ZStack

Introduction to ZStack

Ivan Chong

Head of Global PMO

ZCCE

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2 Products Intro

3 ZStack Solutions

4 Product Comparison

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01 Company Profile

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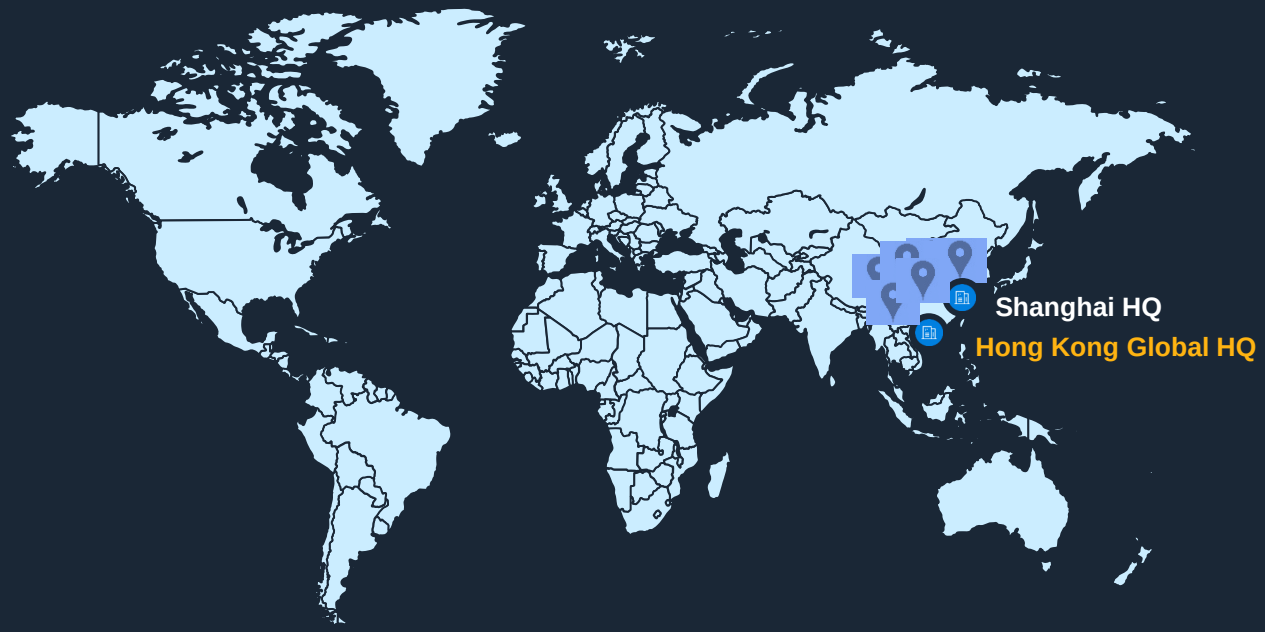
01 About ZStack



Shanghai Headquarter

Hong Kong Global Headquarter

Branch Office

Beijing Nanjing Guangzhou Chengdu Wuhan Xian

ZStack

Independent Innovation

Focusing on Productization of Private Cloud

- ZStack headquarter is located in Shanghai with 6 branch offices in China
- R & D and technicians proportion exceeds 70%
- Series A funding was completed in 2017 initiated by AliCloud
- Series B funding was done in 2018 driven by Shenzhen Capital Group, Alicloud etc.
- Series B+ funding involving RMB 230M was completed in 2020.
- China Telecom became ZStack's strategic investor in 2021.
- ZStack International Information Technologies Ltd was established in Hong Kong in 2021.

- National High Tech Enterprise
- ITSS Cloud Computing Service Capabilities Grade Standard Band 3 Certificate
- ISO9001
- Trusted Cloud Certification, Double Soft Enterprise Certification
- Series of software copyrights and patents
- 1st industry hybrid cloud white paper Author
- Participate in many national and industry standard formulation

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01 OUR FOUNDER

Outstanding experience in the IT industry

ONE OF THE WORLD'S FIRST VIRTUAL MACHINE DEVELOPERS:

Mr. Frank Zhang

張鑫先生

MAJOR CONTRIBUTOR OF SYSTEM VIRTUALIZATION : THEORY & IMPLEMENTATION

2006

- Joined **Intel** Open Source Technology Center
- Developing Xen/ KVM virtual machines

2010

- Joined **Cloud.com**, a start up company to provided IaaS
- One of the core architects of CloudStack
  - Support Oracle VM servers, bare metals, and bare metal VPC environments
- After Citrix acquired Cloud.com, Mr. Zhang continued to develop core features for CloudStack in Citrix

2015

- Founded **ZStack**, a next-generation open-source IaaS solution

2017

- ZStack secured strategic investments from Alibaba Cloud in Series A funding
- Deepened strategic ties with Alibaba Cloud in the hybrid cloud area

2020

- ZStack raised funds from China Telecom in Series C funding

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01 Upcoming Global Expansion Plan

2021

- Global HQ is established in Hong Kong.
- **Sales and technical teams** are formed in;
  - Hong Kong
  - Taiwan
  - Australia
  - South-East Asia: Thailand, Malaysia, Indonesia, Vietnam

2022-2023

- **Sales and technical teams** will be formed in;
  - Russia and former USSR countries
  - South-East Asia: Singapore
  - Entire APJ region
  - Part of European countries in 2023

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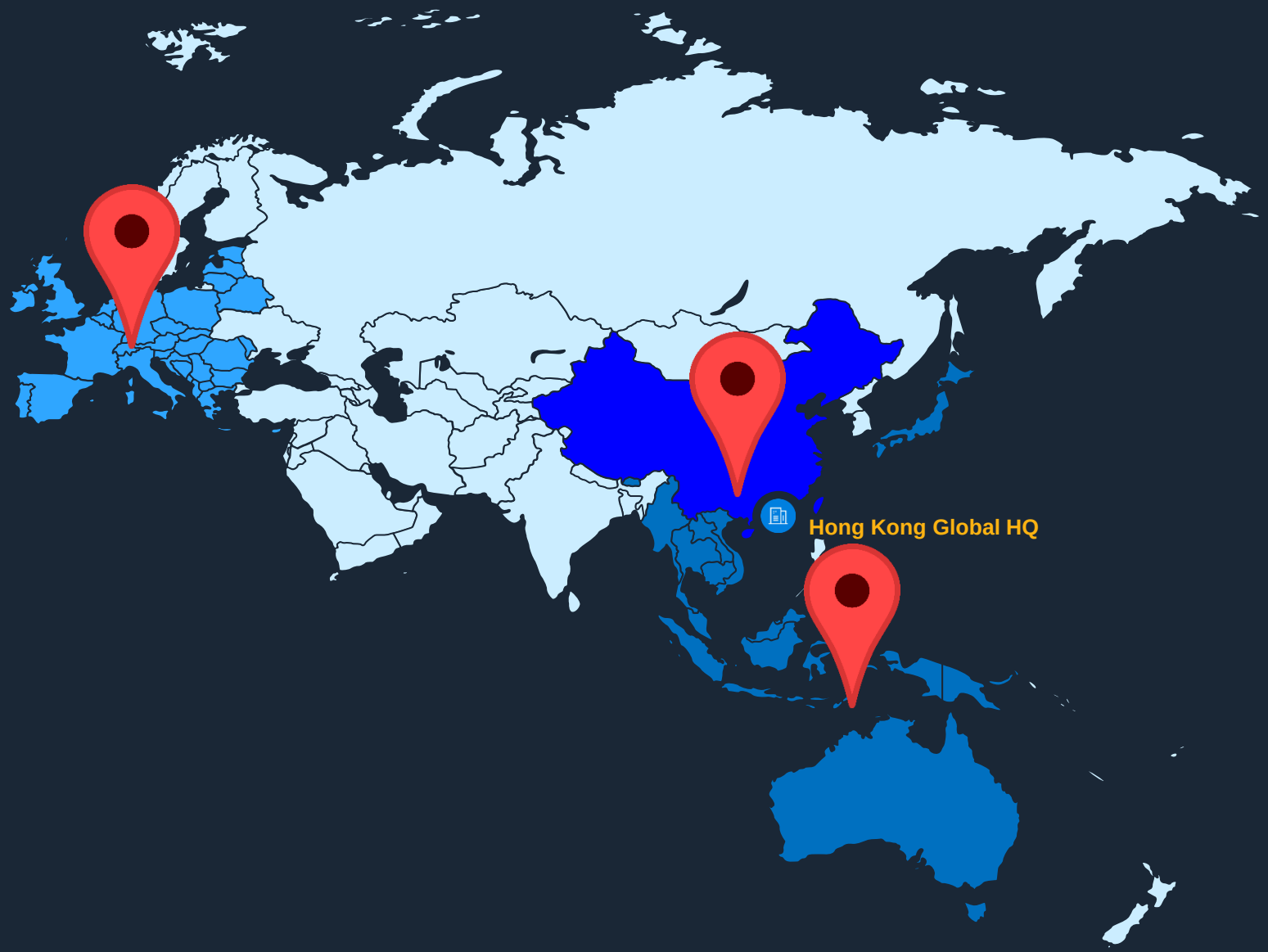

