

【CLAIMS】

[Claim 1]

A cloud platform system comprising:

5 a cloud integration unit which automatically configures an infrastructure of a multi/hybrid cloud to provide the configured infrastructure to an application and synchronize configuration information for management;

a service management unit which serves to assign and manage a cloud account and a user network resource to a logical group of managing an application cluster;

10 an application orchestration unit which deploys the application based on a container image, automatically provides an infrastructure of the cloud when the application is deployed, replicates the application, wherein the replicated application is serviced through load balancing, performs an update job such as deployment and infrastructure change without stopping the application service, performs a rolling
15 update configuring automation when there are dependencies between multiple applications, in/out scaling of an instance through the monitoring of the application and up/down scaling of a resource capacity in the case of the application infrastructure, and configures scaling automation through monitoring information; and

20 a development/operation unit (DevOps View) for service status, cluster map, monitoring, resource management, metering, job management, and enterprise status management/analysis functions, wherein the service status function of the development/operation unit provides a view that may determine a status of a cluster of all applications of the cloud based on the service, wherein items of a service
25 status, a cluster status, and a monitoring alarm are displayed on the view.

[Claim 2]

The cloud platform system of claim 1, wherein the cloud integration unit performs a cloud provisioning function of configuring and providing a network infrastructure of the cloud to a cluster of the application and configuring and
30 providing a computing infrastructure of the cloud to the application, and provides a cluster configuration tool in the case of a physical infrastructure (Bare Metal).

[Claim 3]

The cloud platform system of claim 1, wherein the cloud integration unit stores and manages configuration information of the infrastructure of the cloud in an integral configuration DB and synchronizes infrastructure change information with
5 the integral configuration DB when operating.

[Claim 4]

The cloud platform system of claim 1, wherein the service management unit performs an integrated account management (Cloud Provider) function of integrally managing a multi-cloud account and access information and being used for a
10 network and a cloud providing configuration.

[Claim 5]

The cloud platform system of claim 1, wherein the service management unit performs a user management function of managing team members managing the service and authority required for development/operation, wherein the authority
15 includes enterprise service management authority (Admin), enterprise service inquiry authority (Manager), and service management authority (DevOps) assigned to members.

[Claim 6]

The cloud platform system of claim 1, wherein the application orchestration
20 unit replicates the application while maintaining a specified initial replication number and restarts when an error occurs through an application container health check.

[Claim 7]

The cloud platform system of claim 1, wherein the application orchestration
25 unit performs a monitoring function of monitoring an instance (container and infrastructure) of the application and generating and managing an alarm through a threshold setting.

[Claim 8]

The cloud platform system of claim 1, wherein in the service status, the entire
30 service status of the cocktail cloud is inquired and a cloud provider, a cluster, a server, a cloud component, current month using cost, etc. are determined by synthesizing a configuration status of the cluster in the service.

[Claim 9]

The cloud platform system of claim 1, wherein in the cluster status, a provider, a region, a server, a cloud component, and month using cost of the cluster are inquired in a card form and in the physical (Bare Metal) cluster, the using cost is excluded.

[Claim 10]

The cloud platform system of claim 1, wherein in the monitoring alarm item, when an alarm occurs in the application and the infrastructure of the cluster, the cluster status is checked in a cluster card.

[Claim 11]

The cloud platform system of claim 1, wherein the cluster map function of the development/operation unit provides a view by visualizing and inquiring/managing a configuration and status information of the application in a map form, wherein items such as a server of the cluster, a cloud component, and a server group are displayed on the view.

[Claim 12]

The cloud platform system of claim 11, wherein the server item of the cluster checks application status and replication and a resource usage in the server, manages scaling, rolling update, etc., and is divided into multi and single instance types according to a replication function.

[Claim 13]

The cloud platform system of claim 11, wherein the cloud component item manages PaaS services provided by a provider.

[Claim 14]

The cloud platform system of claim 11, wherein the server group item manages a logical group of a server configuration.

[Claim 15]

The cloud platform system of claim 1, wherein the monitoring function of the development/operation unit provides a monitoring view capable of checking a source capacity and a status of the application and the infrastructure in the cluster and checking a status of a cloud resource, wherein the monitoring view checks a usage of resources by providing a CPU, a memory, an average of a disk, and TOP information to correspond to an operation.

[Claim 16]

The cloud platform system of claim 15, wherein the monitoring view includes a view conversion (trend/data) item and a target conversion (server/resource),

5 in the view conversion item, a trend view provides monitoring information for each time for the server, the replicated instance, and the application container and the data view provides an average of the current time, and a TOP monitoring value, and

in the target conversion item, a monitoring target is divided into a server in the cluster and a resource of the cloud infrastructure.

