38:11 Tiger shutdown[30243]: shutting down for system halt
```

Log data identified in units of meaningful messages

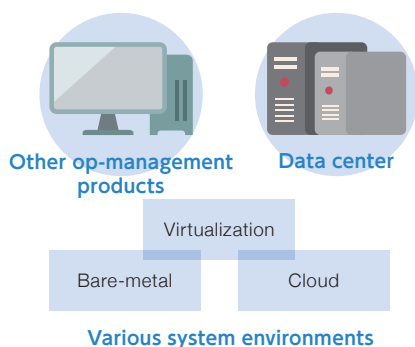
Integration with data analysis platform

The collected and accumulated data can be transferred to and integrated with external DWH/big data services or data analysis platforms, with simple setting on a GUI. There is no need to implement other agents, since Hinemos consolidates various data on the system. Users are able to do new analysis, such as business analysis and users' behaviors analysis, from perspectives different from the past, by combining infrastructure data collected and accumulated by Hinemos. Also, it becomes easier to implement log collecting platform with small start, by combining Hinemos and cloud based DWH/Big Data service, which was previously difficult in bare metal environment because of sizing and/or product selection issue.



Centralized & consolidated management of entire system

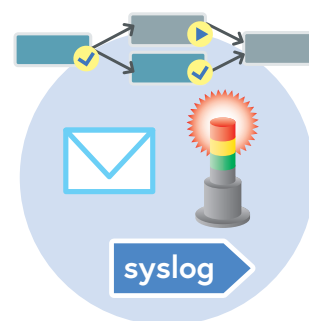
Hinemos enables centralized and consolidated management of the entire system, from the overall update status of the system developed in a bare-metal Windows/Linux/UNIX environment, a NW device, or a virtualized/cloud environment to the chronological data of the events happening on the system. It also enables consolidation and integration with data from other operations management products.



- Threshold-based determination
- OK-or-not-OK determination
- Pattern matching
- Combination-based determination

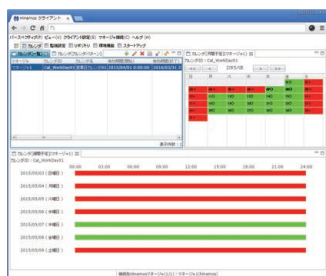
Various actions linked to monitoring results

Hinemos lights up a warning lamp, starts a JobNet, distributes emails and messages based on the results of monitoring activities, including threshold-based determination and pattern matching of the collected data. It also has a notification control feature which restricts unnecessary notifications.



Integration with sophisticated business calendar

Calendar features have been basically evolving along with job management products, and their operation requires detailed conditions setting. On Hinemos, sophisticated calendar setting, which is not available on any other monitoring products, can be used with a monitoring feature, precisely because Hinemos shares its calendar feature with a job management feature. This enables control of different workloads between daytime and night time.



- Setting of regular patterns, such as month/week/day/day of week
- Setting of irregular patterns, such as holidays
- 48-hour schedule calendar
- Setting of specific days of week
- Setting of the beginning and the end of the month
- Substitute operation days

Easy setting with no need for refinement

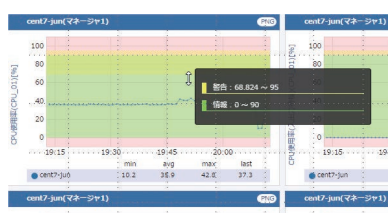
Hinemos' monitoring feature can easily be prepared by entering necessary items on a GUI. Since refinement is not required, not only system engineers but also operators can easily handle it. Hinemos provides 22 different monitoring features, most of which run on an agentless basis. It also responds to detailed needs, such as those for customized monitoring and determination of failure based on multiple monitoring results.

- PING Monitor
- Process Monitor
- Resource Monitor
- Service Port Monitor
- Windows Service Monitor
- Windows Event Monitor
- Hinemos Agent Monitor
- HTTP Monitor
- HTTP Scenario Monitor
- SNMP Monitor
- SNMPTRAP Monitor
- SQL Monitor
- JMX Monitor
- Logfile Monitor
- System Log Monitor
- Log Count Monitor
- Correlation Coefficient Monitor
- Compound Collectors Monitor
- Binary File Monitor
- Packet Capture Monitor
- Custom Monitor
- Custom Trap Monitor

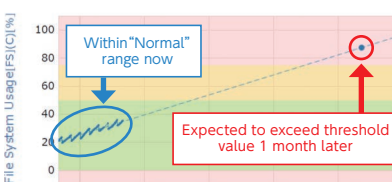
Data visualization & feedback

Hinemos displays graphs for users to analyze data, such as CPU utilization and web response time, from various perspectives. Users are able to check the current setting by using the graphs colored according to the thresholds, and easily change the thresholds by drag and drop action.

