ABLECLOUD

All about data & cloud

Optimal Solution for Server Virtualization and SDDC

# ABLESTACK® VM

## Product introduction

Patent Certificate

Systems and methods for provisioning HCI

Security function certificate

First virtualization management for a domestic company in the HCI sector

1st grade

GOOD Software

Obtained HCI GS certification for the first time in Korea

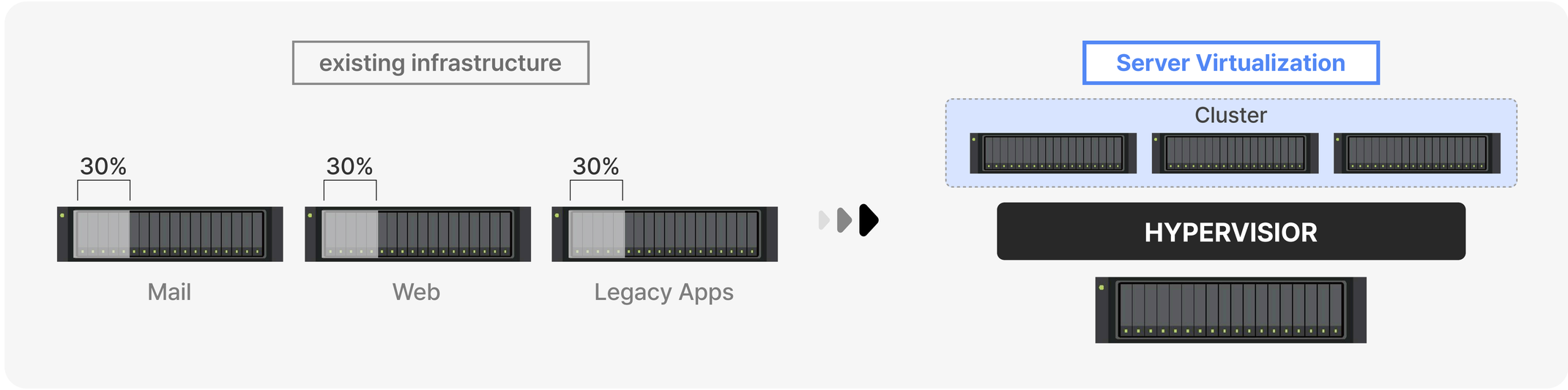
Certification Number 21-0536

# CONTENTS

Optimal Solution for Server Virtualization and SDDC

# * What is Server Virtualization?

Server virtualization is a technology that allows a single physical server to be divided into multiple virtual servers. It is a **core solution** for efficient IT resource management and cost reduction.




## Key Benefits of Server Virtualization

### Optimized Resource Utilization
Server virtualization enables efficient use of physical server resources by dividing them into multiple virtual servers. This maximizes the usage of CPU, memory, disk space, and other components.

### Cost Reduction
By increasing the utilization rate of physical servers and reducing the number of servers required, organizations can significantly cut down on hardware procurement and maintenance costs.

### Flexibility and Portability
Virtual servers are independent of physical hardware, making them highly portable. This allows for easy migration between physical environments and flexible adjustment of server resources.

### Fault Tolerance and Recovery
In case of a failure, one server does not interfere with the operation of others. Server virtualization supports effective fault isolation and faster disaster recovery.

### Ease of Testing and Development
Virtual servers can be quickly created and managed for development and testing purposes. This allows teams to instantly set up test environments and conduct tests efficiently, accelerating the development cycle.

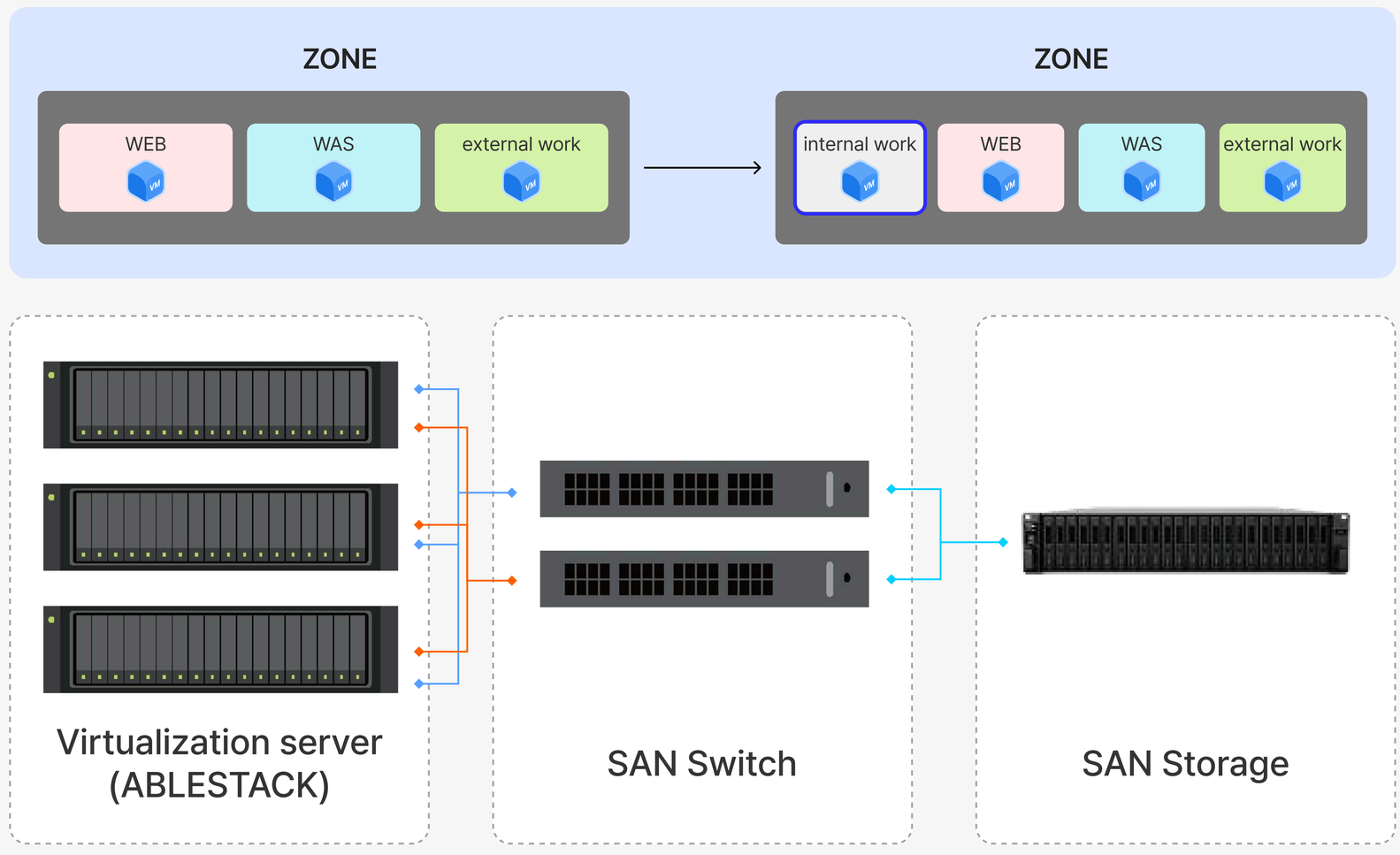
### Security and Isolation
Virtual environments provide enhanced security by isolating applications and workloads. This helps minimize the risk of system-wide vulnerabilities and ensures controlled access across different virtual machines.