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01 ZStack Partners

Public Cloud Partner

Technology Partners

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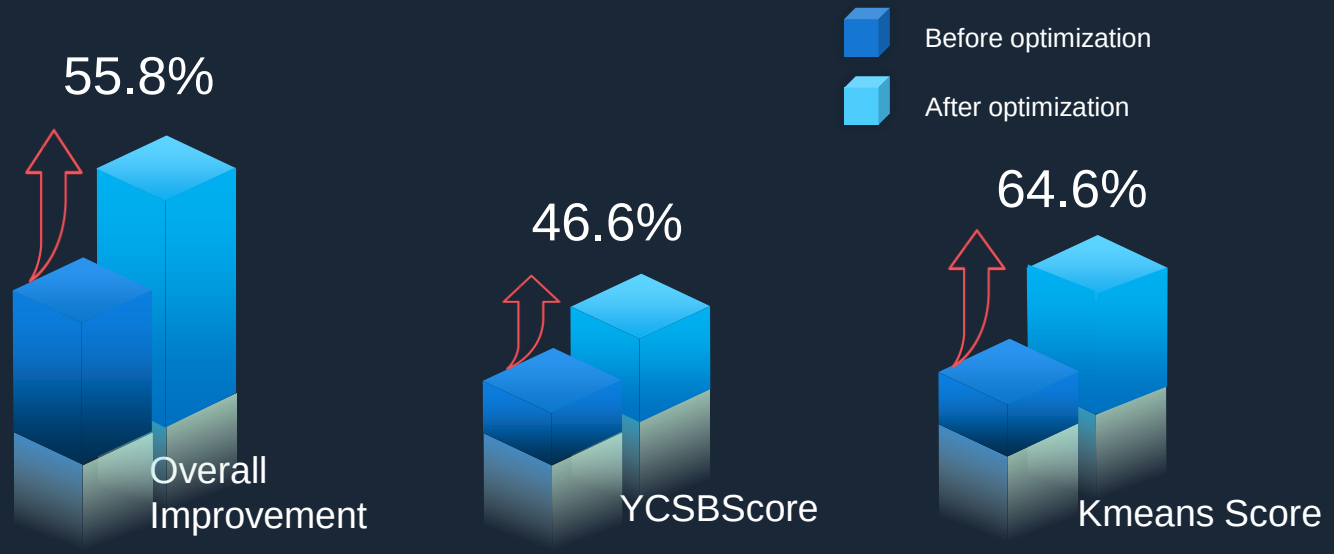
01 Highest Marks in SPEC



Based on big data scenarios "IODense load" with "Compute-intensive workloads“ test

The Standard Performance Evaluation Corporation (SPEC) is an American non-profit corporation that aims to "produce, establish, maintain and endorse a standardized set" of performance benchmarks for computers

Source:
https://www.spec.org/cloud_iaas2018/results/cloudiaas2018.html

SPEC Cloud IaaS 2018 Benchmark

Copyright © 2018 Standard Performance Evaluation Corporation

Cloud Vendor: Shanghai Yunzhou Information and Technology Ltd. **Cloud Type / SUT Type: private/whitebox** **Hardware Platform: Kunpeng 920-6426** **Hypervisor: KVM** **Cloud Infrastructure: ZStack 3.10.0**	**Replicated Application Instances: 39 copies** **Performance Score: 40.5** **Relative Scalability: 93.4%** **Mean Instance Provisioning Time: 47s**

Tested by: ZStack Corp.	SPEC Licence Number : 6265	Test Date : Mar 7 2021

Performance Sections	SUT Configuration Sections	Scale-out Phase Date/Time and Test Region	Cloud Informational Metrics
Performance Summary Performance Details Validation, Errors, and Issues Glossary of Terms	Instance Configuration Cloud Configuration Network Configuration Storage Configuration	Scale-out Start Time: 2021-03-13_22:32:41_UTC Scale-out End Time: 2021-03-14_00:53:41_UTC Test Region: CN Central Standard Time	AI Provisioning Success: 100.00% AI Run Success: 100.00 Total Instances: 253

Reference ID: all-03140308

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01 Industry Reviews

➢ Chairman of China Telecom Investment Corporation

"ZStack is currently the IaaS provider in cloud computing with the advantages of self-research and productization and has gained wide user recognition in the construction of new digital infrastructure.

➢ Saudi Arabia users

“ZStack is architecturally stable and robust. It provides resource pooling sharing, automatic elastic scaling, and refined management and maintenance. "

➢ Gartner users

We have actually used their products, performance, stability, sound function, can meet all our needs, worthy of others to recommend their products

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01 Industry Reviews

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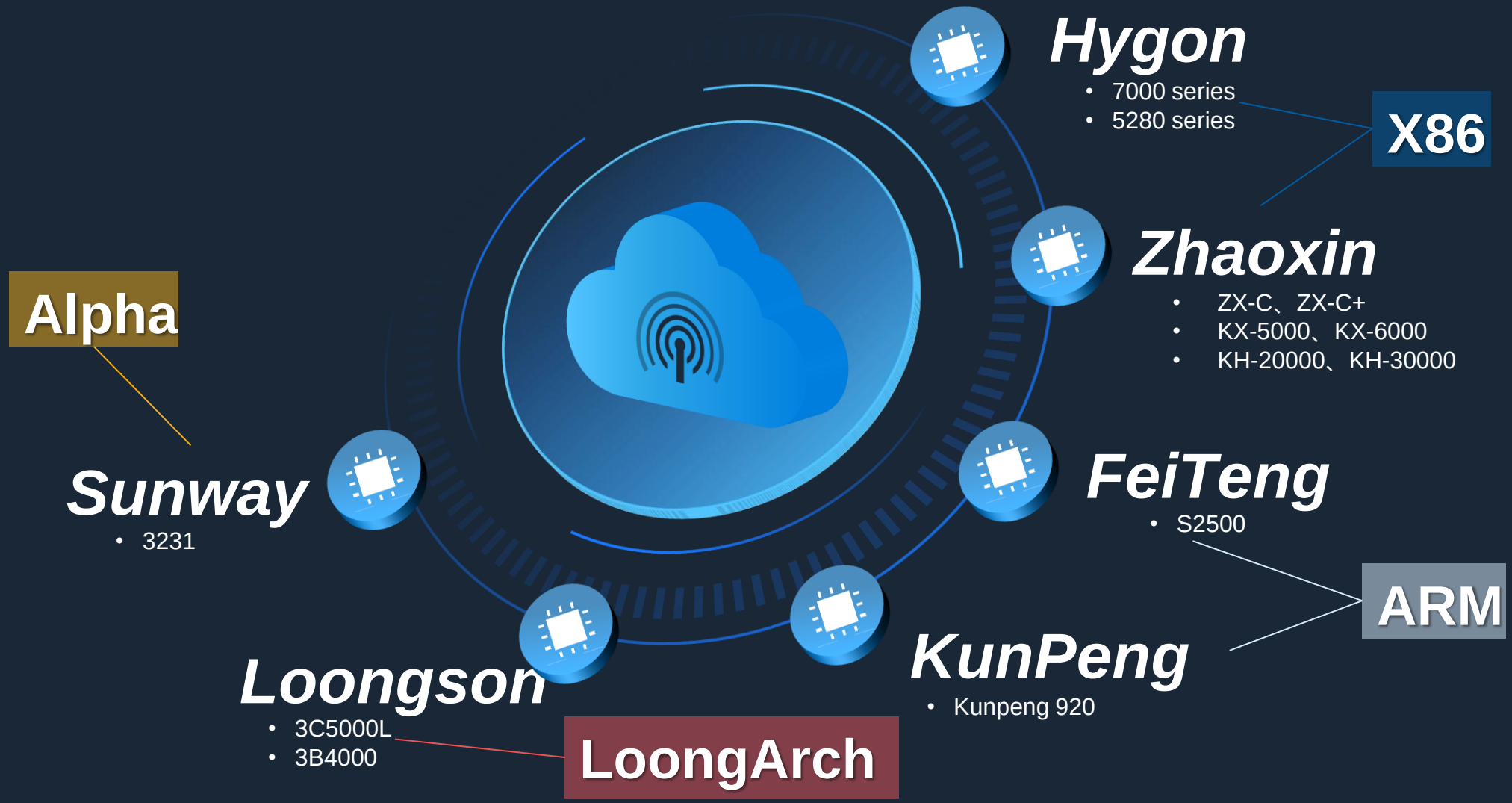
01

Non-Intel & AMD CPU support



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01

Trusty Cloud

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02 Products Intro

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02 ZStack Products

Software

Hardware + Software

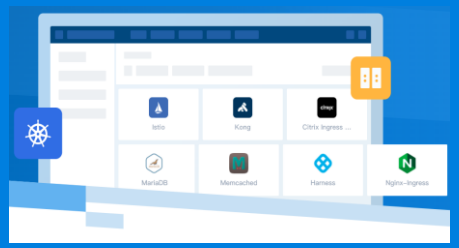
PaaS

IaaS

ZStack CMP

Multi-cloud management

ZStack Edge



Cloud native platform

ZStack Cloud

Open-source cloud platform

ZStack SDS

High-performance SDS

ZStack Cube

Hyperconverged infrastructure

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02 Why ZStack Cloud?

Simple

Easy Deployment. Easy Maintenance

- One-click download, complete installation & deployment within 30 min
- One host to set up a POC environment
- One management node to manage the whole cloud platform
- One maintenance technician can handle maintenance with ease.
- Upgrading single ZStack Management node in few steps.

Scalable

Unified Management of Various Resources & On-demand Delivery

- Unified management of different virtual platforms
- Providing load balance, scalability and dynamic scheduling to deliver service resources on demand.
- Providing standard HTTP RESTful APIs to seamlessly integrate third-party CMPs, PaaS and OA.
- One management node can manage 10000 computing nodes.

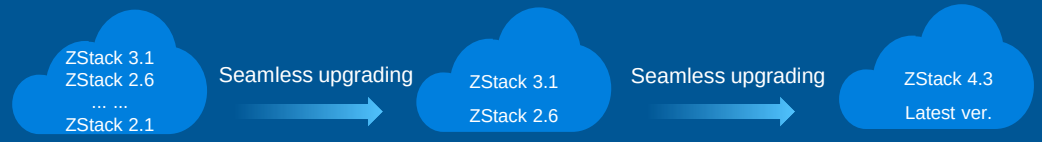
Strong

Operations are extremely fast, with powerful feature set.

Number of VM created	Time Cost
1	0.51 seconds
10	1.55 seconds
100	11.33 seconds
1000	103 seconds
10000	23 minutes

Smart

Seamless upgrading. One-click upgrade



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02 ZStack Cloud Features

Open-source Open-API

A self-developed cloud that is 100% open-source, autonomous, and controllable.

Quick Installation and Deployment

Download ZStack Cloud Enterprise from our official website and install the cloud within just 30 minutes on physical servers.