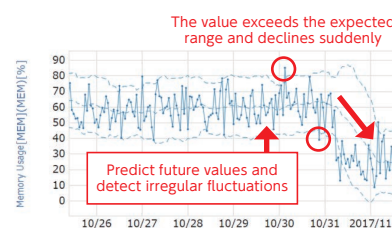
- 【Graph types】
- Area chart
 - Line graph
 - Scatter plot & correlation coefficient
 - Time indicator
 - Pie Chart



Color-coded display according to thresholds



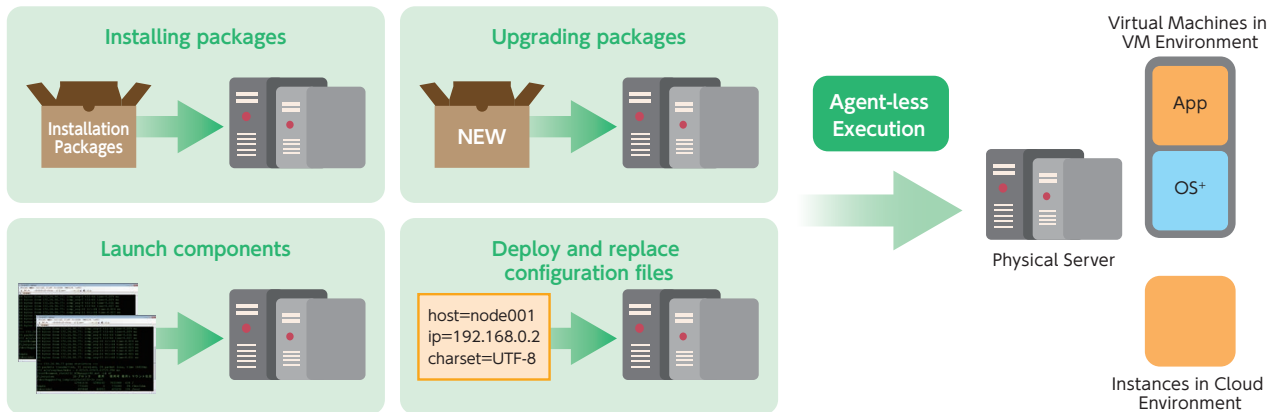
Display of future prediction



Display of variations

Automated configuration (environment configuration)

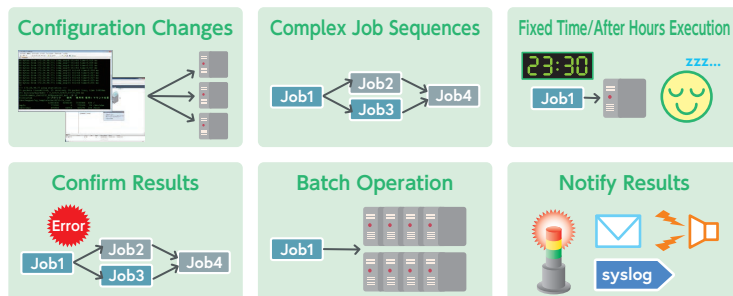
Hinemos makes a series of operations required to create an environment on an OS, from file distribution, command execution, difference check and data replacement, a routine on an agentless basis. All the steps can be performed on a GUI. Writing complicated scripts or lines of source code is not necessary.



Automated operation (job management)

Centralized management of JobNet across servers

Hinemos manages scheduled execution of a complicated JobNet, which is required as part of system operation. Centralizing management of the processing flows (JobNet) across servers makes it unnecessary to log onto and configure each server and distribute files to it. Users are able to operate the system in accordance with unified rules to ensure not only efficient operation but also operational security.



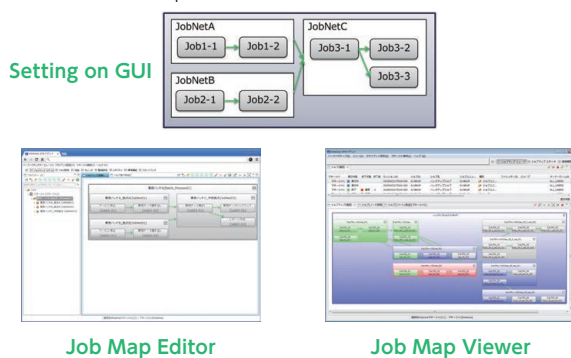
Overview of JobNet management

Job History[Job Details](Manager1) 33					
Session ID : 20180810200000-000					
Run	Status	End Sta...	End V...	Job ID	Job Name
End	Nor...	0	0	JOB1	Backup
End	Nor...	0	0	JOB1-1	pre-processing
End	Nor...	0	0	JOB1-2	start AP
End	Nor...	0	0	JOB1-3	start DB
End	Nor...	0	0	JOB2-1	write data to table
End	Nor...	0	0	JOB2-2	check data size
End	Nor...	0	0	JOB2-3	write data
End	Nor...	0	0	JOB3-1	post-processing
End	Nor...	0	0	JOB3-2	stop AP
End	Nor...	0	0	JOB3-3	stop DB

Job net execution history

Job net management on GUI

The JobNet is shown in layers. Users are able to define its configuration as it is expressed in the image on Job Map Editor. Also, a job execution status is displayed in a visually intuitive manner on Job Map Viewer.

