HUAWEI ENTERPRISE ICT SOLUTIONS A BETTER WAY

Converged World – Converged ICT – Converged Network

Huawei IT Products for Cloud Computing

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enterprise.huawei.com
HUAWEI TECHNOLOGIES CO., LTD.

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Huawei at a Glance

Carrier Business
- Fixed Network
- Wireless Network
- Telecom Software
- Core Network
- Service

Enterprise Business
- Enterprise Networking
- UC&C
- IT
- SecoSpace
- Service

Consumer Business
- Devices Business
  - Smart phones
  - Home devices
  - MBB devices
- Device Chipsets/ Cloud

77% of revenue from global top 50 telecom carrier

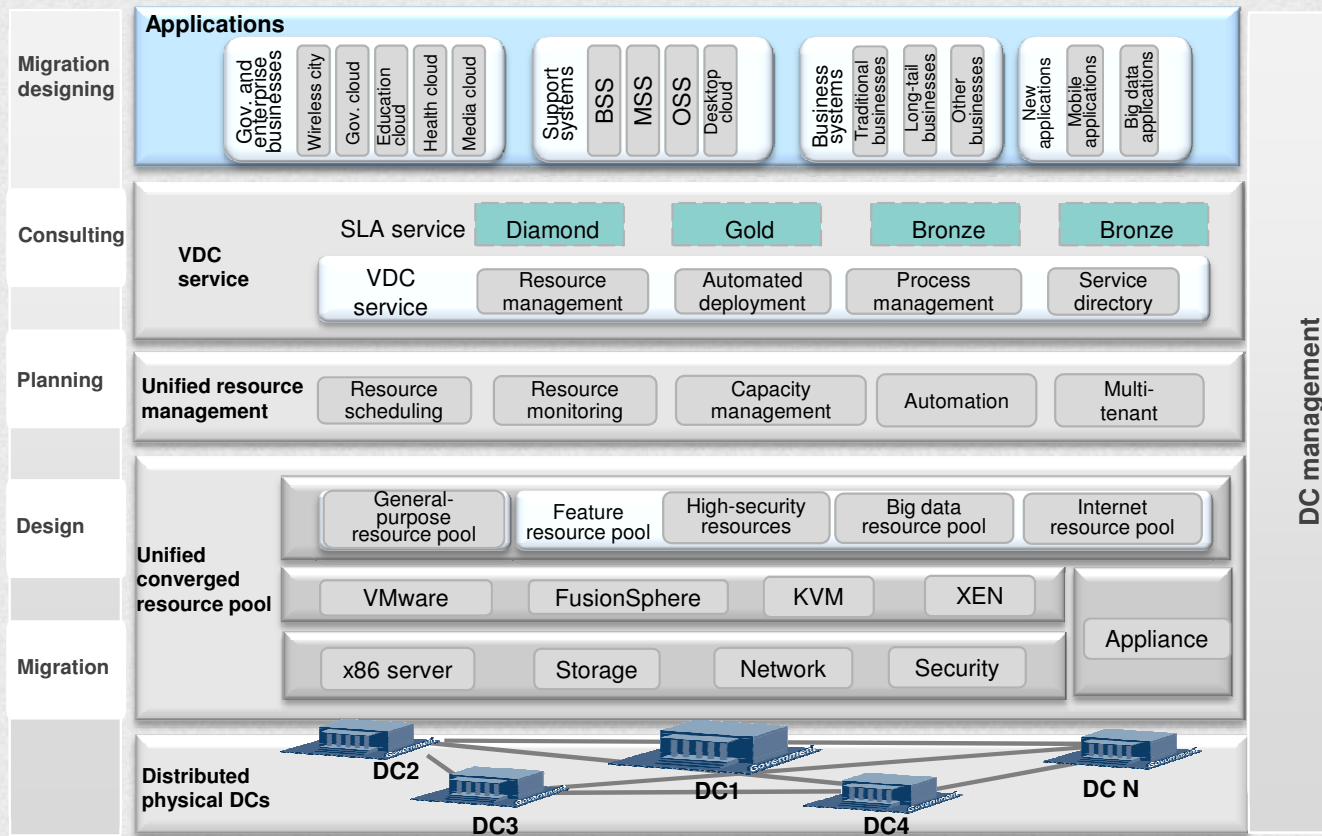
- 5 of Top 10 Banks
- 160+ Power Companies
- 140+ Countries' Public Sectors
- 12 of Top 20 Oil & Gas Companies
- 145,000+ km Highway & Railway