One-Click Seamless Upgrade

Allow you to perform one-click cross-version upgrades to ensure your business continuity.

Resource Reuse and Non-Hardware Binding

Any device that runs on x86 architecture and supports CPU hardware virtualization can deploy ZStack Enterprise.

High Availability

Isolate management planes from data planes to avoid a single point of failure. Backup management nodes will be applied within seconds if any management node is disconnected

Well-Designed and Resourceful Features

Additional services include Heterogeneous Hypervisor Management, Enterprise Management, Backup Service, BareMetal Management, CloudFormation etc.

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02 ZStack Cloud Functions Overview

Cloud Portal Service

Web UI	Char UI	Command Lines	OS Interface	HTTP Restful API	Java SDK	Python SDK	3rd Service

Cloud Resource Service

VM Instance	L2 Network	EIP	Security Group	Block Storage	Snapshot	Billing
Volume	L3 Network	Port Forwarding	DHCP	File Storage	Clone	Graphic Monitoring
Nic	vRouter	Load Balance	QOS	Object Storage	Backup	Net Topology

Cloud Platform Management

VM Management (Live Migration, High Availability, Root Volume Resize .... More)

Host Management	Organization Structure	Image Management	VPC Network	ESXi Network	Operations and Statistics	Billing
Cluster Management	Project Management	Offering Management	Flat Network	ESXi VM	ZWatch	Account Management
Zone Management	Enterprise Management	Cloud Resource Pool	Network Resource	vCenter	Resource Scheduling	Platform Management

Infrastructure Supporting

Virtualization KVM | VMware	Bare-metal	Local Storage	Distributed Storage ZStack SDS	Business Storage SAN | NAS	Aliyun PanGu	SDN/NFV VLAN | VxLAN | NFV	Security Degree 3 in hierarchical protection

Hybrid (Aliyun)

- ECS
- Volume
- PanGu
- Security Group[
- VPC
- EIP
- VPN
- High Express
- SD-WAN

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02

ZStack Cube

Product	Version	Hardware
ZStack Cube	Basic	Customized after ZStack certificate
	Standard	Customized after ZStack certificate
	Pro	Customized after ZStack certificate
	Flash	Customized after ZStack certificate
	Multi	Customized after ZStack certificate
	Max	Customized after ZStack certificate

Features

- SDC + SDS + SDN, KVM + ESXi, Cloud based
- 1-6 copies adjusted, 99.999% data reliability
- Minimum 3 nodes, support horizontal extension
- Self-service, smart OPS, one-key seamless upgrade
- All-in-one, 30 mins installation, out-of-box

Scenario

- High-Performance computing
- GPU/xPU accelerated computing
- Flexible bare metal
- Data Disaster Recovery
- Hosting
- Traditional virtualisation

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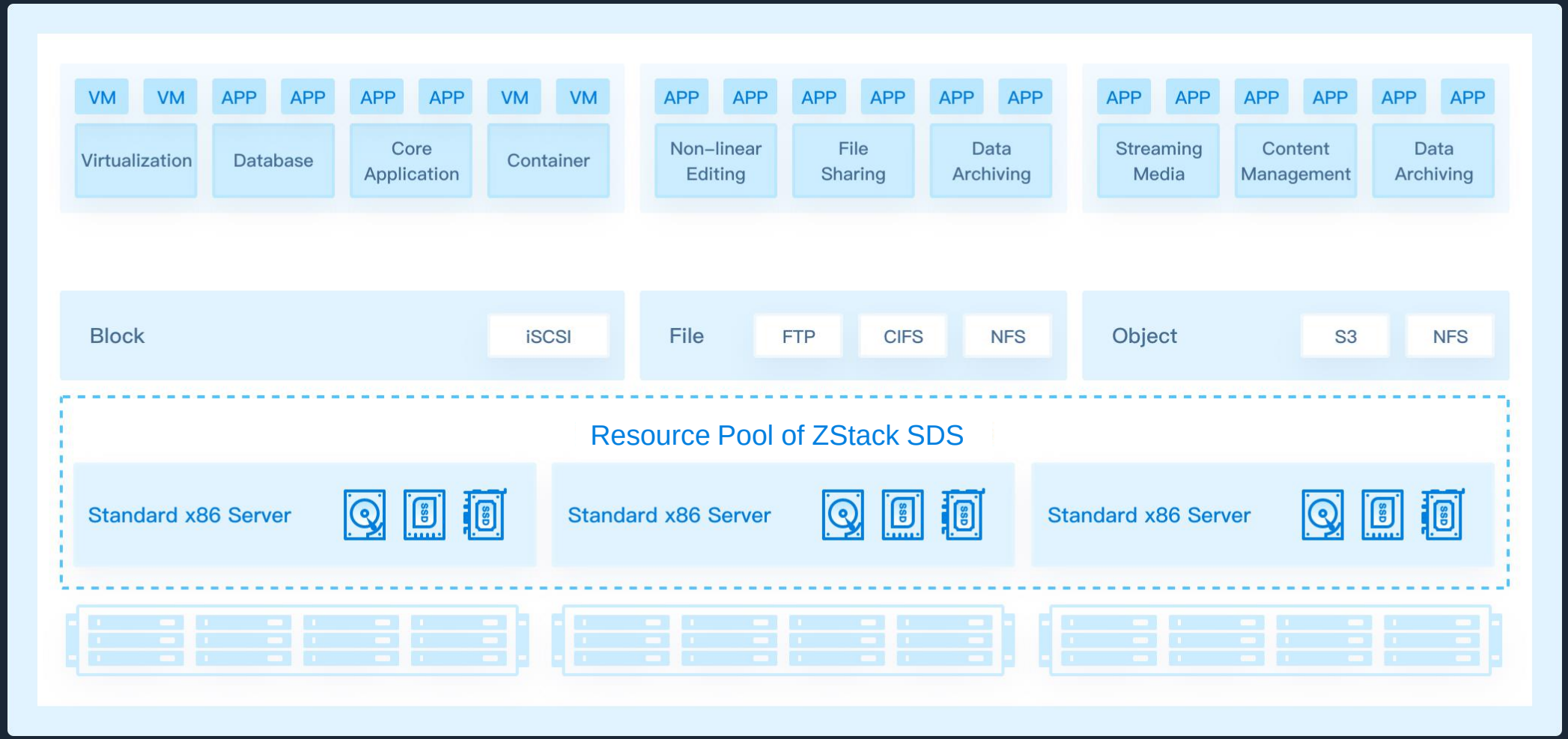
02

ZStack SDS



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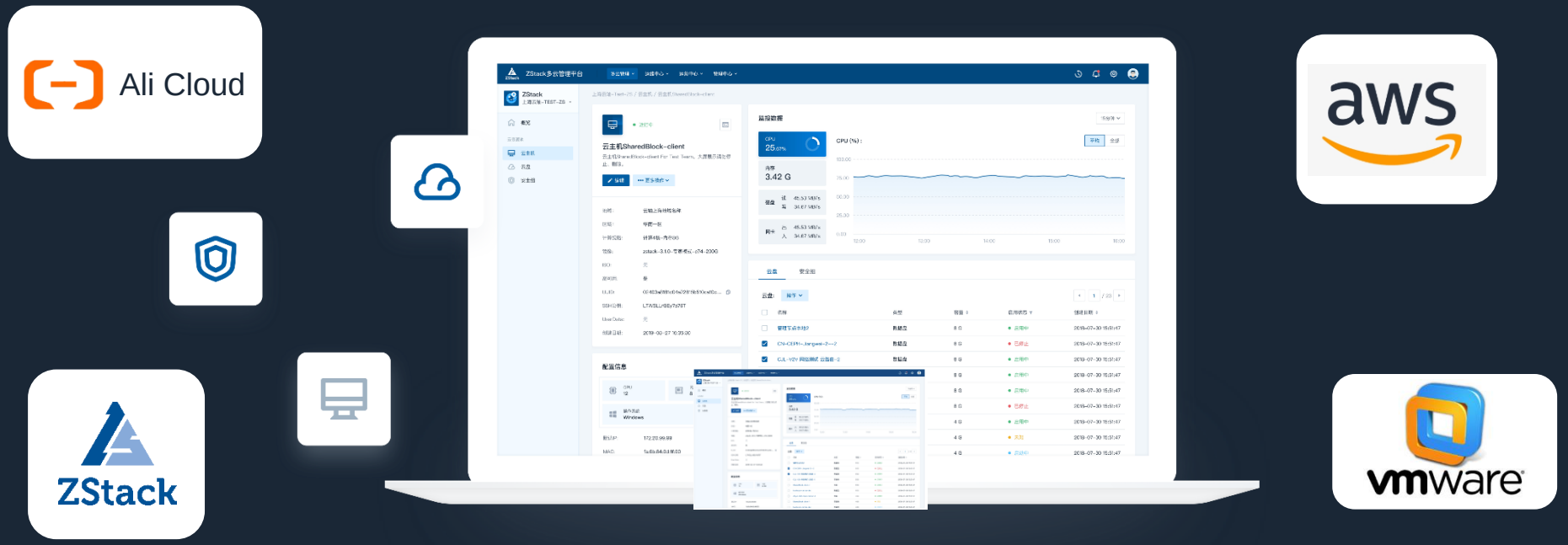
02 ZStack CMP Overview



Unified Resource Management

Unified management of different ZStack Cloud, Alibaba Cloud, vCenter and other third-party cloud environments;

Standardized Service Catalog

Shield the differences between different resource platforms, present a standard resources to users;

Intelligent OPS

Custom monitoring policies, multi-cloud unified monitoring and statistics;

Refined Billing Management

Perform metering and billing of various types of resources, budget setting, cost statistical analysis, and effective cost control;

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ZStack Edge

ZStack Edge		Opensource	
Integration of multiple cloud-native modules	Easy	Hard	Manual deployment, manual integration
Unified interface for easier handling	Unified	Fragment	Difficult to manage
	VS		
Integration of multiple middleware and applications	One-shop	Inefficiency	Pull and re-optimise
Delivering production level applications	Productive	Concept	Lack of security, stability