# * ABLESTACK VM

**ABLESTACK VM** is a server virtualization-based cloud platform designed to provide virtualized and cloud environments on top of standard data center hardware.

By utilizing physical servers and external storage, it helps enterprises build efficient, scalable, and cost-effective cloud infrastructure tailored to their on-premises environment.

## Server Virtualization Basic Configuration (Example)




## ABLESTACK VM Key Features

High Availability & Web-Based Integrated Infrastructure

Comprehensive Virtualization and Cloud Features

Virtual Networking

Backup & Recovery

Cloud Management

Server Virtualization

# * ABLESTACK VM Components and Features

By installing **ABLESTACK VM** standard hardware equipment, you can access all the essential features required to operate a data center.

## Management and service layer

**Silo**
Enterprise storage service

**Link**
Security-Enhanced Network

**Mold**
Infrastructure & IT Operations

## Virtualization layer

**Genie**
Automation, Playbook

**Wall**
Infrastructure & App Monitoring

**Cell**
Virtual machine

**Koral**
K8S Container

**Track**
Network Service

**Cube**
Operating system

## Physical layer


**Commercial x86 server**

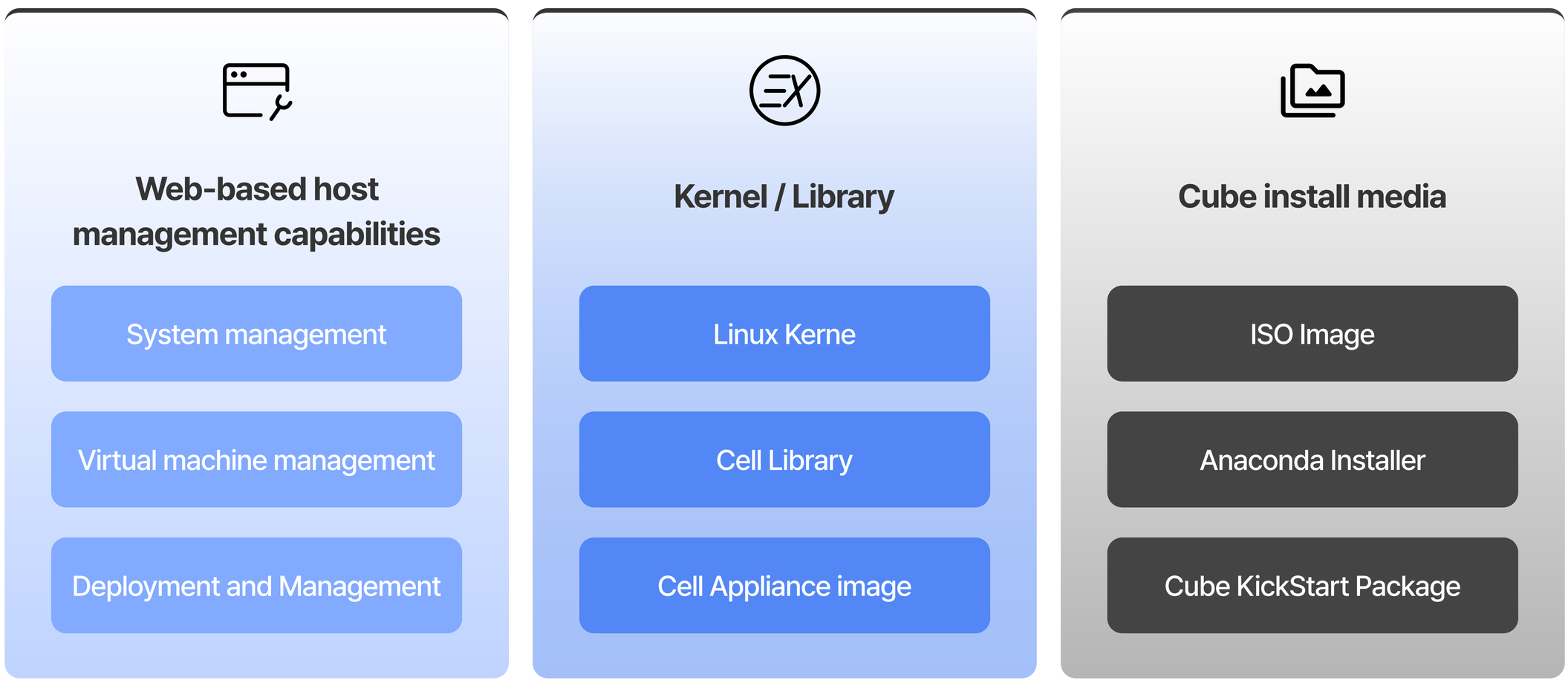
**External storage**
HBA, iSCSI, NFS, SMB etc.

**Switch**
SAN Swtich

# * OS / Cube

Cube is an operating system that is installed to enable **ABLESTACK VM** to operate on commercial servers. It is based on the Linux Kernel and can manage and monitor hosts based on the web.

## Cube Structure diagram




## Cube Features

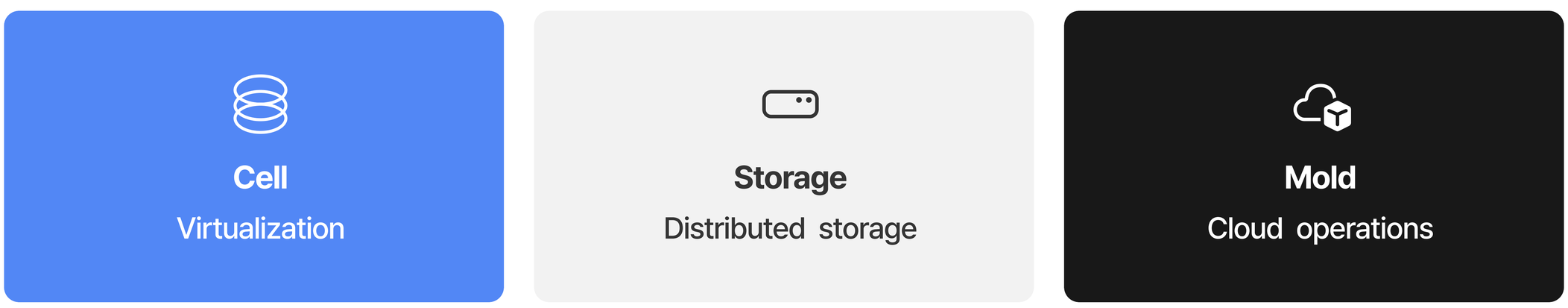
| | |
|---|---|
| * **Installation media and installation wizard** | Provides bootable ISO image (can be converted to media such as USB separately)<br>Provides Anaconda and an installation wizard (GUI) |
| * **Kernel I and core libraries** | Includes a Linux kernel based on Enterprise Linux 9<br>Comes with a cell library and VM appliance image |
| * **Web-based management** | Provides web-based management of hosts, including virtual machines and containers, and offers various service management and host security management features. |

# * Virtualization / Cell

Virtualization Cell hypervisor is **ABLESTACK VM** 's basic hypervisor that can be used in an enterprise environment without a separate license.