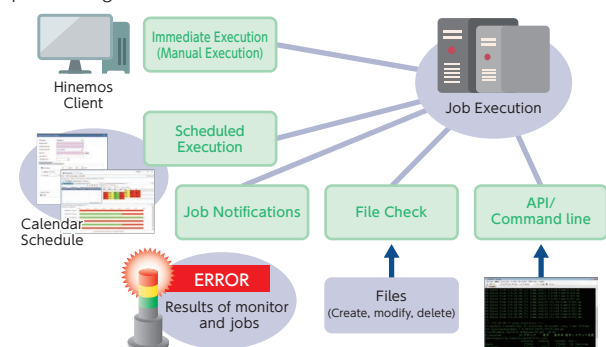


Job Map Editor

Job Map Viewer

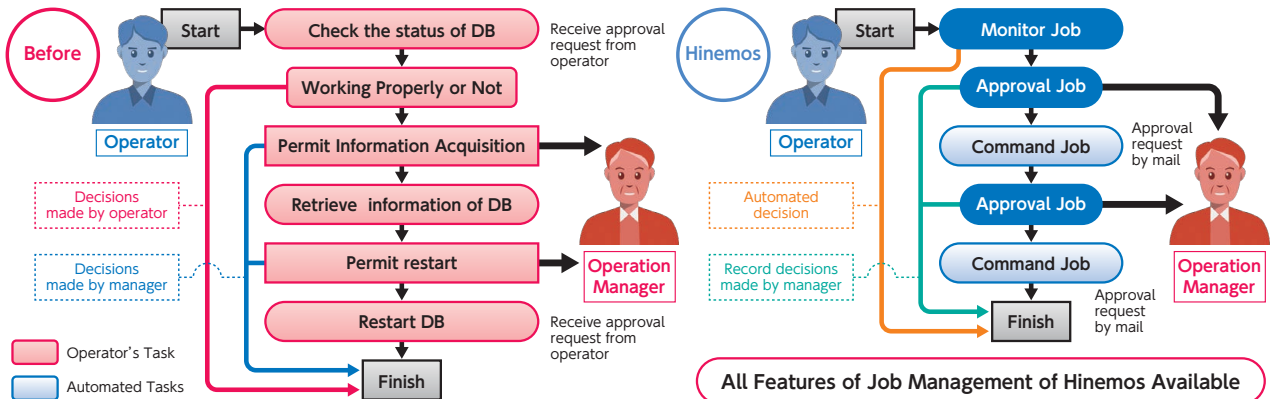
Starting processing at given point in time

The processing of the JobNet can be started at various points in time, including when working with the monitoring or file check features or performing API/CLI start, as well as performing regular processing start such as manual start and scheduled start.



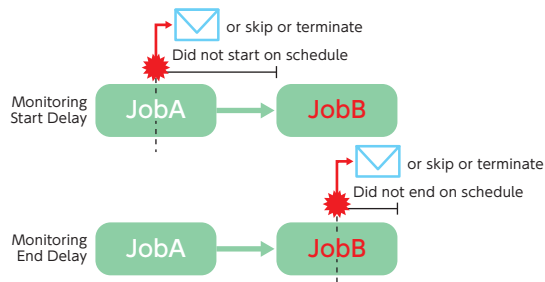
Automated operations (Runbook Automation)

Hinemos automates routine operations manually handled by operators in accordance with a runbook, operations required when an event occurs, and a series of operation processes from obtaining approvals to operating servers. A template for necessary processes, including gaining approvals, is available on the same interface as the one for job management. Hinemos also manages the history of execution results, enabling users to obtain the trail at the same time. This enables huge reduction in operational costs.



Monitoring of delay in start/completion

Hinemos monitors the JobNet, and notifies users if it detects abnormal processing, such as processing that does not start/complete by a specified point in time. In addition to notification, other actions such as skip and stop can be defined. Hinemos also detects tendencies such as "behind the normal schedule" in the light of the execution time predicted based on the execution status in the past.



Various features migratable from other products

Job management has been evolving in a way unique to the Japanese culture. Japanese-made job management products allow users to configure a number of unique, detailed settings. Hinemos offers various features to which users can migrate from other products.

Waiting for another session to complete	48-hour-based calendar
Repeated/retried execution	Control of number of simultaneously executed jobs
Change of operation time	Definition editing on Excel
Designation of OS environment variables	Designation of input items at startup
Script distribution	Priority level-based execution control

Visualization of execution schedule

A list of scheduled execution of jobs is available. With it, users are able to check the scheduled processing of the day in the morning and its normality at night as part of their daily operation.