ZStack Edge Landscapes

Log	elastic	fluentd	logstash	kibana
Monitor	Prometheus	cAdvisor	Grafana	kiali
Service Grid	Istio	envoy	JAEGER	
CI/CD	Jenkins	GitLab	sonarqube	
APP Mgnt	HELM	KubeVirt		
Store	Docker Registry	HARBOR	clair	
Authenticate	KEYSTONE	OpenLDAP		
Network	flannel	PROJECT CALICO	MULTUS	
Orchestration	kubernetes	Docker Swarm		

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03 ZStack Solutions

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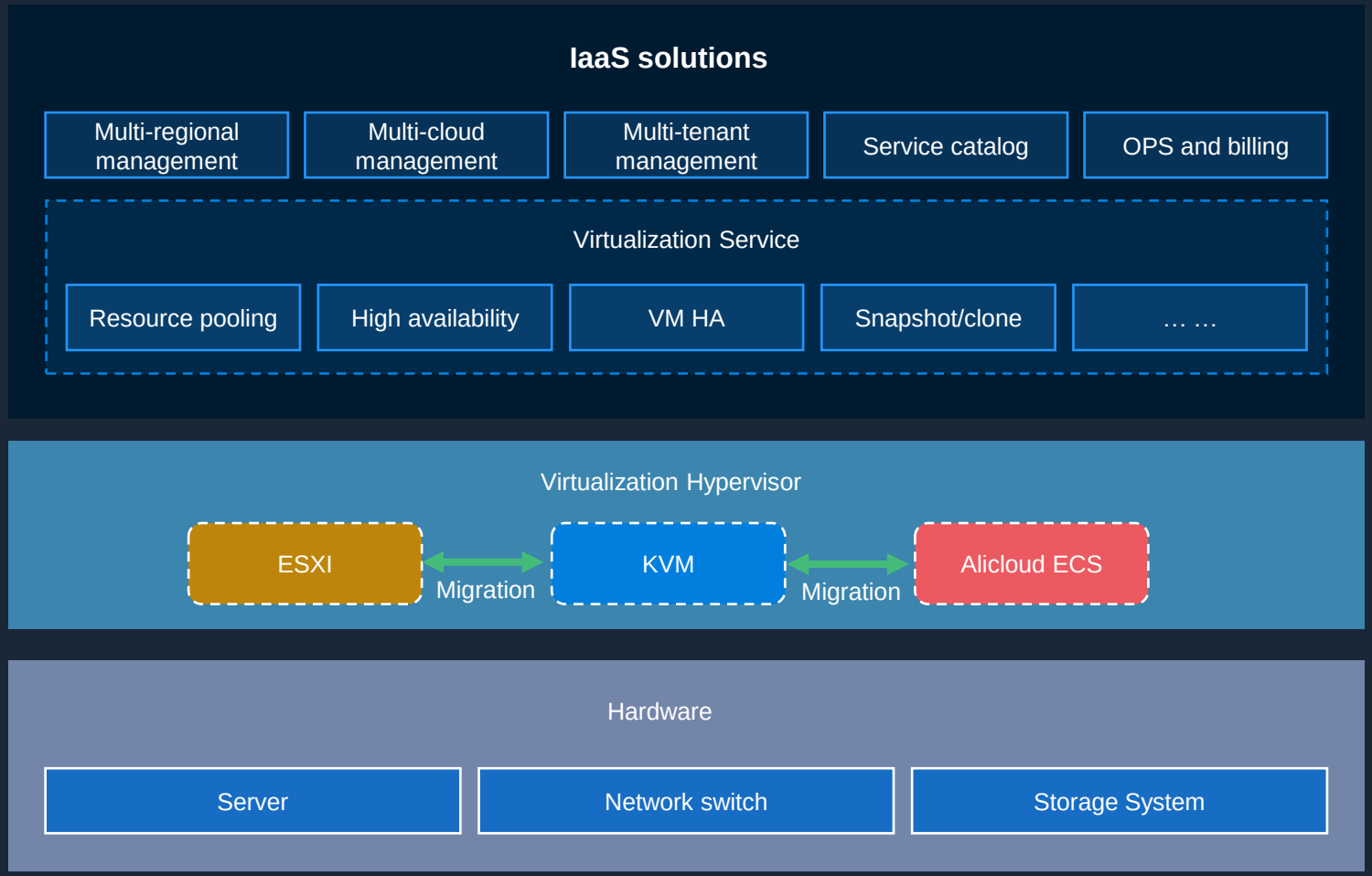
03 Infrastructure as a Service

Solution:

- Resource pooling: computing, network, storage;
- Unified management: multi-region, multi-cloud;
- Refined operation: multi-tenant, ickets and billing, auto OPS;
- Support agent-free migration;
- Self-service: service catalog, self-service delivery.

Advantages:

- Unified O&M of physical resources, virtualized resources and platforms;
- Open API to automate O&M;
- Facility reuse, non-hardware binding.



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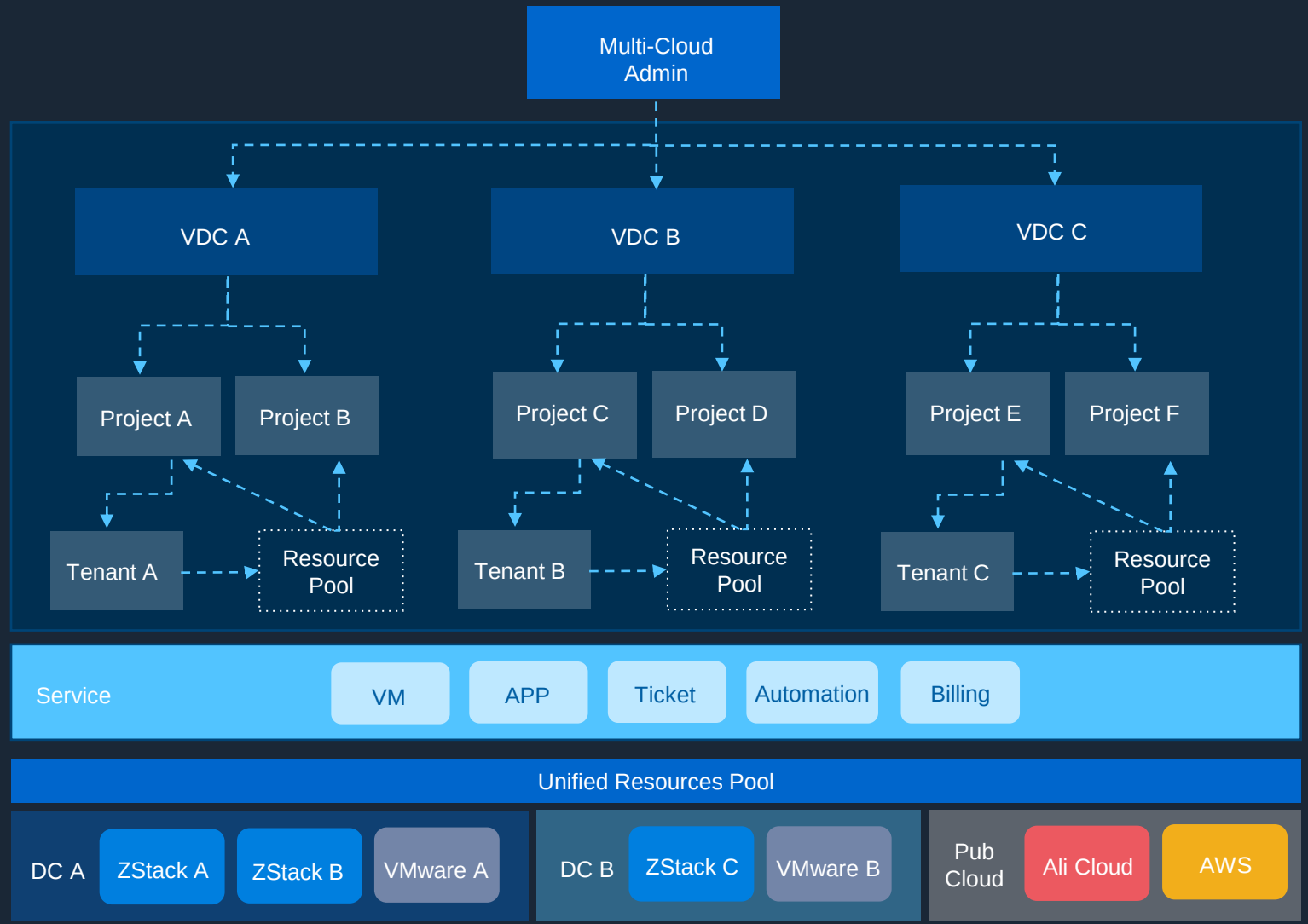
03 Multi-cloud Management Solution

Solution:

- Provides multi-cloud resource unified OPS;
- Provide unified cloud services, processes, billing;
- Unified authentication access and support for third-party authentication;
- Support for multiple cloud platforms automation

Advantages:

- Unified multi-cloud resources;
- Flexible organizational management;
- Open APIs, custom extensions, automation.