## Virtualization Hypervisor, Cell

Cell seamlessly integrates all virtualization and cloud features of Mold with servers and external storage, maximizing the simplicity of virtualization infrastructure.  With Cell, you can experience a high-performance virtual server environment.




## Cell Features and Benefits

### * User Transparency

Seamlessly integrated with **ABLESTACK VM** users do not need to be aware of the underlying virtualization environment.

### * Single control platform

With Mold, you can manage virtualization, security, infrastructure, networking, and self-service—all from a single platform.

### * Optimal performance and feature

Supports the latest technologies such as PCI Passthrough and NVIDIA GPU to deliver the performance and features required for demanding workloads.

### * Network security

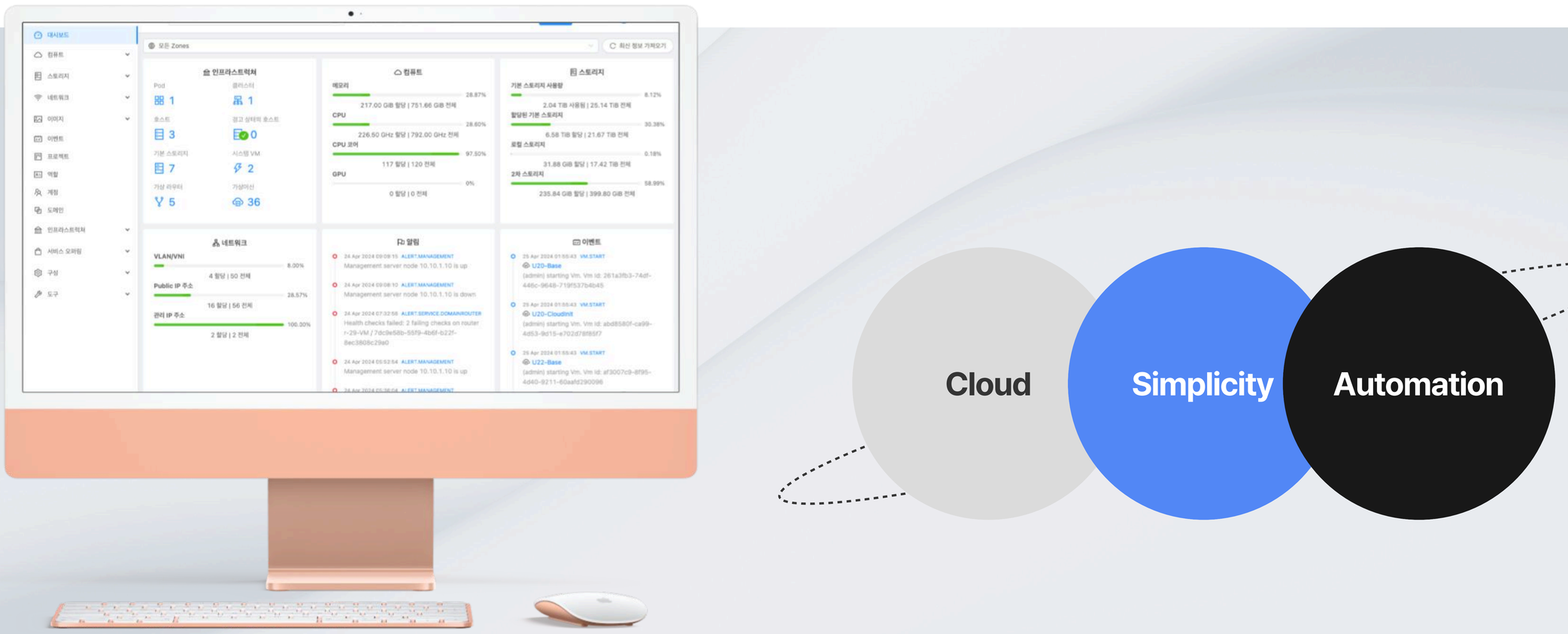
Based on native bridge networking, it provides software-defined networking, network virtualization, and micro-segmentation to protect applications and data.

# * Infrastructure and IT Operations / Mold

Mold is an administrative web console that helps you easily manage your IT infrastructure.  Manage everything in your infrastructure, including virtual machines, volumes, networks,  backups, and containers, from a single console.

## Automate with one click, Mold

You can handle most tasks with a single click, automate the operation of your infrastructure and applications, and manage your infrastructure efficiently.




## Mold Features and Benefits

* You can manage all virtualization resources through  a management console with an intuitive UI.

* We provide multi-tenant cloud services through  self-service.

* Manage complex IT infrastructure with minimal effort.

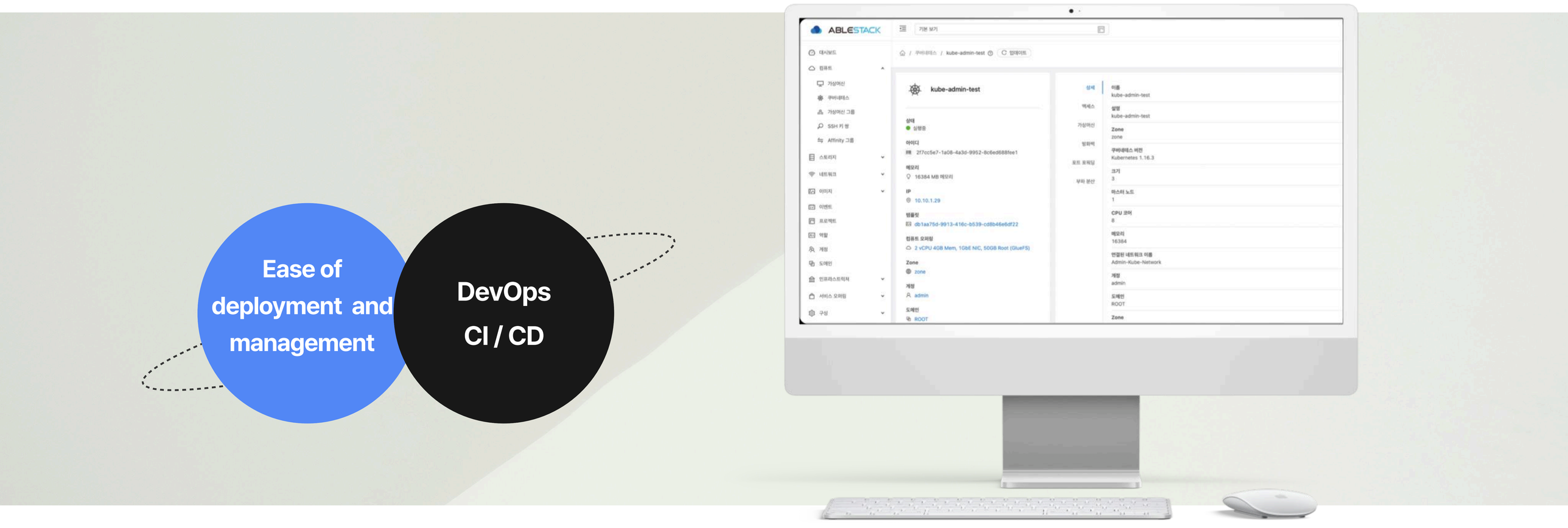
* APIs allow you to automate user-level workflows and  create automated provisioning with predefined code.