Hundreds of millions of people

Architecture of HUAWEI Cloud Solution

Migration designing	**Applications**
Consulting	VDC service
Planning	Unified resource management
Design	Unified converged resource pool
Migration	

Applications: Gov. and enterprise businesses · Wireless city · Gov. cloud · Education cloud · Health cloud · Media cloud · Support systems · BSS · MSS · OSS · Desktop cloud · Business systems · Traditional businesses · Long-tail businesses · Other businesses · New applications · Mobile applications · Big data applications

VDC service — SLA service: Diamond · Gold · Bronze · Bronze
VDC service · Resource management · Automated deployment · Process management · Service directory

Unified resource management — Resource scheduling · Resource monitoring · Capacity management · Automation · Multi-tenant

Unified converged resource pool — General-purpose resource pool · Feature resource pool · High-security resources · Big data resource pool · Internet resource pool
VMware · FusionSphere · KVM · XEN · Appliance
x86 server · Storage · Network · Security

DC management

Distributed physical DCs: DC2 · DC1 · DC3 · DC4 · DC N

Business-centric VDC service

➢ Independent on-demand VDC service for businesses or organizations
➢ SLA assurance and on-demand scalability
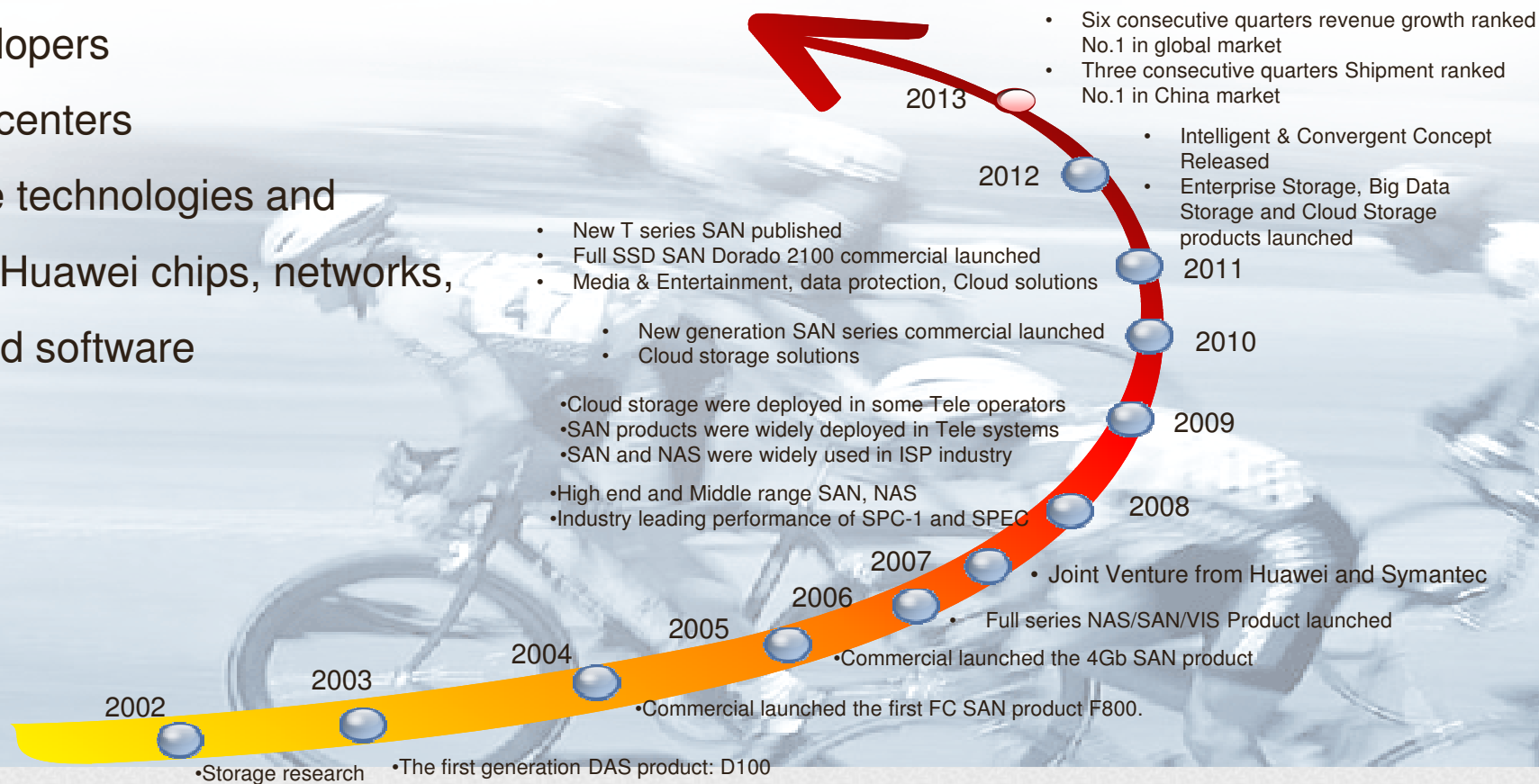
Unified management of multiple DCs