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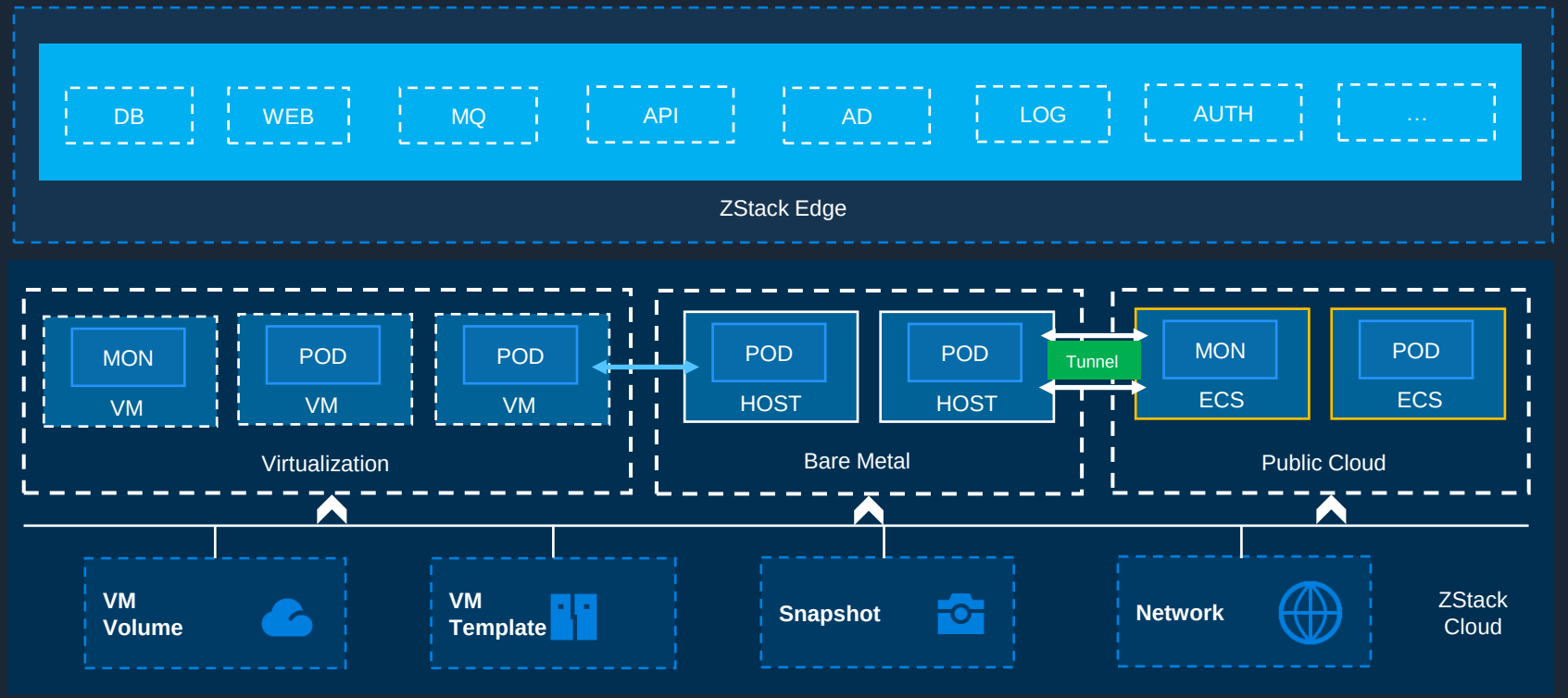
03 Platform as a Service

Solution:

- Provides isolation, storage persistence capabilities missing from PaaS platforms;
- Unified management of resources deployed on virtual machines, physical machines and public cloud instances.

Advantages:

- Support unified operation and maintenance management of multiple resources;
- Provide seamless network access to all platforms;
- Flexible deployment options and solutions.



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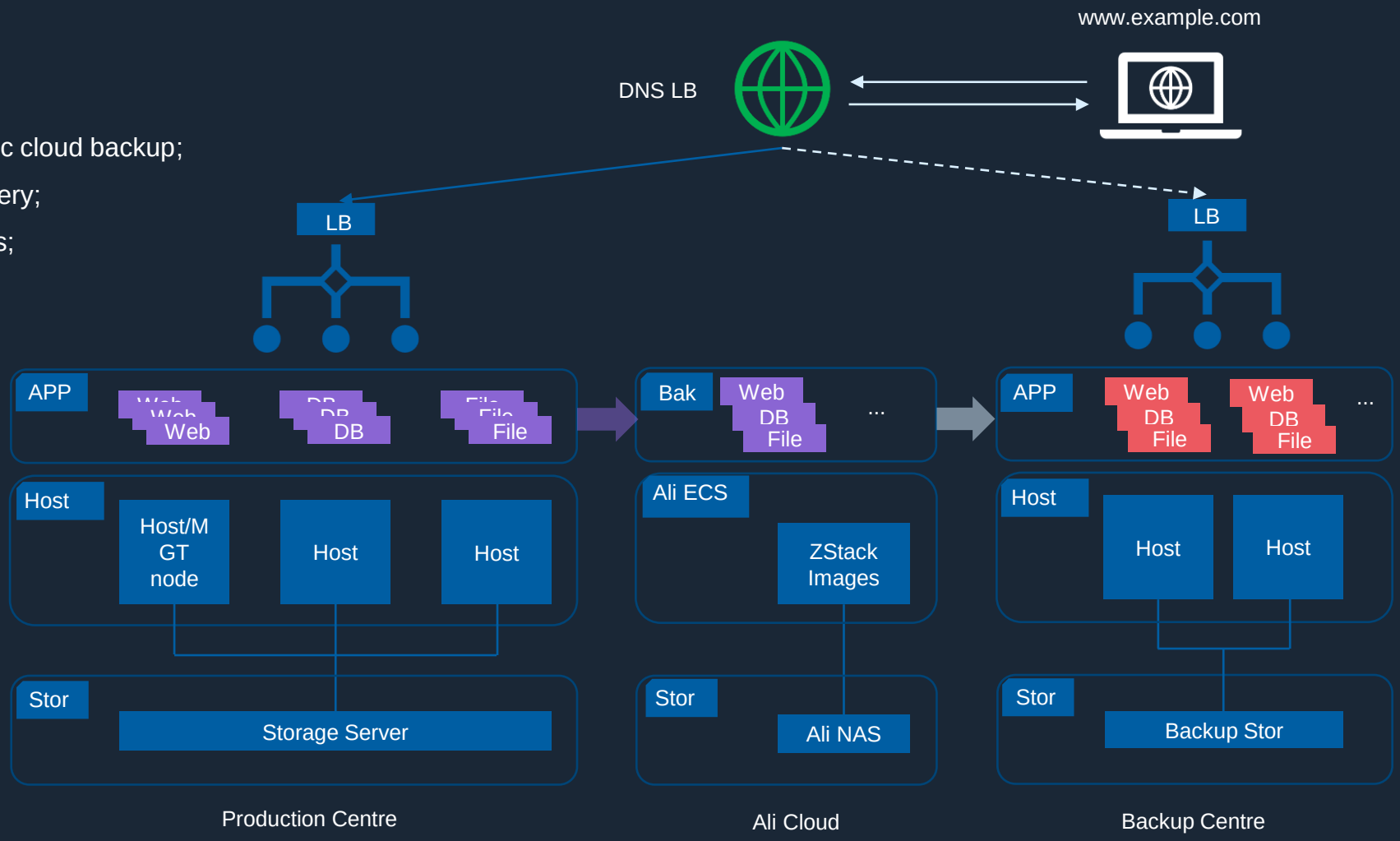
03 Disaster Recovery as a Service

Solution:

- Provides local backup, remote backup, public cloud backup;
- Remote support, public cloud disaster recovery;
- Automatic synchronization of backup servers;
- Provides data CDP backup capability.

Advantages:

- Native off-site disaster recovery and public cloud disaster recovery;
- No capacity limit on the backup function;
- More flexible backup solutions.



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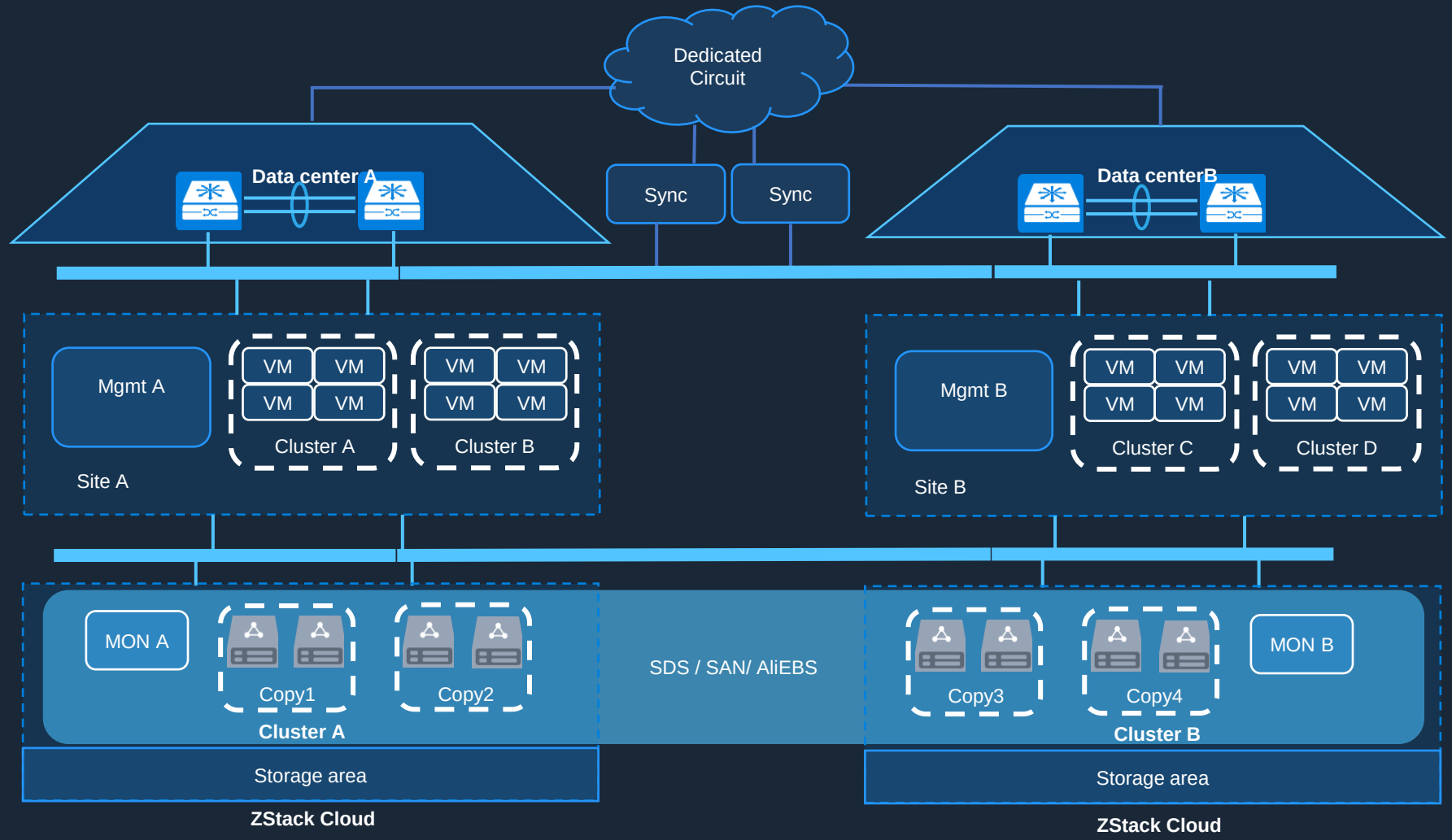
03 Active-Active Datacenter Solution

Solution:

- Support for VM HA from one data center to another;
- Supports SAN, SDS and public cloud storage mounting solutions.