# * Kubernetes(K8S) / Koral

Koral helps you quickly deploy and use Kubernetes, an enterprise container management platform. Simplify management tasks such as application provisioning, operations and lifecycle, and autoscaling with Koral.

## Kubernetes Cluster, Koral

You can handle most tasks with a single click and automate the operation of infrastructure and applications, allowing you to manage your infrastructure efficiently.




## Koral Features and Benefits

### * One-click simplicity

With just a single click, you can deploy a high-availability Kubernetes cluster and launch applications within minutes using the cluster.

### * Persistent storage suppor

Supports persistent storage through a built-in CSI driver, integrating with storage volumes, files, S3, and Swift object storage.

### * Online expansion and autoscaling

Easily expand clusters by adding nodes online. Automatic worker node scaling is supported through autoscaling.

### * Provides high availability

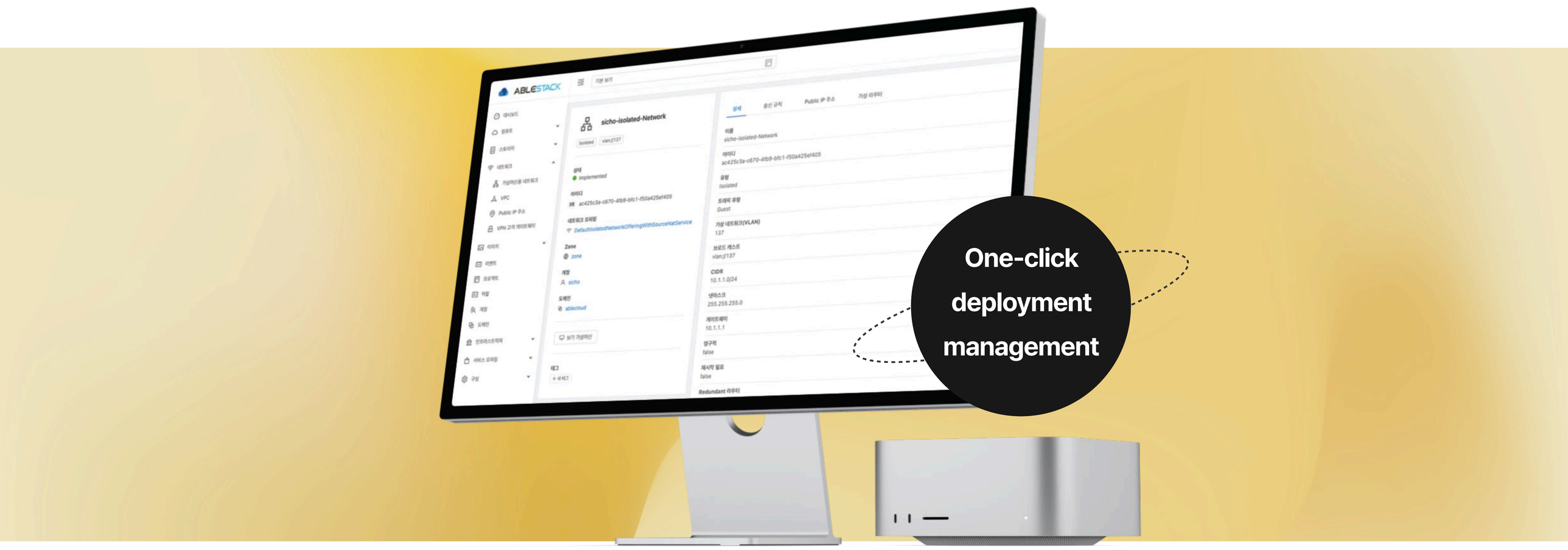
With master node redundancy, production applications can remain uninterrupted while upgrading the operating system version of nodes.

# * Virtual Networking / Track

Track constructs a virtualized networking layer on top of the physical network.  Deploy a software-defined network with Track.

## Overlay Virtual Networking, Track

It is a virtualized networking technology that overlays a physical network.




## Track Features and Benefits

### * Easy deployment and management

By automatically deploying a virtualized network appliance with various switch functions, users can easily  deploy the network services they want, and all management is possible via the web.

### * Increased security

Security can be strengthened by providing VPN and firewall, and only authorized external networks can be set  to access the virtual machine.

### * Provides various network environments

By supporting all L2, L3, and L4 switches, various levels of  network can be supplied to virtual machines