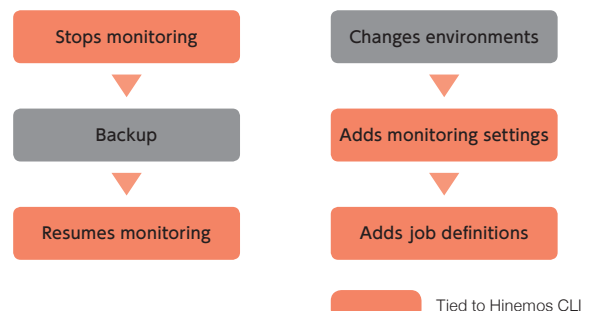
Manager	Time	Jobkick ID	Jobkick Name	JobUnit ID	Job ID	Job Name
Manager1	2018/08/10 21:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/10 22:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/10 23:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 00:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 01:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 02:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 03:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 04:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 05:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 06:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 07:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup
Manager1	2018/08/11 08:00:00	Schedule01	Daily Backup Operation	JOB1	JOB1	Backup

Scheduled job execution

Working with CLI to automate setting control

On Hinemos, all the GUI operations can also be performed via API/CLI. Hinemos automates operations, including adding or changing settings, by working with Job Feature.

Example of automated control of Hinemos settings

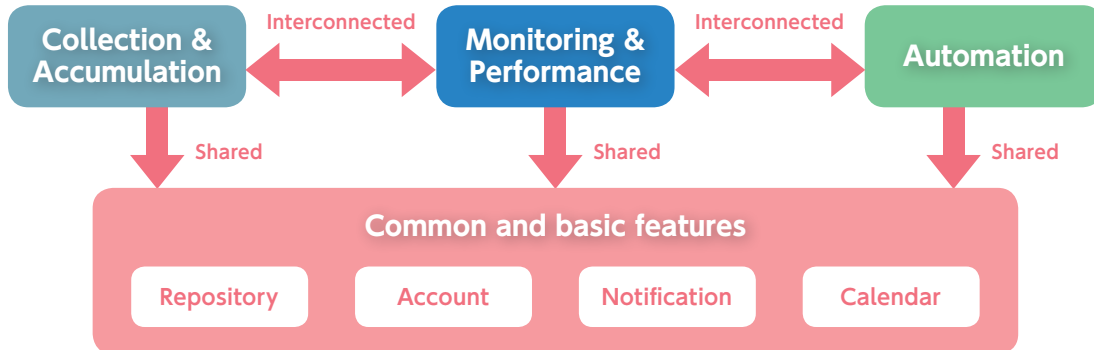


Common & Basic Common & Basic Feature

Basic Feature

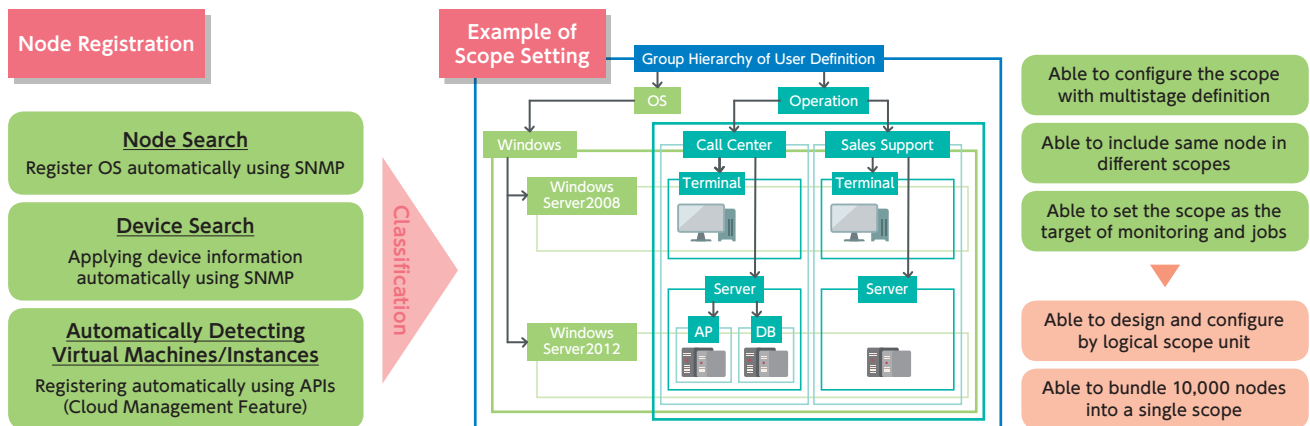
Enables integrated operations management by integrating Hinemos features.

Common & Basic Feature is a core, basic feature of Hinemos that combines the Repository and account features with the previously-mentioned calendar and notification features. Hinemos interconnects the Collection & Accumulation, Monitoring & Performance, and Automation Features and consolidate their settings by having the basic feature settings shared between the Features.