➢ Unified operating, maintenance, and management of heterogeneous clouds and non-storage resources
➢ Rights- and domain-based management
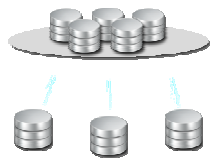
Cross-DC converged resource pool

➢ Virtualized and physical converged resource pools of computing, storage, and network resources
➢ Cross-DC unified resource scheduling

Over a Decade of Sustained Investment in Storage Technologies

- **3000+** Developers
- **5** Research centers
- Sharing core technologies and platforms of Huawei chips, networks, hardware and software

2013
- Six consecutive quarters revenue growth ranked No.1 in global market
- Three consecutive quarters Shipment ranked No.1 in China market

2012
- Intelligent & Convergent Concept Released
- Enterprise Storage, Big Data Storage and Cloud Storage products launched

2011
- New T series SAN published
- Full SSD SAN Dorado 2100 commercial launched
- Media & Entertainment, data protection, Cloud solutions

2010
- New generation SAN series commercial launched
- Cloud storage solutions

2009
- Cloud storage were deployed in some Tele operators
- SAN products were widely deployed in Tele systems
- SAN and NAS were widely used in ISP industry

2008
- High end and Middle range SAN, NAS
- Industry leading performance of SPC-1 and SPEC

2007
- Joint Venture from Huawei and Symantec

2006
- Full series NAS/SAN/VIS Product launched

2005
- Commercial launched the 4Gb SAN product

2004
- Commercial launched the first FC SAN product F800.

2003
- The first generation DAS product: D100

2002
- Storage research

OceanStor Intelligent & Convergent Storage Portfolio

Storage Solution

Centralized Backup Solution	Site-to-Site Disaster Recovery Solution	Cloud Backup Solution	Cloud Disaster Recovery Solution	Enterprise Application Solution	Media & Entertainment Storage Solution
VIS6600T	HDP3500E	VTL6900	SNS	NBU	Simpana StorNext ......

Software Products

OceanStor DeviceManager
(Device Management)
- Single equipment management
- Support Web mode
- Support multi application platform

eSight
(Storage Resource Management Part)
- Storage management
- Path analysis ability
- Performance and capacity reporting

OceanStor ReplicationDirector
(Disaster Recovery)
- Multi site disaster recovery management
- Multi site practice, switching
- Support the physical machines and virtual machine

OceanStor CSE
(Data Service)
- Support files to S3 mapping
- Object storage capacity based on the multi tenant
- Support for cross data center connectivity