Advantages:

- Native cross-data center HA functionality;
- More flexible storage options;
- Non-hardware binding



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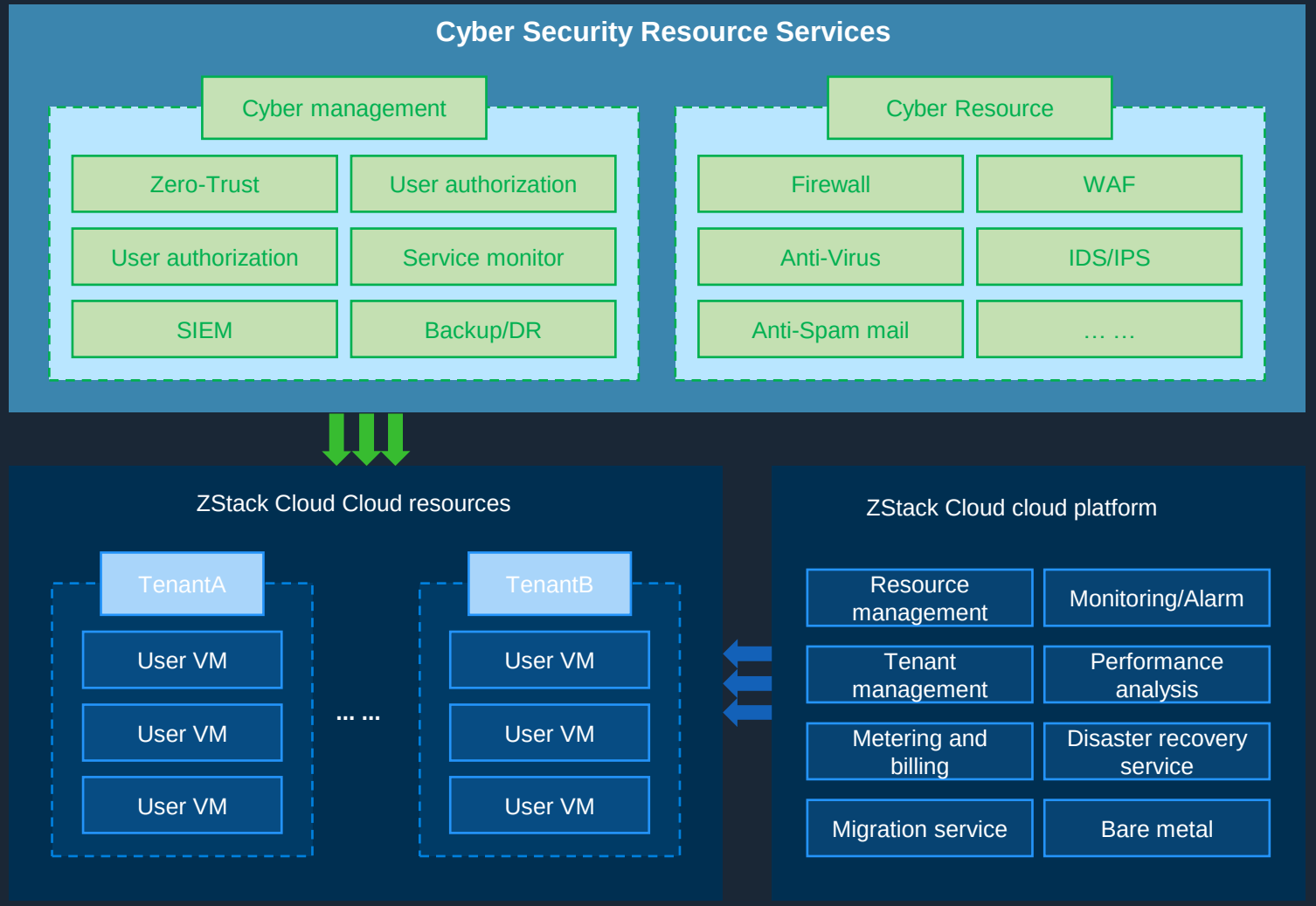
03 Security as a Service

Solution:

- Provides compute, storage, and network virtualization capabilities to deploy virtual security appliances.

Advantages:

- Unified management of cloud platform and cyber resources;
- Separated user VMs cyber resources;
- Clear boundaries and full HA support.



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03 Successful Case 1: A Managed Service Provider (MSP)

Challenge

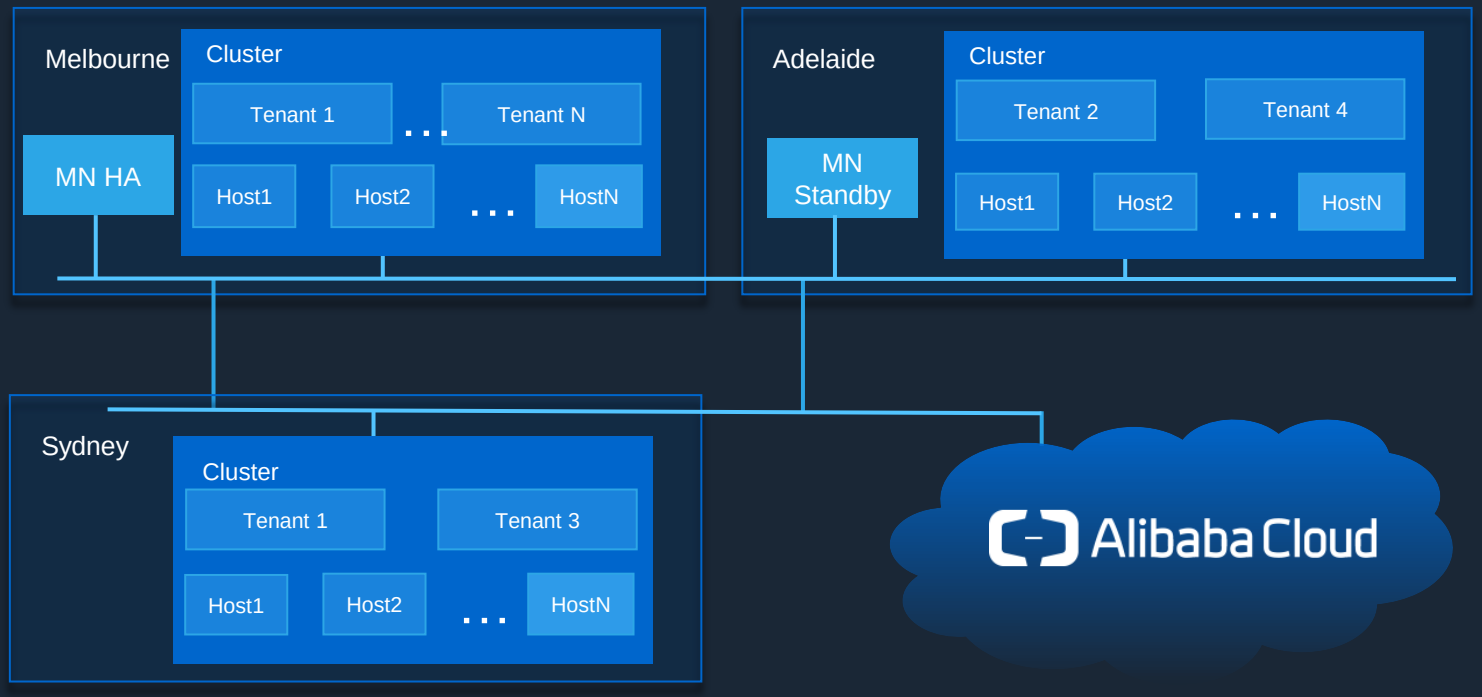
- Cloud strategy, one cloud cross multiple locations
- Leverage private cloud and public cloud
- Protection of investment, reuse old hardware, take over VMware with unified portal
- V2V
- VMs backup

Customer Value

- One cloud, unified portal, simplified management, increased efficiency
- Open API, easy integration
- A save of investment
- Hybrid architecture provides more possibility for business inovation

Solution

- All resources of Melbourne, Adelaide, Sydney are managed by ZStack
- ZStack hybrid cloud connect private cloud and alibaba public cloud
- ZStack takes over existing VMware setup
- ZStack provides build-in V2V of VMware
- ZStack provides build-in VMs backup function; Can backup locally, remotely, even to public cloud



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03 Successful Case 2: A Food Ordering and Delivery App