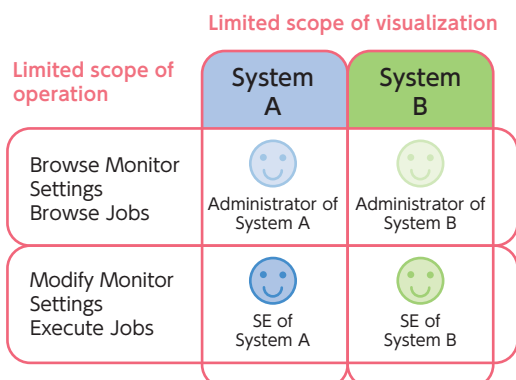
Repository feature

It is a core feature of Hinemos which holds information on the managed system. It consists of "nodes" which represent individual managed devices, and "scopes" which represent groups of nodes created according to various classification criteria. Nodes can be easily registered by use of Search feature. The monitoring and job settings can be consolidated by using the scopes. This enables efficient system design.



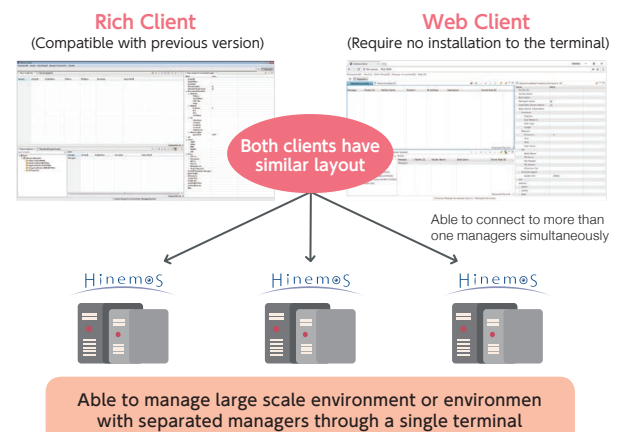
Account feature

It enables Hinemos users to designate their roles. The scope of operation can be specified for each role as system authority. Also, the scope of setting visualization can be limited by using the ownership and object authority. This enables easy management of multiple tenants with a single Hinemos Manager.



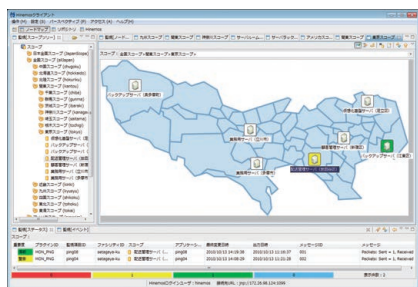
Handling multiple managers on client

Two types of Hinemos client – a rich client and a web client – are available to perform Hinemos setting and execution. They have almost the same screen configuration. Users are able to easily manage even a large-scale environment on a single screen, since they can access multiple managers at a time.



Node map feature

Hinemos displays the status of managed machines on a two-dimensional map by using the Node map editor feature, which enables users to register nodes and scopes by simple mouse operation, as well as the viewer feature, which displays the status of nodes and scopes by color in accordance with the detected event.



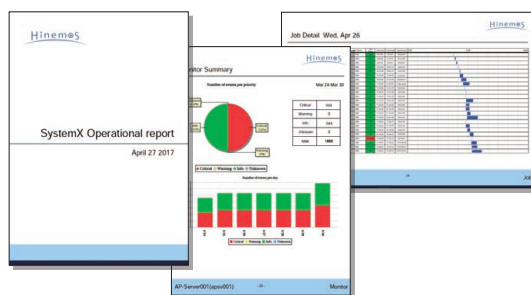
Add background image

Add icon image

Screen transitions by drilling down

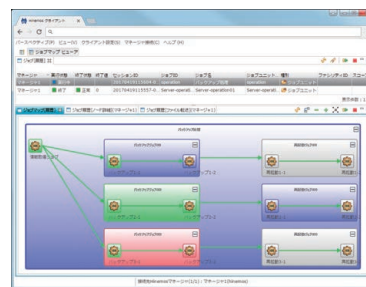
Reporting feature

Hinemos automatically creates operation status reports based on the detected events, performance data and job execution history, and then distributes them via email. Users are able to use an extensive set of templates available on Hinemos right after installing it. Report templates designed specifically for virtualized/cloud environments are also available.



Job map feature

Hinemos visualizes job flows by using the Job map editor feature, which enables users to create a JobNet by simple mouse operation, as well as the viewer feature, which helps intuitively understand the status of the JobNet being executed.



Compatible with HULFT job

Expand/Fold JobNets

Auto-Alignment of JobNets

Excel import/export feature

Users are able to manage Hinemos settings on Microsoft Excel by importing/exporting them from/to Excel. They are also able to register the settings while checking the changes made with the difference check feature when importing, and register SNMP TRAP MIB data.

Utility Tools

Utility tools are available which make Hinemos more useful.

Cooperation with incident-management tools

We support ITIL implementation such as automatically issuing incident tickets for events identified on Hinemos to an incident management tool, associating the events to the knowledge base, etc.