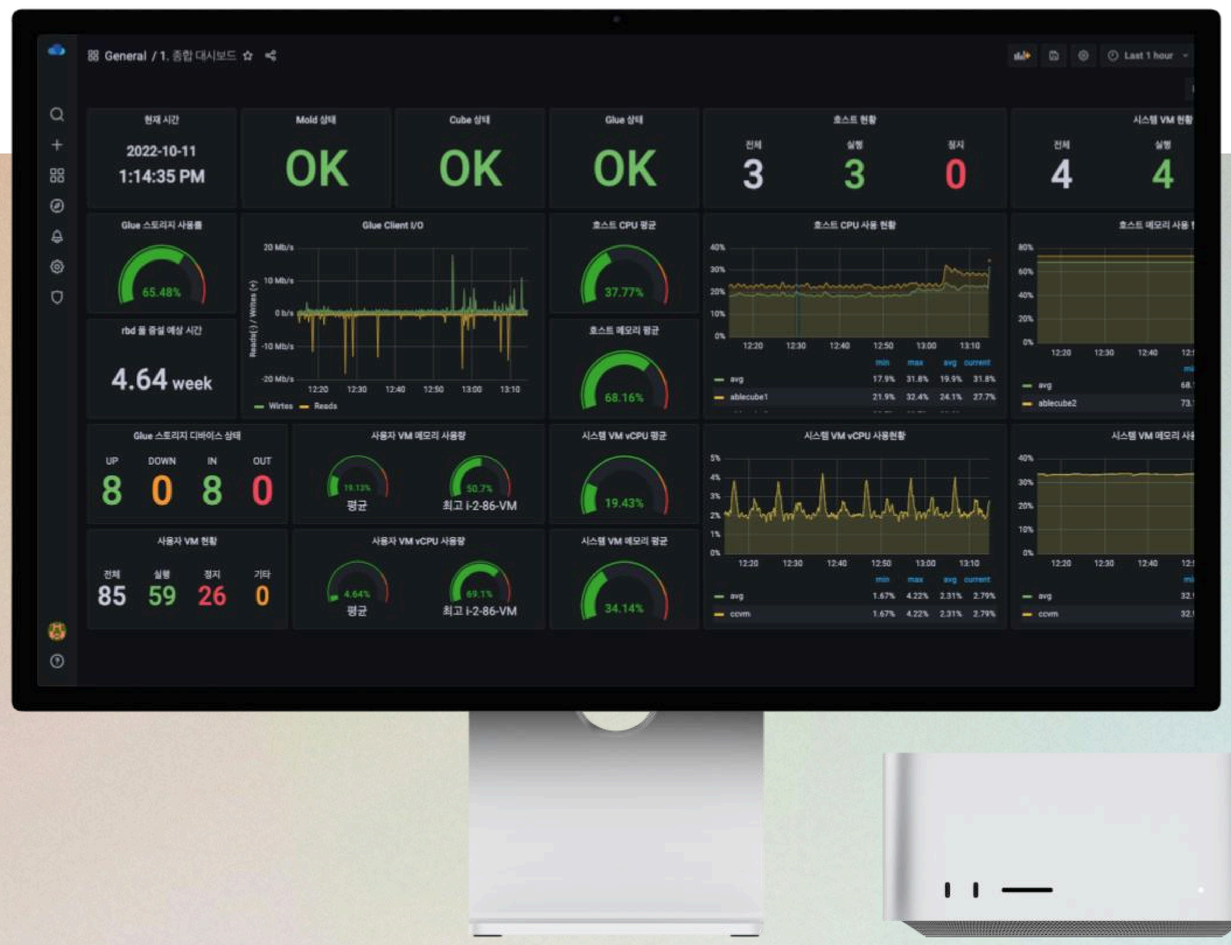
### * Hybrid Cloud Offering

It provides a network with multiple subnets, enabling a  hybrid cloud that is fully compatible with AWS VPC.

# * Monitoring platform / Wall

Wall is an integrated monitoring platform that monitors all infrastructure,  user virtual machines, and applications that make up **ABLESTACK VM** .

## Infrastructure and application monitoring platform, Wall




## Wall Features and Benefits

### * Live monitoring

Provides real-time monitoring information on the physical infrastructure and user virtual machines that make up **ABLESTACK VM** .

### * Application monitoring

Monitoring can be done in a variety of ways by customizing the DB, web application, etc. that the user  wants to monitor.

### * Threshold alarm

Based on the threshold settings, email or social media such as Slack Providing alarms allows quick response to issues.

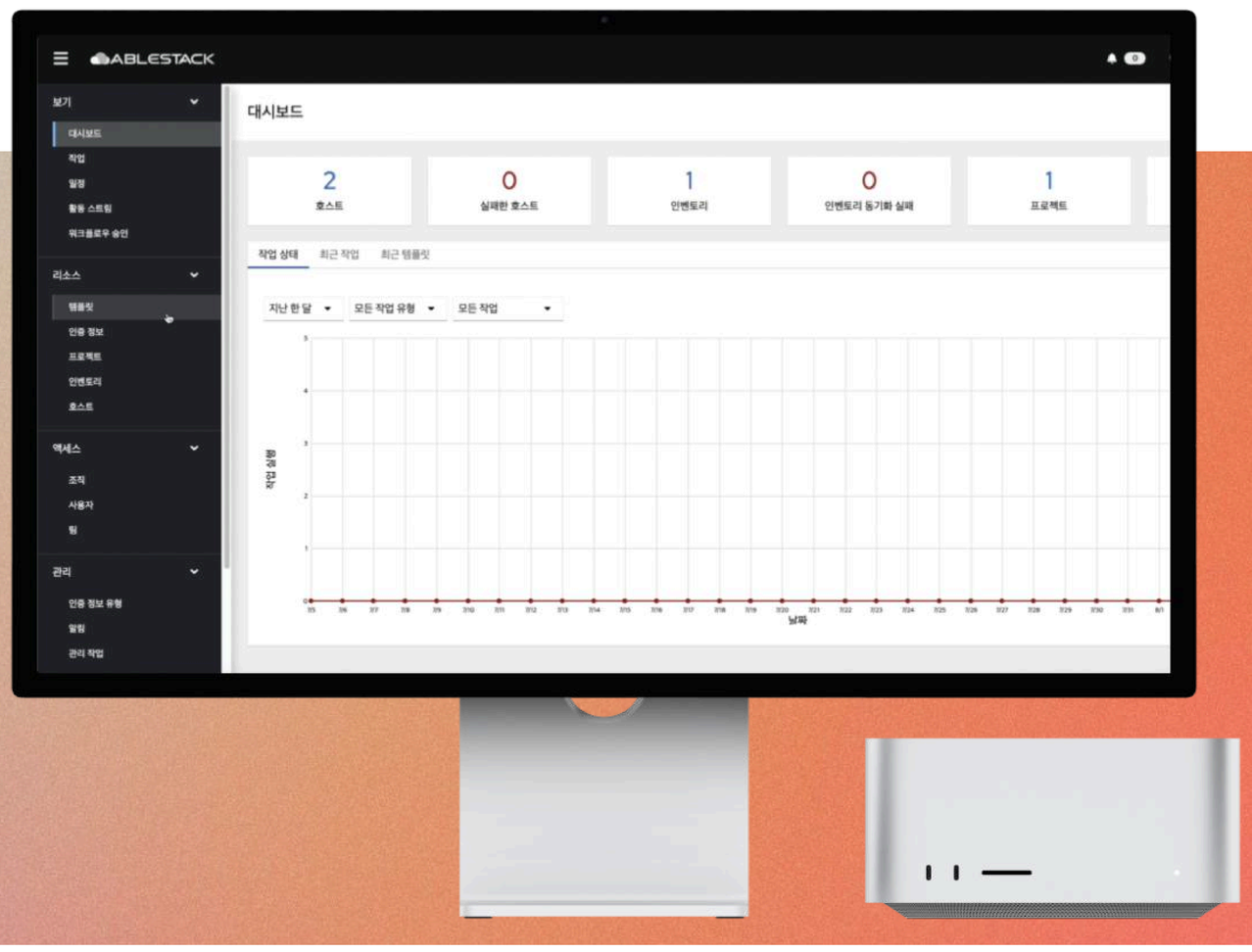
### * Extended Forecast

Through usage statistics for **ABLESTACK VM** clusters  Provides prediction information on when to expand.

# * Automate configuration & deployment / Genie

Genie is a multi-cloud IT automation platform that supports automatic deployment of  virtual machines, applications, and status monitoring in a multi-cloud environment based  on user-created workflows.

## Multi-Cloud IT Automation Platform, Genie




## Genie Features and Benefits

### * Workflow-Based Automation

Supports deployment automation for virtual machines and application sets using manifest information written in a workflow format.

### * Multi-Cloud

Provides automation not only for **ABLESTACK VM** but also for various cloud services like AWS, GCP, and Azure.

### * Deployment Resource Status Monitoring

Supports status monitoring for automatically deployed resources and applications, allowing you to check the status of your deployed services.