Challenge

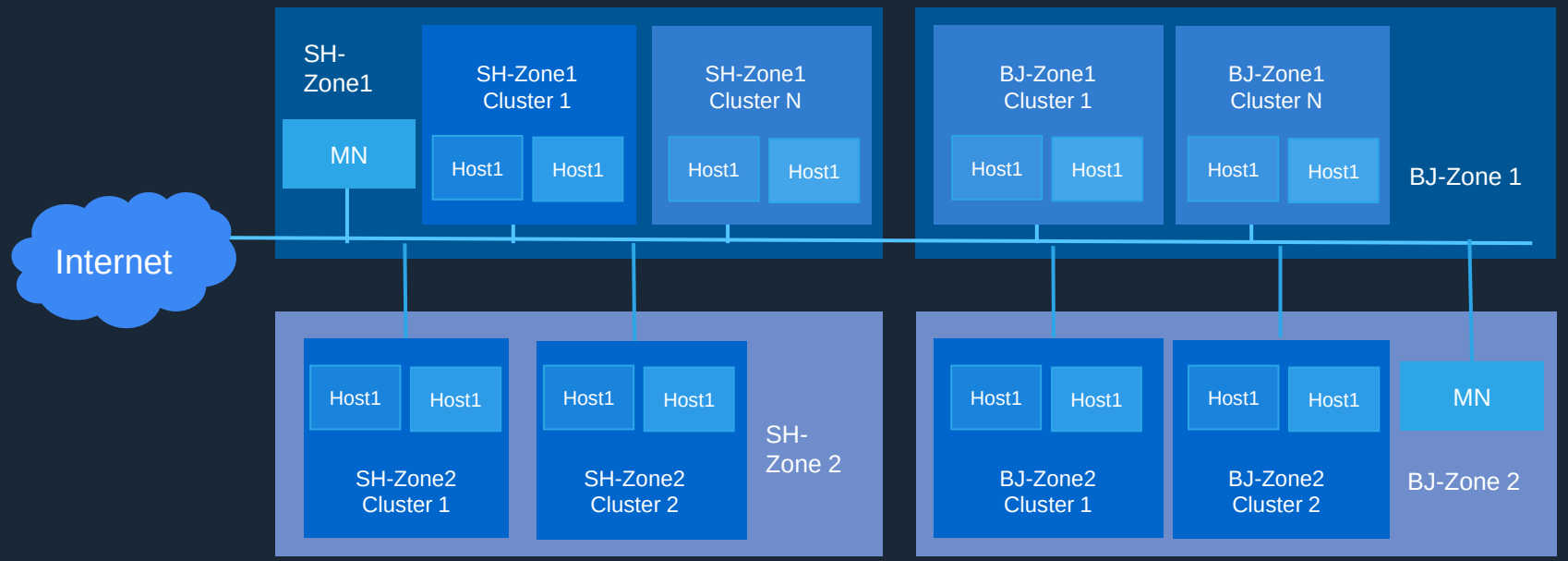
- Massive user access, order generation and data processing.
- Requiring fast resource scheduling during peak periods.
- The scale of physical resources being huge. Creating VMs on hosts or with manual commands and then delivering them to dev, test and production environments.

Solution

- User access put onto public cloud.
- Data processing put onto ZStack private cloud and integrated with CI/CD.
- Local storage, with HA guarantee for application layer.

Customer Value

- Two management nodes manage four zones simultaneously. The scale of hosts reach 2000+.
- Completely open APIs, easy to integrate or connect other 3rd platforms.
- Quick deployment and acceleration of model selection for cloud platform.
- Platform stable and strong. Relieving the maintenance team on the burden of complex and tedious routines.



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03 Successful Case 3: An International Sports Organization

Challenge

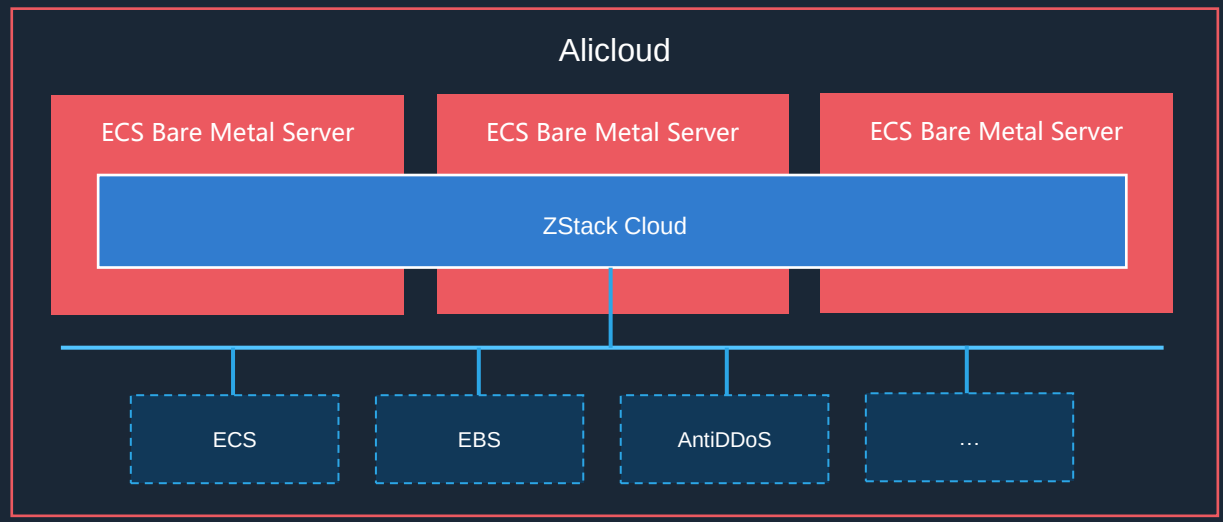
- Short-cycle projects requiring private cloud services
- Requires use of some public cloud features
- Requires network support for multicast streaming services

Solution

- Using Alicloud ECS Bare Metal Server as a ZStack computing resource
- Using Alicloud EBS as a ZStack storage resource
- Use Alisecurity products to provide security
- Using ZStack VPC routers to provide multicast networks

Customer Value

- Rapid deployment, hardware-free
- Enabling rapid service cloudification
- Combines the features of private and public clouds for enhanced security



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04 Product Comparison

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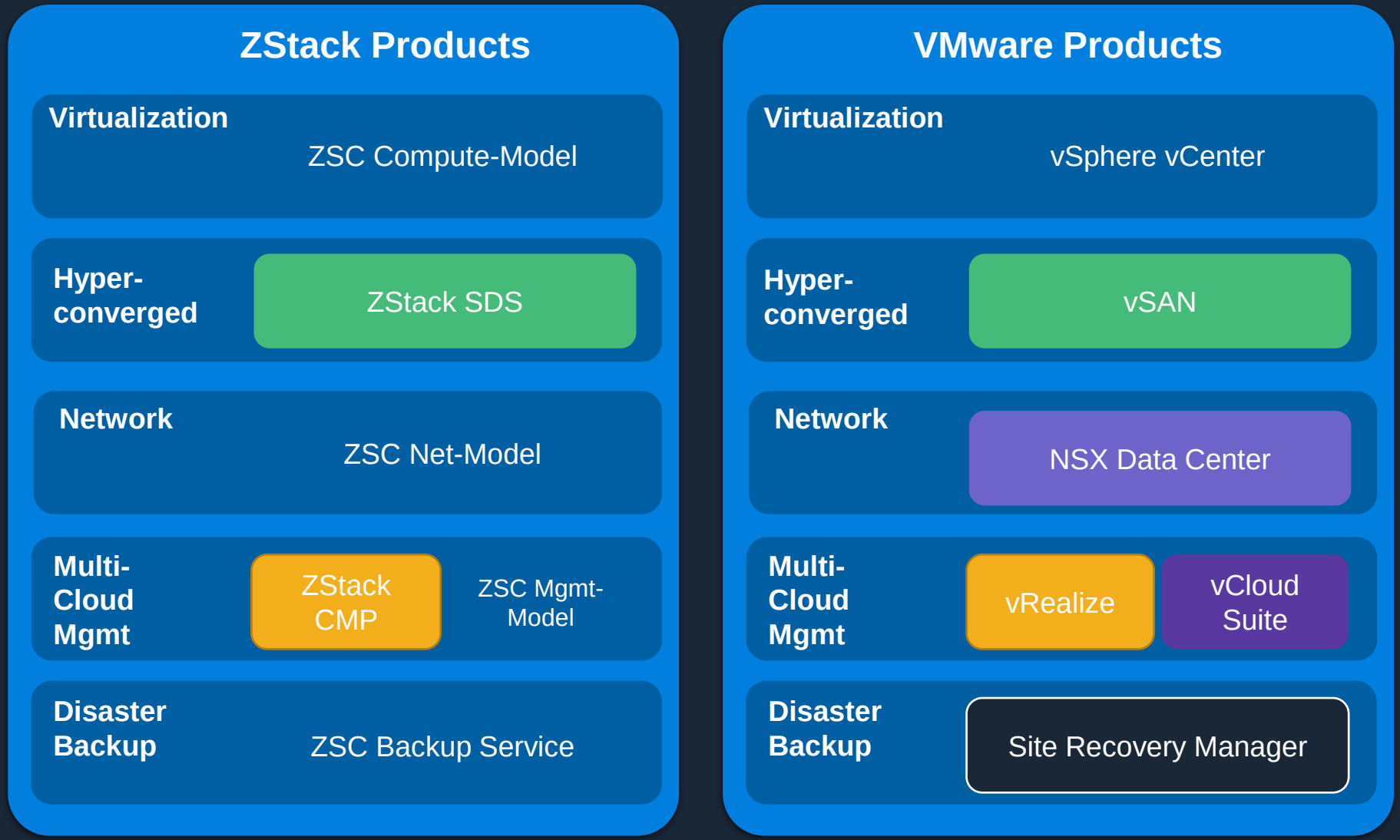
04 ZStack vs. VMware