Hardware Products

Entry Level Storage
OceanStor S2200T

Medium and low-end Unified Storage
OceanStor S2600T/S5500T/S5600T/S5800T/S6800T

Enterprise Storage
OceanStor 18000 Series

Solid State Storage
OceanStor Dorado2100 G2/5100

Big Data Storage
OceanStor N8500   OceanStor 9000

- Dual controllers
- 4GB cache
- 204 disks

- Unified storage, supports both block and file applications
- Up to 768GB cache
- Up to 1,440 disks

- 2 ~ 16 controllers
- Up to 3TB cache
- Up to 3,216 disks
- 0~5s RPO

- 400,000/600,000 IOPS
- 500μs access latency

- 3M OPSActive-Active cluster architecture
- 2~24 nodes
- Max.15PB capacity

- Distributed architecture
- 3~288 nodes
- Single file system 40 PB
- 5M OPS

SmartCache   SmartMotion   SmartPartition   SmartQoS   HyperCopy   HyperClone   WiseTier   WiseLink
SmartTier   SmartVirtualization   SmartThin   SmartX Insight   HyperSnap   UltraPath   WiseQuota

Footprint of Huawei Server

New Era

- X8000 storage node DH628 V2
- E9000 new blade CH140, CH242

2013

State Grid, State Administration of Taxation , Ministry of Railways , Imperial College London

2012
- Full series V2 rack servers and blade servers
- E9000 converged architecture blade server
- High-end 4P/8P RH5885 rack server
- Market-leading, 4th-gen PCIe SSD card

Singapore Starhub

2011
- X8000 high-density rack server
- 3rd-gen SSD card

Innovation

Russia Yandex **2010**
- X6000 high-density server

Alibaba, Tencent **2009**

Baidu, Giant **2008**
- E6000 blade server
- Intelligent NIC card
- 2nd-gen SSD card

2007
- RH2285 V1 rack server
- RH1285 V1 rack server
- 1st SSD PCIe cards in the industry

Vision:
To be a leading server product and solution provider

Serve for Carriers

China Unicom
China Telecom
China Mobile

Top global operators, such as Vodafone

2002
- Start Server R&D

2003
- 1st-gen blade server T8000 V1

2004
- 2nd-gen blade server T8000 V2

2006
- 3rd-gen blade server T8000 V3, No.1 global market share
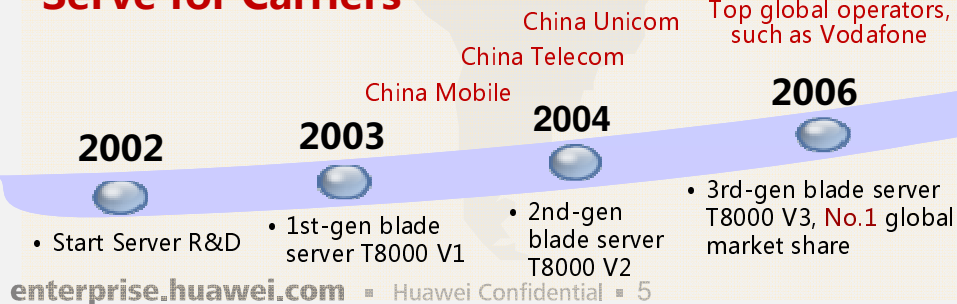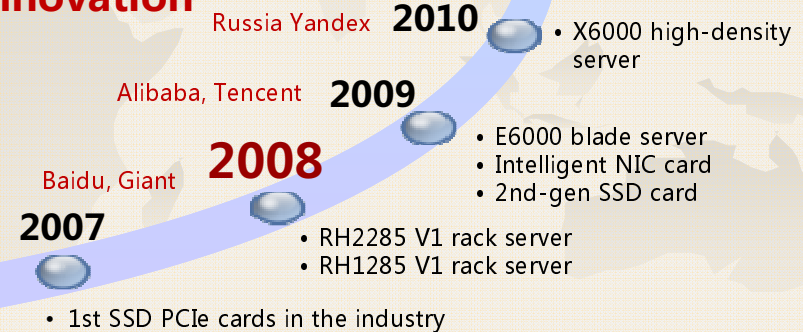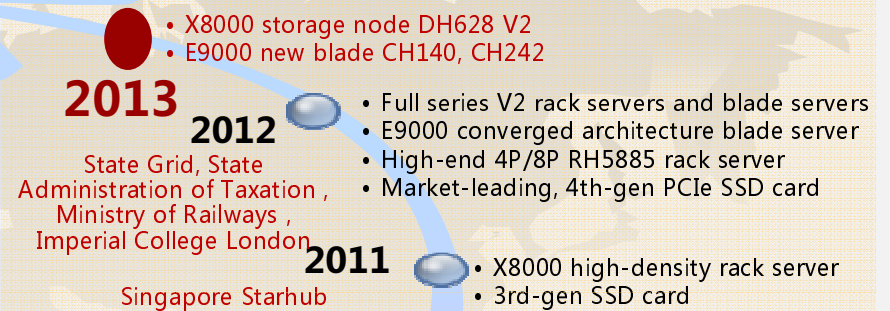
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Huawei Server Portfolio

