[CLAIMS]

[Claim 1]

A distributed and associative container platform system, comprising:

a computer processor;

a cluster federation API server;

a high performance security container unit having a security enhancement container module, an ultra-light virtual machine module, a virtual isolation execution module, a performance enhancement container module, a direct resource allocation module, a virtual network configuration module, a hierarchical storage interworking module, and an integrated storage interworking module;

a distributed cluster federation unit classified into a multi-cluster federation unit and a container-based multi-cluster unit, wherein the multi-cluster federation unit comprises a cross cluster integrated resource · service template association module, a cross cluster integrated resource orchestration module, a single view-based integrated resource monitoring module, a cross cluster integrated resource · service mesh association module, a cross cluster service module, a policy-based load balancing/auto scaling module, a multi-cluster service distribution/integration/movement module, a cross cluster integrated resource · service · integrated authentication association module, and a cluster federation manager, and wherein the container-based multi-cluster unit comprises a multi-cluster resource abstraction module, a multi-cluster connecting structure module, an inter-cluster abstract resource service interworking module, a multi-cluster configuration/control module, a multi-cluster-based failover module, an inter-multi-cluster integrated storage application module, and a container orchestration and cluster management module;

a policy-based service mesh unit comprising a service mesh policy algorithm module, a cross cluster service template module, a service configuration lightweight agent module, a policy algorithm-based service mesh engine module, an inter-cluster service interworking control module, a multi-cluster service detection module, a service mesh engine advancement module, a cross cluster service integrated authentication module, and a cluster service single authentication module, the policy-based service mesh unit being suitable for distributed cluster federation; and

a distributed and associative service application · verification unit for providing cloud-based distributed and associative service application and verification utilizing the high performance security container unit, the distributed cluster federation unit, and the policy-based service mesh unit.

[Claim 2]

The distributed and associative container platform system of claim 1, wherein the security enhancement container module includes a container orchestration connection interface module, and a ultra-light VM/container isolation technology interworking interface module, the ultra-light virtual machine module includes a container high-speed execution module and a container-only lightweight virtual machine module, and the virtual isolation execution module includes a kernel-based container isolation module, and a namespace-based container isolation module.

[Claim 3]

The distributed and associative container platform system of claim 1, wherein the performance enhancement container module includes a container virtual hardware resource allocation tool module and a container virtual network configuration/operational management interface module, and the direct resource allocation module includes an

ultra-light VM support virtual hardware resource interworking module, and an ultra-light VM support virtual hardware resource management module, and the virtual network configuration module includes a container-based virtual network module, and a virtual network dynamic configuration tool module.

[Claim 4]

The distributed and associative container platform system of claim 1, wherein the performance enhancement container module includes a global caching function storage container allocation/operation/management module, and a heterogeneous storage container allocation/operation/management module, and the hierarchical storage interworking module includes a performance-based container storage deployment tool module, and a container-based global caching management module, and the integrated storage interworking module includes a heterogeneous storage-based container recovery tool module, and a heterogeneous storage connection interface module.

[Claim 5]

The distributed and associative container platform system of claim 1, wherein the cross cluster integrated resource · service template association module includes a service template/integrated resource interworking interface, an integrated resource single view management tool, and an integrated resource status information storage management tool, and the cross cluster integrated resource orchestration module includes a resources and service status collection/analysis module, a management resource metadata analysis/management module, a cross cluster integrated resource configuration tool module, and a cross cluster integrated resource static batch module, and the single view-based integrated resource monitoring module includes an infrastructure management resource status information collection/analysis module, and an application resource status

information collection/analysis module, the multi-cluster resource abstraction module includes a cluster resource pool management module, a cluster data collection/management tool module, and a cluster data analysis tool module, and the multi-cluster connecting structure module includes a cluster connection information management tool module, an inter-cluster connection/control interface module, and a multi-cluster connection interface module for providing a single view.

[Claim 6]

The distributed and associative container platform system of claim 1, wherein the cross cluster integrated resource · service mesh association module includes a service mesh association interworking interface module, a user/manager-based service mesh association module, and a service support service mesh interworking module, the cross cluster integrated resource orchestration module includes a real time resource status information collection/management module and a status information-based dynamic batch policy module, and the cross cluster service module includes a real time resource status information analysis/application module and a deployment application seamless automatic update module.

[Claim 7]

The distributed and associative container platform system of claim 1, wherein the policy-based load balancing/auto scaling module includes an inter-cross cluster dynamic batch executable module function module, and an infrastructure/application resource status change-based dynamic batch processing module, the inter-cluster abstract resource service interworking module includes an inter-cluster application static movement/management module, a multi-cluster authority integrated management module, and a cluster resource configuration change integrated management module, and

the multi-cluster configuration/control module includes an account-specific cluster usage authority management module and an account-specific cluster configuration management module.

[Claim 8]

The distributed and associative container platform system of claim 1, wherein the cross cluster integrated resource · service · integrated authentication association module includes a user/manager workspace service single authentication module, a service support single authentication association module, and a service single authentication association interface module, the cross cluster service module includes a batch support analysis engine connection interface module, an analysis engine-based policy demonstration model module, and a service-based information collection/surveillance range control module, the multi-cluster service distribution/integration/movement module includes a multi-cluster service distribution tool module, an inter-multi-cluster service movement module, and a multi-cluster service integration/management module, the multi-cluster-based failover module includes a cluster failure monitoring tool module, a security violation access monitoring module, a cluster failure alarm/ history management tool module, and a cluster change history management tool module, and the inter-multi-cluster integrated storage application module includes a container allocation storage inter-cluster sharing interface module and an inter-cluster image registry distribution management module.

[Claim 9]

The distributed and associative container platform system of claim 1, wherein the service mesh policy algorithm module includes an operation/deployment policy algorithm analysis module, and a service data collection/analysis metric definition

module, and the cross cluster service template module includes an operation/management policy-specific service template for service template providing/management module, and a cross cluster template deployment/operation interface module.

[Claim 10]

The distributed and associative container platform system of claim 1, wherein the policy algorithm-based service mesh engine module includes a policy algorithm-based environment definition configuration tool module, a user/system policy selection tool module, and a service mesh structure policy operation/deployment tool module, and the inter-cluster service interworking control module includes a multi-cluster service detection tool module, a multi-cluster service log collection tool module, a cluster service interworking interface module, and a multi-cluster service log analysis tool module.

[Claim 11]

The distributed and associative container platform system of claim 1, wherein the service mesh engine advancement module includes a service mesh policy algorithm additional analysis/application module, and a service mesh operation tool function addition module, and the cross cluster service integrated authentication module includes a subsystem-specific authentication management tool module, a user/manager group authority management tool module, a service integrated authentication data management tool module, and a user/manager group account management tool module.