Single product with more integrated features



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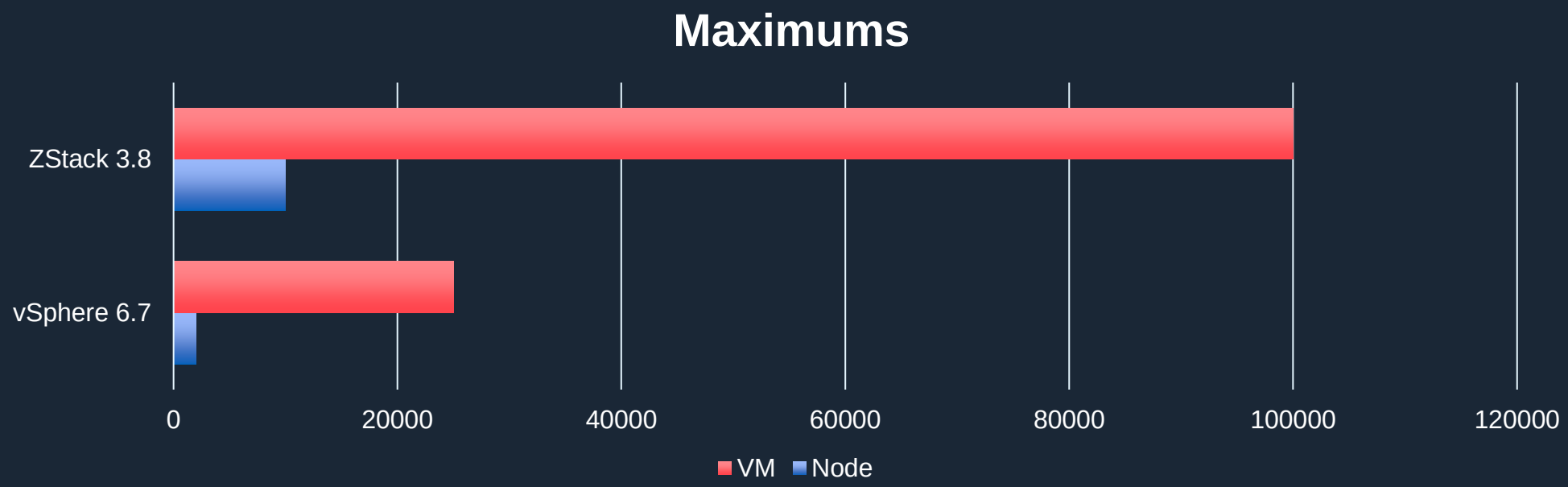
04 Performance Comparison

ZStack Cloud supports **10000 hosts** and **100000 VMs** in a single zone. Because of its advanced design, ZStack Cloud's performance is impossible to be caught up by other products. Using ZStack Cloud can let costumers easily handle any business scenarios and challenges. In addition, ZStack **only needs 4 cores 8G memory** to install.



Data Source:
https://configmax.vmware.com/guest?vmwareproduct=vSphere&release=vSphere%206.7&categories=3-0
https://www.Alibaba Cloud ZStack.io/help/product_manuals/maintenance_manual/16.html#c16_1_2

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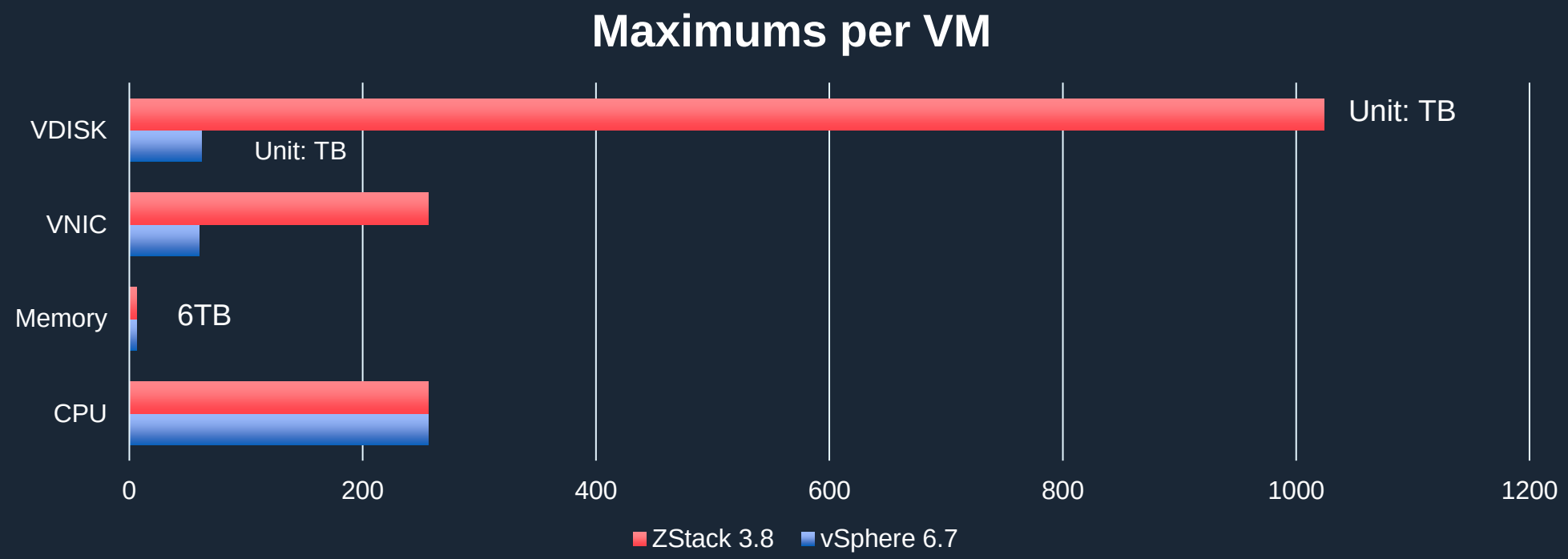
04 Performance Comparison

ZStack Cloud supports **1PB vDisk** and **256 vNIC for single VM**. It gives VM the ability to deal with bigger data.



Data source:
https://configmax.vmware.com/guest?vmwareproduct=vSphere&release=vSphere%206.7&categories=3-0
https://www.Alibaba Cloud ZStack.io/help/product_manuals/maintenance_manual/16.html#c16_1_2

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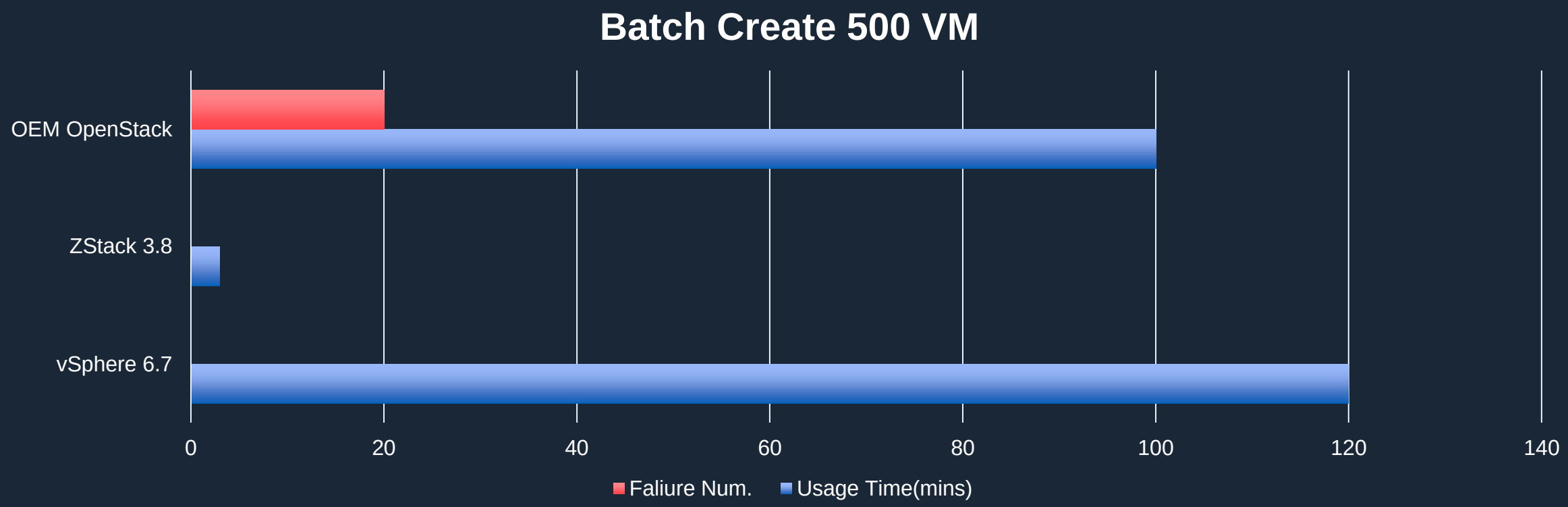
04 Performance Comparison

A batch creation of **500 VM** with ZStack Cloud **only takes 2 mins 40 sec**. This data came from a real case:

A government security organization planned to build a cloud for its cybersecurity skills training project. To meet the specifications of the training system which needed to quickly create around 500 VM, the customer invited three vendors to do a test based on the same hardware. Finally the customer chose ZStack because of our excellent performance.



https://www.Alibaba Cloud ZStack.io/cases/cases_privacy_cloud/case_government/

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04 Main Vendors Comparison

	VMware	Microsoft	Nutanix	Redhat	Citrix	ZStack
Virtualization	ESXi	Hyper-v	AHV (built on KVM)	KVM	Xen	KVM
Management	vCenter	System Center	Prism	RHV	XenCenter	ZStack
Network	vSS, vDS	FLAT,VPC	FLAT,VPC	Flat	Flat	FLAT,VPC
Storage	NFS, iSCSI, FC, vSan, DAS	SMB3, NFS, iSCSI, FC, DAS	SDS	FC, FCoE, iSCSI	FC, FCoE, iSCSI	NFS, Ceph, iSCSI, FC
HCI	vSan	SMB3	Built-in	3-party	Not support	ZStack Ceph
Hybrid cloud	AWS	Azure	Not support	Not support	Not support	Alibaba Cloud
Cluster Size	64 hosts	64 hosts	32 hosts	400 host	64 hosts	1,000 hosts

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04 ZStack Advantages

01 Quick Time to Market

- A basic setup can be done within 30 minutes
- Version upgrades can be done in a rolling fashion without affecting the business

02 Easy and User-friendly O&M

- All O&M using the same web-based console
- Based on Linux, hardware friendly
- Everything is API, automated end to end

03 Cost effective

- Pay once with future version upgrades included
- More out-of-the-box features without any additional cost

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Thanks !

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