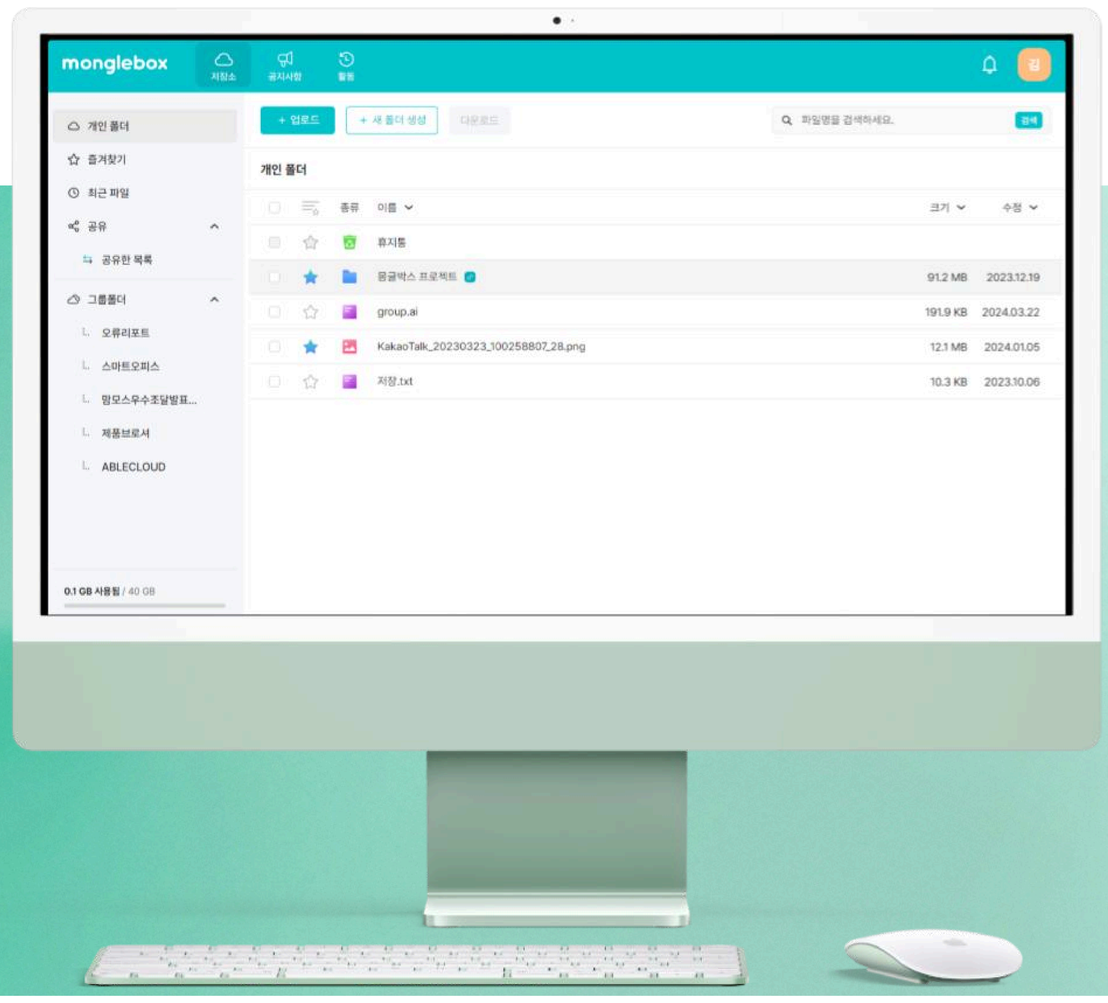
### * Pre-defined Workflows

Offers a pre-defined workflow, providing an environment where various open-source platforms can be easily deployed and used.

# * Enterprise Storage Service / Silo

Silo is a platform that provides various storage functions needed by companies operating IT services, through **ABLESTACK VM** . It increases the flexibility of storage expansion and enhances the usability of **ABLESTACK VM** in various ways.

## Enterprise Storage Service, Silo




## Silo Features and Benefits

### * High Storage Expansion Flexibility

Provides expansion flexibility by allowing you to connect and configure various commercial SDS.

### * Storage for Emerging Workloads

Provides an object storage gateway and browser, enabling data management for big data, AI, etc.

### * Bare Metal / Hypervisor Connection Support

Supports connections to bare metal servers and other hypervisors through the creation of various storage gateways such as NFS, SMB, and iSCSI.

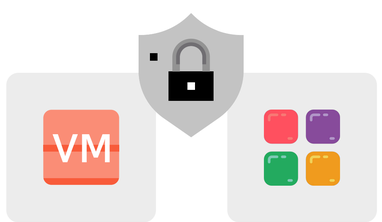
### * Virtual Machine Redundancy Support via Shared Volumes

It provides a shared volume feature that offers volumes for two or more virtual machines, thereby supporting non-stop server environments like DB or Web/WAS server redundancy.

# * Security-Enhanced Network / Link

Link is a security-enhanced network based on a highly visible, Zero Trust security policy. It provides a complete defense environment against attacks on virtual machines and applications while supporting network connectivity with various public clouds.

## Link Features and Benefits

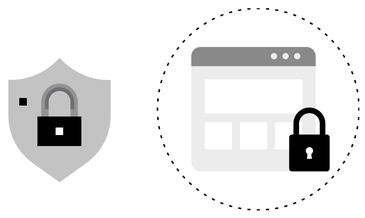



### * Applicable to Various Environments

Easily creates and enforces granular security policies between workloads in diverse cloud infrastructure environments such as virtual machines and containers.

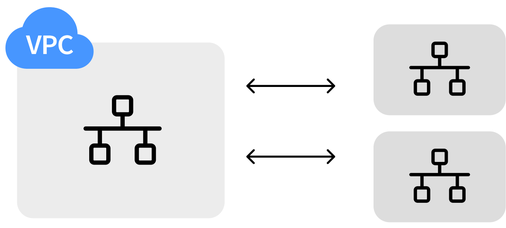

### * High-Level Security Environment

Blocks lateral movement between virtual desktops, enabling consistent desktop isolation.



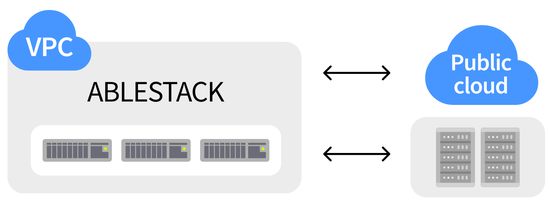
### * High-Visibility Security

Allows for the creation and rapid application of highly visible security policies, enabling consistent management of access control for firewalls and applications.



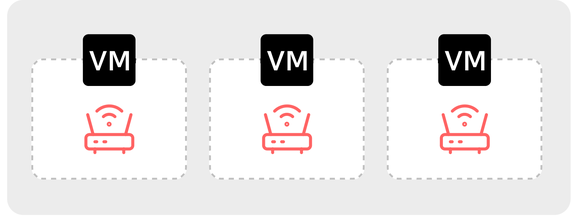

### * VPC Network and Existing Network Integration

Provides a private gateway to the VPC network, supporting integration with existing and external networks and enabling flexible cloud network configuration.