[Supported incident management tools]

- Service Now Jakarta^(*)
- Redmine 3.4.x
- Jira Service Desk 3.x

(*) Requires paid plug-in. Please contact for more details.

Upgrading tool

It is a feature which converts the earlier version of setting data into a new version.

Command line tool

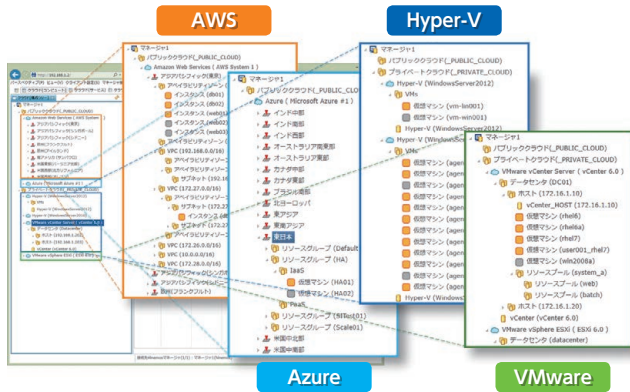
This tool supports operators by allowing them to perform all the operations of Hinemos on a CLI. This enables operators to carry out operations automatically using script codes instead of by hand. It runs on both Linux and Windows environment and requires Python Runtime Environment.

Collection of maintenance scripts

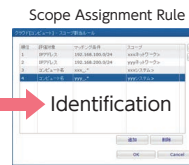
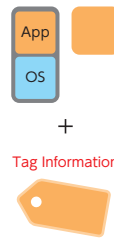
It supports fine-tuned operations, exporting internal database history to CSV files directly.

Seamless, integrated management of hybrid cloud environments

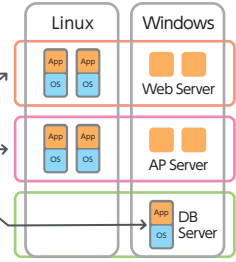
Hinemos enables seamless, integrated operations management of not only conventional physical environments but also hybrid cloud environments which combine cloud services such as AWS and Azure with virtual environments using VMware or Hyper-V. Hinemos not only supports system behaviors in those environments, but also automatically detects configurations simply by registering the account information of the environments. In addition, it performs automatic assignment based on tags. This enables users to continue operations without changing the monitoring and job execution settings when changing environments.



Automatically Detect
Virtual Machines / Instances



Assign to Scopes
Automatically



Automatic detection and assignment

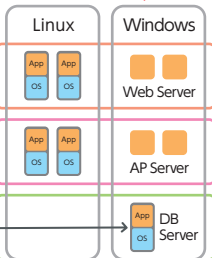
Platform monitoring

Unlike on-premises environments, in the event of system failure, finding out whether it is in the virtualization layer or the cloud layer is necessary. Hinemos obtains data through a hypervisor API or a cloud health dashboard to visualize the whole system status in a centralized manner. It also monitors cloud API operation logs.

Automatically Detect
Virtual Machines / Instances



Assign to Scopes
Automatically



Dedicated resource monitoring

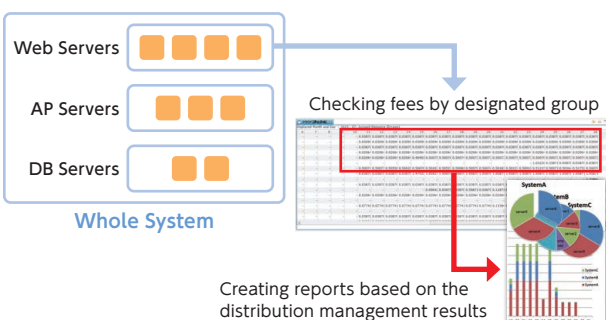
In virtualized environments, monitoring data which cannot be obtained from OS is required. Also, in cloud environments where the monitoring service cannot obtain data in OS, a mechanism to monitor such data is necessary. With Hinemos, users are able to collect and monitor all the data obtained via APIs, services or OS by simply selecting them on a GUI.

Example of resource values Hinemos can monitor

Resource Value of VM Environment		Resource Value of Cloud Environment	
Via OS	Memory Usage[%] -cache usage etc. Disk Usage[%]	Via OS	CPU Usage[%] -user/sys/iowait etc. Memory Usage[%] -cache usage etc. Disk Usage[%]
Via API	(Correct)CPU Usage[%] Balloon Usage[Mbyte] Data Store Usage[%]	Via Monitoring service	Resource info of PaaS -AWS ELB/RDS etc
Easy setting with GUI to configure VM/Cloud Monitoring		Able to store collected data for long time span regardless of VM/Cloud environment	

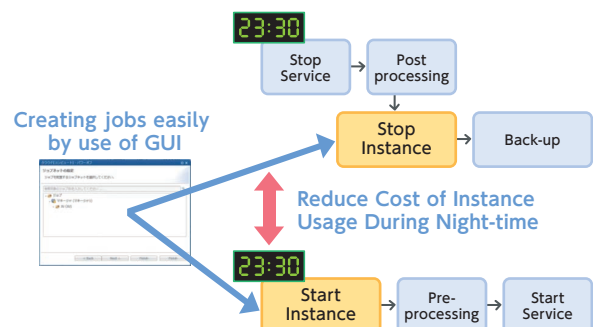
Billing management

Cloud services are paid for on a pay-as-you-go basis. Checking the costs for the services on an account-by-account or a service-by-service basis is not enough to understand services utilization. Hinemos enables users to easily check charged fees to date and day-by-day increase in the fees, within the dedicated scope, by combining the configuration repository and tag data.