Reference architecture and solution	Enterprise mailbox solution	HPC solution	Data analysis solution	Virtualization integration solution	RISC-to-IA Migration solution	Database reference architecture	SAP HANA reference architecture

High-density server

X6000 **2U 2/4 nodes**	**1S HW** **XH310/311**	**2S HW** **XH320**	**2S FW** **XH621**		**X8000** **44U** **Cabinet** **server**	**1S HW** **DH310**	**2S HW** **DH320**	**2S** **DH628**

Blade server

Blade server E6000 2S/4S server blades **Converged infrastructure blade server E9000** Full-width/half-width 2S/4S server blades GE/10GE/FCoE/InfiniBand switching

BH620 **BH622** **BH640** **CH121** **CH220/221** **CH222** **CH240** **CH140** **CH242**

Rack server

1U 2S **RH1288**	**2U 2S** **RH2285**	**2U 2S** **RH2288**	**2U 4S** **RH2485**	**4U 4S** **RH5885**	**8U 8S** **RH5885**
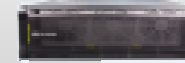
Huawei Server Product Strategy

16S ~ 64S RH8XXX

8S RH5885

4S RH5885

2S RH22XX

Mission-critical enterprise applications, virtualization, and midrange computer migration

Scale up

HPC
Private cloud
Appliance
Virtualization

E9000

Massive data processing
Web 2.0 application
Public cloud

X8000

Converged

Scale out

X6000

Cloud server

SSD card

iNIC

Data compression card

Application acceleration card

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FusionCube - Uniform Platform Supporting Flexible Configurations and Various Enterprise Applications

DB

DB

ERP

ERP

CRM

FusionSphere

Built-in 56 Gb/s InfiniBand switch module
Built-in 10GE Ethernet switch

Distributed storage pool
SSD/SAS
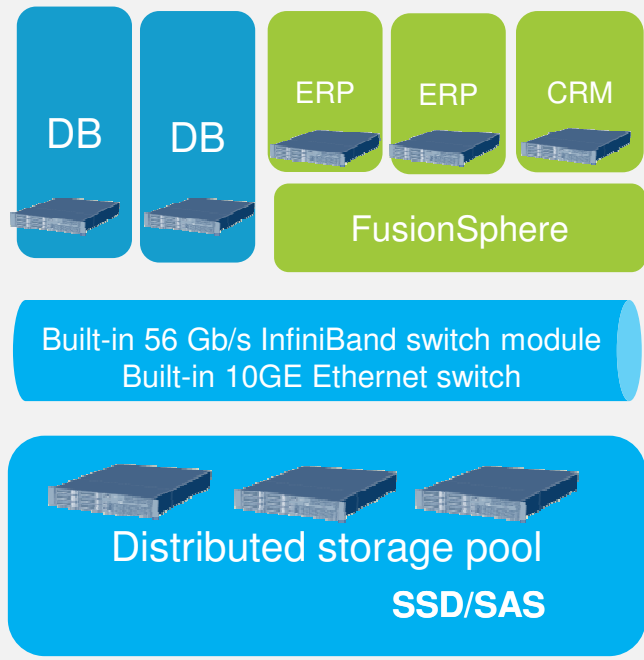
High integration
➢ Space of equipment room required reduced by 50%