### * Supports Site-to-Site VPN Connection

Includes a built-in Site-to-Site VPN that provides connections between the VPC network configured with **ABLESTACK VM** and public clouds, as well as IPSec VPN connections to external data centers.




### * External VNF Appliance Integration

Supports the integrated management of various open-source and commercial routers provided as virtual machine-based appliances, offering high scalability for virtual networks.

# * ABLESTACK VM Expected Effects

**ABLESTACK VM** shows groundbreaking economic efficiency that differentiates it from conventional data centers. You can experience innovative cost savings throughout the entire data center build and operation process.

## Quantitative Expected Effects

**Deployment Cost**

approx. 62% reduction

**Build Time**

approx. 80% reduction

**Operation & Management Cost**

approx. 40% reduction

**Rapid Expansion**

approx. 50%

## Qualitative Expected Effects

| | |
|---|---|
| Pure Software Platform | **Reduced hardware burden** |
| Deployable Infrastructure with a Necessary Development Environment Anytime | **Perfectly handles various emerging workloads.** |
| Integrated Management Platform | **Integrated management of heterogeneous hypervisors is possible** |
| Unified Technical Support Channel | **Ensures high system availability with prompt technical support in the event of a failure** |
| Reduced Hardware Complexity through Virtualization | **Reduced maintenance costs for legacy infrastructure and efficient management is possible** |
| Maximized Resource Utilization | **Reduces infrastructure costs by utilizing existing resources without modification.** |

**Customer IT Innovation**

# * ABLESTACK VM Edition

**ABLESTACK VM** is available in two editions, Standard and Enterprise, and provides up to approximately 65% cost savings compared to VMware's 5-year subscription model through a perpetual license. It is the optimal choice for customers who want efficient infrastructure setup and reduced operating costs.

## ABLESTACK VM Edition Configuration

| License Type | Solution | ABLESTACK v4.0 | |
|---|---|---|---|
| | Edition | VM_Standard | VM_Enterprise |
| Perpetual | Components | Cube<br>Cell<br>Mold<br>Track<br>Wall | Cube<br>Cell<br>Mold<br>Track<br>Wall<br>**Koral**<br>**Genie**<br>**Link** |
| Subscription | VMware Product | VMware vSphere Standard(VVS)<br>• vCenter Standard<br>• ESXi | VMware vSphere Enterprise Plus<br>• vCenter Standard<br>• ESXi |
| Based on VMware 5-year subscription | | **approx. 35% reduction** | **approx. 65% reduction** |

조달청 디지털서비스몰

| Product Name | Description | Item ID Number |
|---|---|---|
| ABLESTACK v4.0 (1Core) | Software (S/W) that allows for easier and faster configuration of virtualization and cloud environments. | 25610079 |

### Minimum Operating HW Specifications (Based on 1 Node)

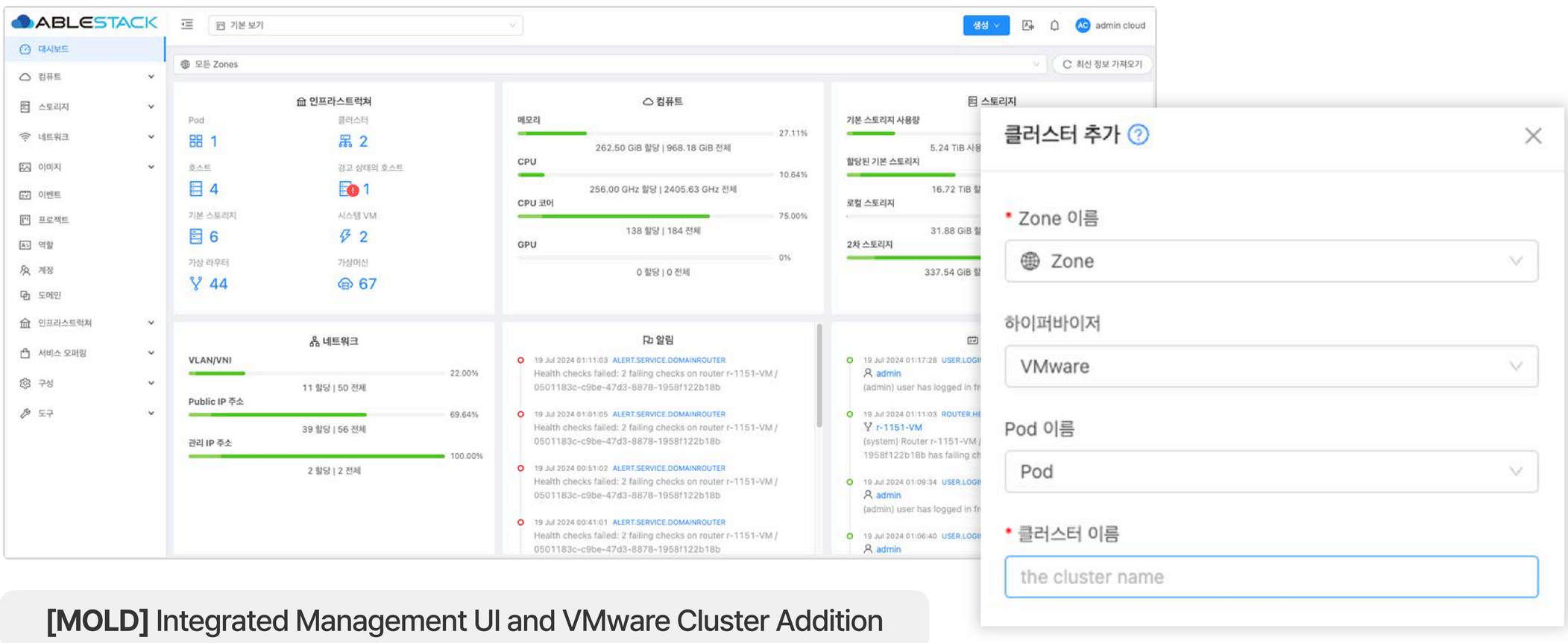
| | |
|---|---|
| CPU | Intel Xeon Scalable 2.0GHz or higher, 1 Socket or more, 16 Cores or more |
| Memory | DDR4 ECC or higher, 128GB or more |
| SSD | OS Disk Usable 300GB or more (RAID1/5) |
| NIC | 10GbE 2 ports or more, 1GbE 2 ports or more, IPMI compatible Mgmt Port |