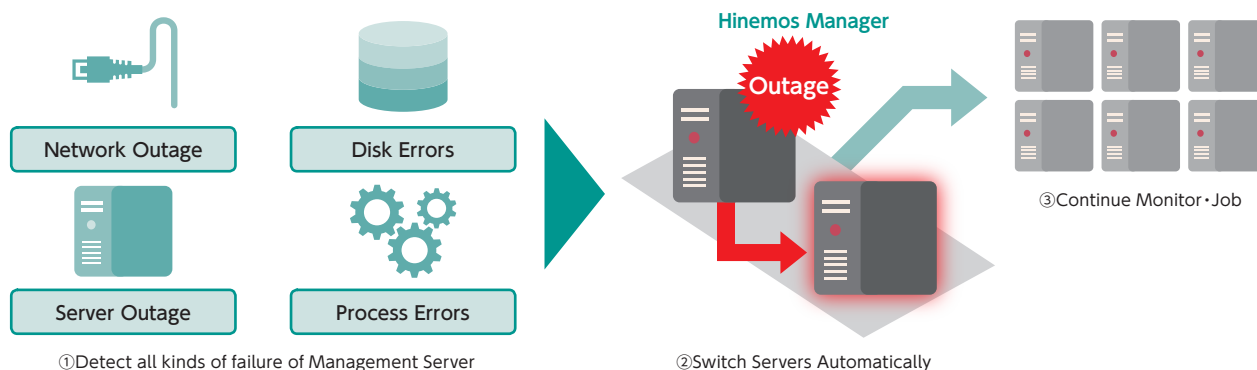
Resource control

Tying schedule control to business processing is required when you need to reduce cloud service costs by stopping instances during night time. Hinemos enables users to easily create start and stop jobs with GUI operation and perform resource control tied to job management.



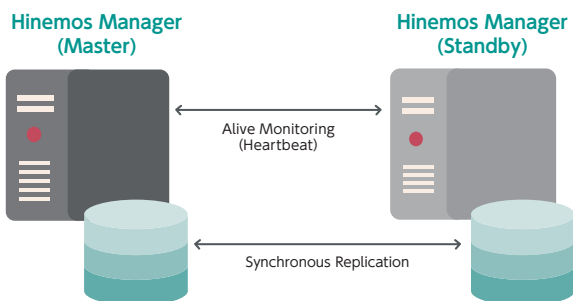
Redundant monitoring and job controller

Hinemos assists users in operating a mission-critical system which is required to operate on a non-stop 24-7 basis. It enhances reliability of operations by making Hinemos Manager redundant. It detects various abnormalities happening on the operations management server, such as HW failure, and automatically switches from Hinemos Manager on the active server to the one on the standby server. This enables users to continue monitoring and job control on target systems without interruption.



Clustering software or shared disk not required

What is required to make Hinemos redundant is just two OSES with which Hinemos Manager can operate. Whether you are using a physical server or a virtual OS, or what type of instance is in the cloud do not matter. Since Hinemos itself performs a heartbeat check and synchronizes internal database by performing synchronous replication^(*), additional software or hardware is not required. This simplifies the design and implementation processes, making the support service structure simple as well. Any failure happening on the system can be handled as the one covered by the support of Hinemos itself.



Additional Fee for Clustering Software not Required

Additional Fee for Shared Disk not Required

Reduce Cost of SE・CE for Design/Configuration

One-Stop Support Available During Outages

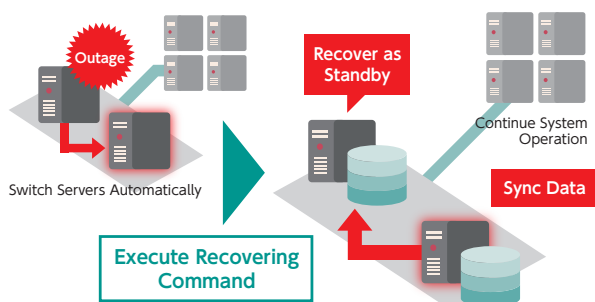
Infrastructure Requirement = Prepare 2 Simple Machines

Redundancy Available for On-premises/Virtual-Cloud Environment

(*) On Mission-Critical Feature for Windows Hinemos manager, a shared disk can be used for DB synchronization. In that case, a shared disk (NAS or iSCSI) is required.