Excellent reliability
➢ Database deployed on physical servers
➢ No external cable connection

High performance
➢ Built-in distributed storage software
➢ Built-in 56 Gb/s IB card
➢ Built-in SSD card

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FusionCube Hardware Platform

E9000 Based

High Performance :
- NVDIMM as Cache
- High Speed PCI-E SSD as Storage

1 **Leading Computing Density**
32*2P notes and **64*Romley EP 130W CPU** per chassis
Maximum floating point performance **16.5TFlops** / chassis

2 **Leading Storage Density**
CH222（Full width）support **15*2.5 inch HDDs**
Single-frame support **120*2.5 inch HDDs**

3 **Leading Switch Performance**
E9000 switch module base on advanced **Huawei DataCenter Switch Technology**
15.6T midplane switch capacity，support maximum **128*10GE ports** and evolution to **40GE and 100GE**
Support Ethernet，IB，FC ports, flexible networking

4 **Leading Reliability**
Support running at **40°C**
The failure rate is **15%** **lower** than competitors

5 **Leading Energy Efficiency**
Rank first in China Mobile and China Unicom competition testing
Chinese green energy certification

6 **Convenient O&M**
Plug and Play
Automatic configuration and transmission data, including BIOS, RAID, network card

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Scale On Demand Smoothly

- **Start from small**
- *One chassis - Half configuration with 4 full-width blades*

- Up to 8 chassis concatenation **w/o external switches**
- *Up to 4096 vCores, 96TB RAM, and 1.9PB Storage*

- Scale out with external switches
- **Auto-discover, auto-configure**
- *Up to 20*3*512 = 30,720 vCores, 240TB RAM and 6PB Storage*