**ABLESTACK VM External storage (HBA, iSCSI, NFS, SMB, etc.) required for ABLESTACK VM configuration**

# * Provides a Tool for Integrated VMware Management

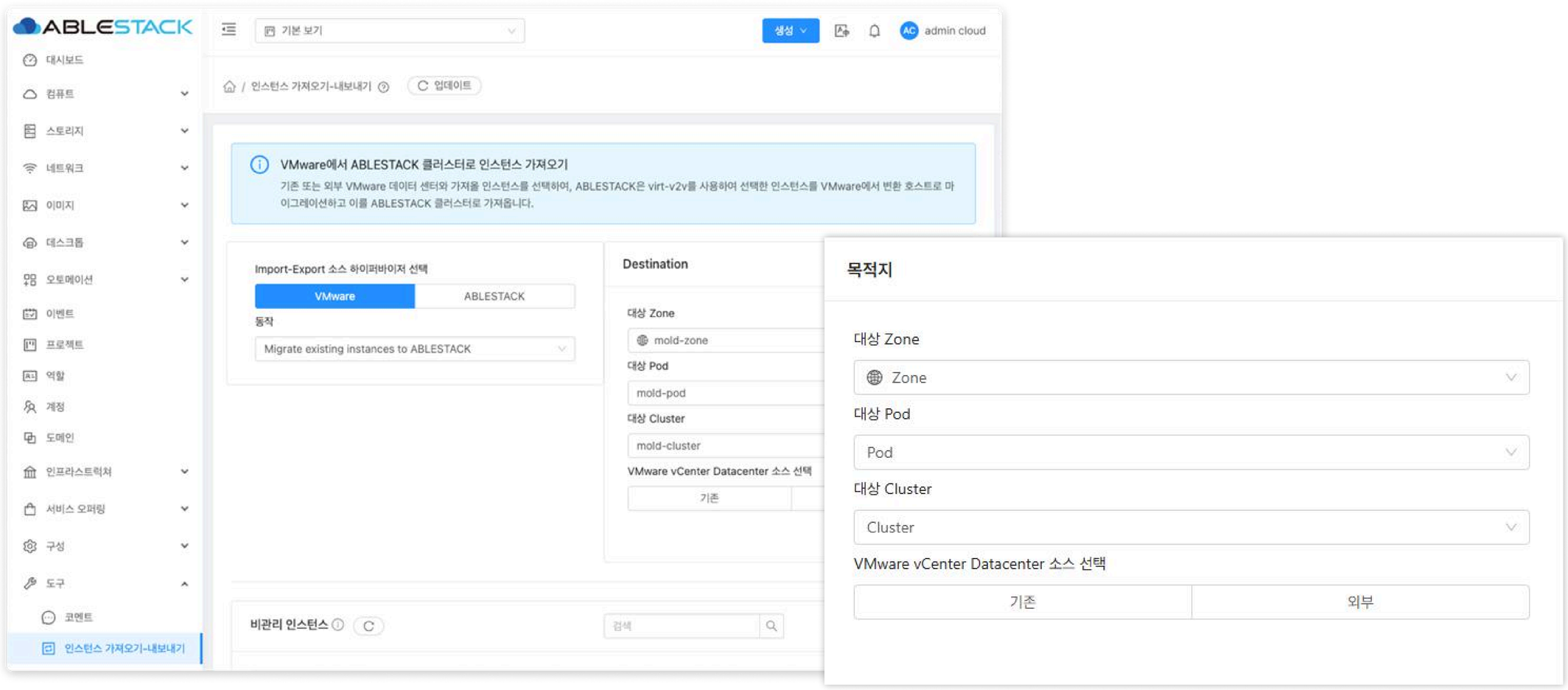
It provides VMware management functionality, allowing you to connect to vCenter and manage it in an integrated way through the **ABLESTACK VM** UI. It also includes a built-in tool for migrating virtual machines.

## Provides a Tool for Integrated VMware Management




**[MOLD]** Integrated Management UI and VMware Cluster Addition

## Built-in Migration Tool for Migrating VMware




**[MOLD]** Fast Conversion through the UI

# * ABLECLOUD

Ablecloud Inc. is the only company in Korea specializing in virtualization platforms, a technology-leading company that owns its own hypervisor and virtualization platform. With **ABLESTACK** VM , you can reduce IT infrastructure management costs and focus on your company's core businesses and products.

HCI's first GS 1st grade certification

Nara Market Procurement Registration

Korea's first HCI to receive Citrix Ready certification

Virtualization management sector Obtaining security function certification

Patent Acquired For the System and Method for Provisioning HCI

- ABLESTACK's latest version, v4.0, has received GS certification.
- You can find us by searching for [ABLECLOUD] or [ABLESTACK] on the Nara Market Procurement Service's shopping mall.
- We have obtained the first security function verification certificate for virtualization management in Korea.
- A patent has been granted for the system and method of provisioning HCI.

## How do we realize an innovative cloud data center?

### 01 Multi/Hybrid Cloud

We provide a single platform that allows you to manage various hypervisors in one cloud environment, use private and public clouds together, and support a Kubernetes-based container environment.

### 02 Automation of Data Center Operations

We aim to build a self-managing data center where all processes, from platform installation on the server to application execution, are automated. It no longer requires direct intervention from experts.

### 03 Application Management Automation

You can develop, test, and deploy applications at any time, with automated lifecycle management. The system is intelligent, automatically scaling up based on operational status and actively responding to usage.

### 04 Cost Reduction

We minimize the TCO of your enterprise data center, optimize spending on public clouds, and shorten application development time. The single platform enhances management capabilities and increases ROI with a more stable system.

### 05 Guarantee of Freedom of Choice

You no longer need to depend on a specific vendor's servers, network equipment, storage, or applications. We provide the same platform for all commercial servers and guarantee freedom of choice through open-source-based turnkey software.

※ If you apply for a trial version of **ABLESTACK** VM , we will provide a demo environment. For more details, please refer to www.ablecloud.io.

# * References

ABLESTACK S/W has a track record of being successfully supplied and installed in institutions and companies across various sectors and has earned customer trust by providing stable support for operations and maintenance.

## Major Use Cases

검찰 PROSECUTION SERVICE
방위사업청
경찰청
해양수산부 부산지방해양수산청
대한민국육군 Republic of Korea Army
DTaQ
KLID 한국지역정보개발원 Korea Local Information Research & Development Institute
한국농어촌공사 Korea Rural Corporation
NECA 한국보건의료연구원
한국전력공사 KOREA ELECTRIC POWER CORPORATION
근로복지공단
경기도
경상북도 GYEONGSANGBUK-DO
경상남도 GYEONGNAM
광주광역시 GWANGJU CITY
대구광역시 DAEGU METROPOLITAN CITY
특별한 시민, 빛나는 도시 화성특례시 HWASEONG SPECIAL CITY
창원시 CHANGWON CITY
평택시
여주시
상주시 SANGJU CITY
자연치유도시 제천 HEALING CITY JECHEON
Fresh Energy 오산
#*포천시
안산시
水려한 합천 Hapcheon
산소카페 청송군
고령군 GORYEONG-GUN
부여군
예천군
의성
인제군
Energetic Dangjin 당찬 당진
태안군 TAEAN
청양군
울산광역시중구 Junggu Ulsan Metropolitan City
한국세무사회
청강문화산업대학교 ChungKang College of Cultural Industries
건양대학교 KONYANG UNIVERSITY
Hecto Data
NOVAREX
COOCON
GNTEL
Data Streams

ABLECLOUD

All about data & cloud

# KONEPS Digital Service Mall

Korea ON-Line
E-Procurement System

| Product Name | Description | Item ID Number |
|---|---|---|
| ABLESTACK v4.0 (1Core) | Software (S/W) that allows for easier and faster configuration of virtualization and cloud environments. | 25610079 |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