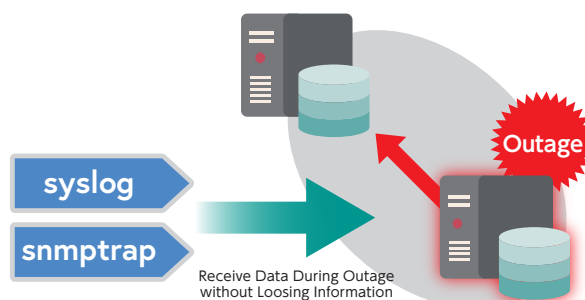
Online disaster recovery

When a server switchover happens, Hinemos starts one-server system operation. Running the recovery command, after the cause of failure is removed, sets off online data synchronization, allowing the failed server to be put back into the system as a standby server. This enables users to handle the whole disaster recovery process, from failure detection to recovery, without impact on the system or interruption of operations.



Continued monitoring without lost log data

A system with a redundant configuration that uses an ordinary clustering software may lose a syslog or an SNMP TRAP sent from target devices during a server switchover. Hinemos deploys an architecture where it never loses a syslog or an SNMP TRAP even during a server switchover.



Supported Operating System and Browsers ^{(*)1}

Manager		Red Hat Enterprise Linux / CentOS 6, 7 Windows Server 2012R2, 2016 ^{(*)2}
Agents	Linux ^{(*)3}	Red Hat Enterprise Linux / Oracle Linux / CentOS 5, 6, 7 Amazon Linux Ubuntu 16.04LTS SUSE Linux Enterprise Server 11, 12
	Windows	Windows 7, 8, 8.1, 10 Windows Server 2008, 2008R2, 2012, 2012R2, 2016
	UNIX	Solaris 10, 11 (SPARC, x86) HP-UX 11i v3 AIX 7.1, 7.2
	Android	Android 4.1, 5.0, 5.1, 6.0
Rich Client		Windows 7, 8, 8.1, 10 Windows Server 2008R2, 2012, 2012R2, 2016
Supported Browsers For Web Client		Latest version of Microsoft Internet Explorer, Mozilla Firefox, Google Chrome

(*)1 On Hinemos ver.6.1. For more details, please visit Hinemos Portal<<http://www.hinemos.info/en>>.

(*)2 Requires to prepare database used by Hinemos (SQL Server 2016 Express Edition or greater).

Also, Windows Server 2016 Datacenter edition is required to use Mission Critical Feature in Windows environment with Storage Replica.

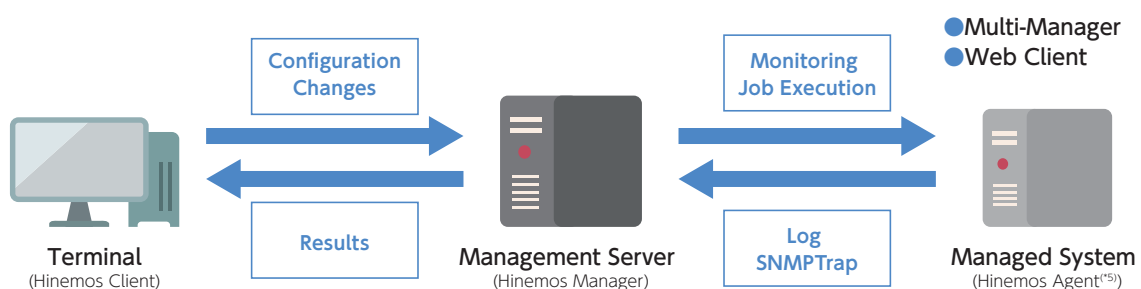
(*)3 Hinemos also supports Linux environment on Linux on Power, z Systems, LinuxONE, Oracle Exadata Database Machine, SAP/SAP HANA.
Please contact us for more details.

Supported cloud environments ^{(*)4}

VM Environment	Cloud Environment
VMware vSphere vCenter/ESXi Hyper-V KVM	Amazon Web Services / Microsoft Azure / Google Cloud Platform IBM Cloud / IJ GIO / NIFCLOUD / Enterprise Cloud 2.0 Cloudn / Managed Cloud Platform / Oracle Cloud

(*)4 Hinemos will support new VM/Cloud environment continuously. For any other VM/Cloud environment which is not listed above, contact us for detail.

Implementation Image



(*)5 Hinemos agent may or may not be required, depending on Hinemos feature. Please contact us for more details.

Please use the inquiry form on the portal site if you have any questions regarding the implementation of Hinemos or its support.

Hinemos Alliance

Portal Site: <http://www.hinemos.info/en/>

GitHub Hinemos Project: <https://github.com/hinemos/hinemos>

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August 2018