Single Chassis

One Rack with 3 Chassis

Multiple Racks
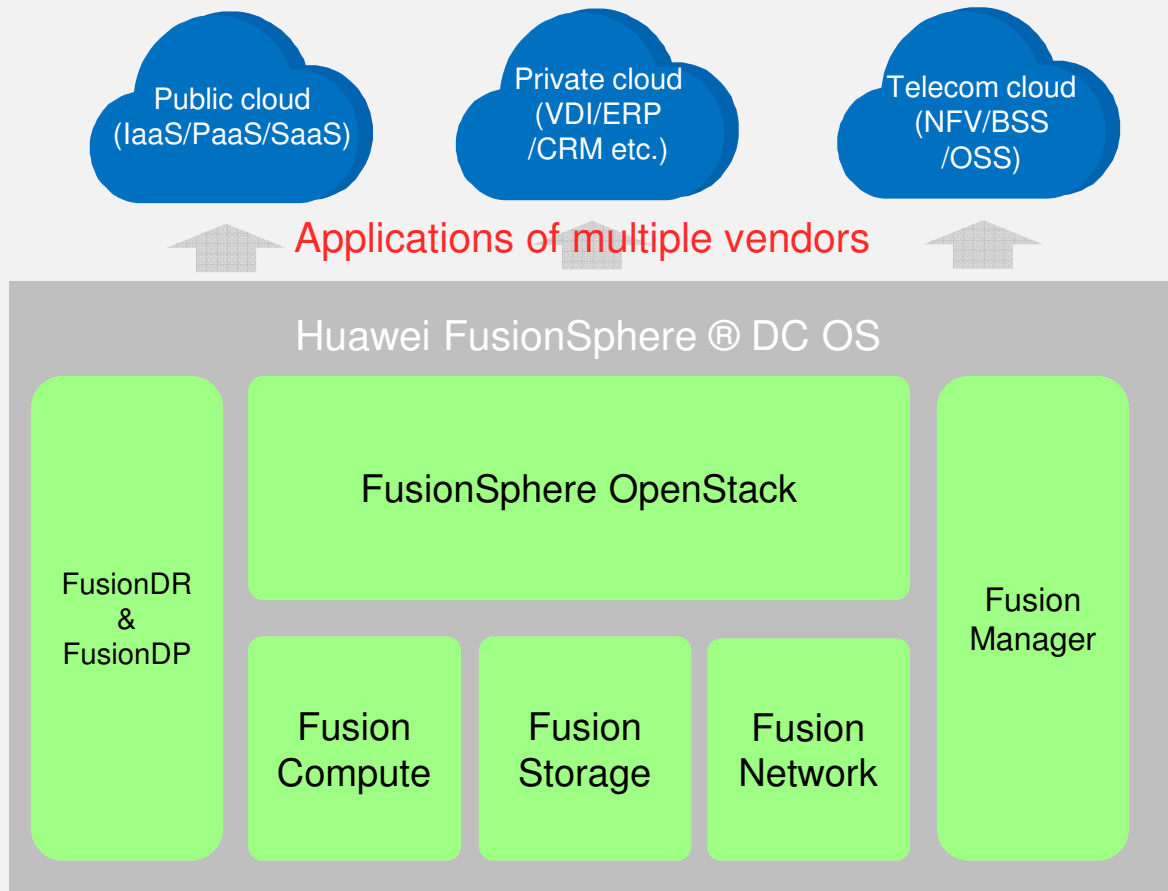
Up to 20 Racks

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Top 6 Key Features of FusionSphere 5.0

Public cloud (IaaS/PaaS/SaaS)

Private cloud (VDI/ERP /CRM etc.)

Telecom cloud (NFV/BSS /OSS)

Applications of multiple vendors

Huawei FusionSphere ® DC OS

FusionDR & FusionDP

FusionSphere OpenStack

Fusion Manager

Fusion Compute

Fusion Storage

Fusion Network

- ✓ Open cloud services and resource scheduling: Huawei OpenStack (Enterprise Edition)
- ✓ High-performance hypervisor: FusionCompute
- ✓ Enterprise-level distributed software-defined storage: FusionStorage
- ✓ Service-driven, software-defined networking (SDN): FusionNetwork
- ✓ Visualized, centralized, and automatic management engine: FusionManager
- ✓ Disaster recovery (DR) and backup reliability protection: FusionDR & FusionDP

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Core Architecture Features of FusionSphere 5.0

- **Scalability:** Provides a distributed cloud that supports up to 100 data centers (DCs), with 100,000 hosts, 1,000,000 VMs, 1,000,000 network nodes, and 2000 PB storage.
- **High performance:** The computing virtualization performance of FusionSphere is 20% higher than that of VMware. The overlay virtual network forwarding performance of FusionSphere is 300% higher than that of VMware. The storage performance of FusionSphere is 500% higher than that of VMware, because FusionSphere uses software-defined storage that supports 12 million IOPS for 1024 hosts in a resource pool and provides the latency of only 100 µs.
- **Zero manual intervention and maintenance**: FusionSphere allows initial management nodes to be installed within 80 minutes, 100 bare hosts to be concurrently installed within 40 minutes, 100 non-linked clone VMs to be created within 30 minutes, 100 linked clones to be created within 2 minutes, and 2000 VMs to be concurrently started within 35 minutes
- **High efficiency of the Service-Oriented Architecture (SOA):** Huawei leverages multiple technologies, such as computing virtualization, software-defined storage and networks, extended OpenStack functions, and open-source OpenStack trunk, to implement SOA decoupling, real-time synchronization with the OpenStack community (maximum synchronization interval: six months), and smooth upgrade.

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Why Huawei?

Comprehensive solutions

Industry's **most complete** cloud infrastructure

End-to-end DC solutions

Constant innovation

A decade of IT technology experience with constant innovation ability

Cloud Infrastructure Product Innovation Award: Frost & Sullivan 2013

R&D strengths

7 global R&D centers with **10000+** R&D engineers

150+ approved technical standards and **1500+** approved and submitted technology patents

Excellence

Constant pursuit of best performance and highest cost performance

Openness

Over **400** business partners

Membership of over **100** standard organizations

Service capabilities

Customer-centric service capabilities

Global operating & localization service

Recognition

No. 1 among global developed DC vendors

No. 2 in terms of growth rate of DCs based on a converged architecture

TBR

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