10 [Claim 17]

The cloud platform system of claim 1, wherein the resource management function of the development/operation unit checks a resource of the cloud infrastructure configuring the application and provides a resource management view capable of adjusting detailed settings if necessary.

15 [Claim 18]

The cloud platform system of claim 17, wherein the resource management view includes a resource information/action item, the application of the resource information manages container configuration and deployment information, wherein the resource information of the cloud consists of a load balancer, an instance (VM),
20 and a security, the instance manages a capacity and a volume, and resource information required for adjustment is performed through an action item.

[Claim 19]

The cloud platform system of claim 1, wherein the metering function of the development/operation unit provides a metering view capable of checking cost
25 information of the infrastructure resource of the cloud used for the application, wherein the metering view includes a cluster infrastructure use cost item, a server, and a cost item for a resource.

[Claim 20]

The cloud platform system of claim 19, wherein in the cluster infrastructure
30 use cost item, a cost status of the cloud resource used by the cluster and the server, previous month and current month cost information, next month estimation cost, and a cost increase and decrease trend graph for each month are provided.

[Claim 21]

The cloud platform system of claim 19, wherein cost items for each server and each resource provides cloud resource cost used for each server based on TOP and provides cost used for each cloud resource type based on TOP.

5 [Claim 22]

The cloud platform system of claim 1, wherein the job management function of the development/operation unit provides a job management view capable of scheduling/automating an operation job, such as deployment, a remote command, and resource management.

10 [Claim 23]

The cloud platform system of claim 22, wherein the job management view includes a job status item and a job management item,

the job status item is divided into deployment, a remote command, and a resource management task and configured by combining respective tasks, wherein
15 the deployment refers to application deployment, the remote command means performing an OS command in remote, and the resource management means scaling, and a status/setting change, and

the job management item sets a performing method according to immediately performing, scheduling, and occurrence of an alarm, wherein the performance
20 according to the occurrence of the alarm is used in automatic scaling according to a reference value of the capacity monitoring, and in the job management item, an execution state and a log check of the job are provided.

[Claim 24]

The cloud platform system of claim 1, wherein the enterprise status
25 management/analysis function of the development/operation unit provides a dashboard which inquires a status of the application and the cloud infrastructure in the enterprise level and provides cost/budget management, cost optimization analysis, and statistics reports.

[Claim 25]

30 The cloud platform system of claim 24, wherein the dashboard includes an application status item, a cloud status item, a cost/budget management item, a cost optimization analysis item, and a statistics/report item,

the application status item enterprise-widely determines and inquires application and infrastructure statuses based on standardized elements of the server, the cluster, and the cloud component and provides a service-based status view,

5 the cloud status item determines a status of a cloud used for the enterprise for each provider, each region, and each resource and provides an infrastructure-based status,

the cost/budget management item and the cost optimization analysis items determine an enterprise cloud cost situation and provide information enabling efficient cloud resource cost by budget assignment/control and optimized analysis for
10 each service, and

the statistics/report item provides statistical information and a report view required for analysis and reporting.

[Claim 26]

The cloud platform system of claim 1, further comprising:
15 an image storage which manages registration, share, download, search, version of the application container, a monitoring DB which manages monitoring information of the application and the infrastructure, and an integral configuration DB which manages configuration information of a provider, a network, a service, a cluster, a server, a component, and a cloud resource.

20 [Claim 27]

A cloud platform system having an architecture comprising:

a cluster which is configured by a node and a master based on an orchestration, wherein the node is a structure of processing a command of the master by a worker and the worker is responsible for communication with the master and an
25 executor is supported by an execution command;

a provider plugin which is used as a basic module for integral management by a cloud provider API and an API rapper for supporting Kubernetes API for a multi-cloud and a bare metal and is configured by a plugin module for provider extension;

a server manager which is a control module of performing orchestration of an
30 application container and an infrastructure in the server, and provides a replication control to restart/recover a container abnormally terminated, scaling of performing scale in/out and up/down through an instance type and a volume extension, and a

rolling update function of performing non-disruptively an application container deployment sequentially;

5 a DevOps manager, as a manager module of DevOps, which provides a configuration manager for provisioning a multi-cloud infrastructure, a metering manager for managing a usage and cost of multi-cloud resources, a resource manager for managing a resource status and settings of the multi-cloud, a monitoring manager for collecting and managing container/infrastructure monitoring information, and a job manager for a task of deployment, a server action, and a remote command in which various job tasks are combined and integrally performed and immediate performance, a performance time, and event occurrence are performance conditions;

10 a DB/storage which is provided for managing configuration information of an application and an infrastructure, monitoring information, and an application container image;

15 an API server which provides all functions of the cloud to the API and supports customization according to a corporate strategy and integration with other solutions; and

a user console provided in a form of Web GUI.