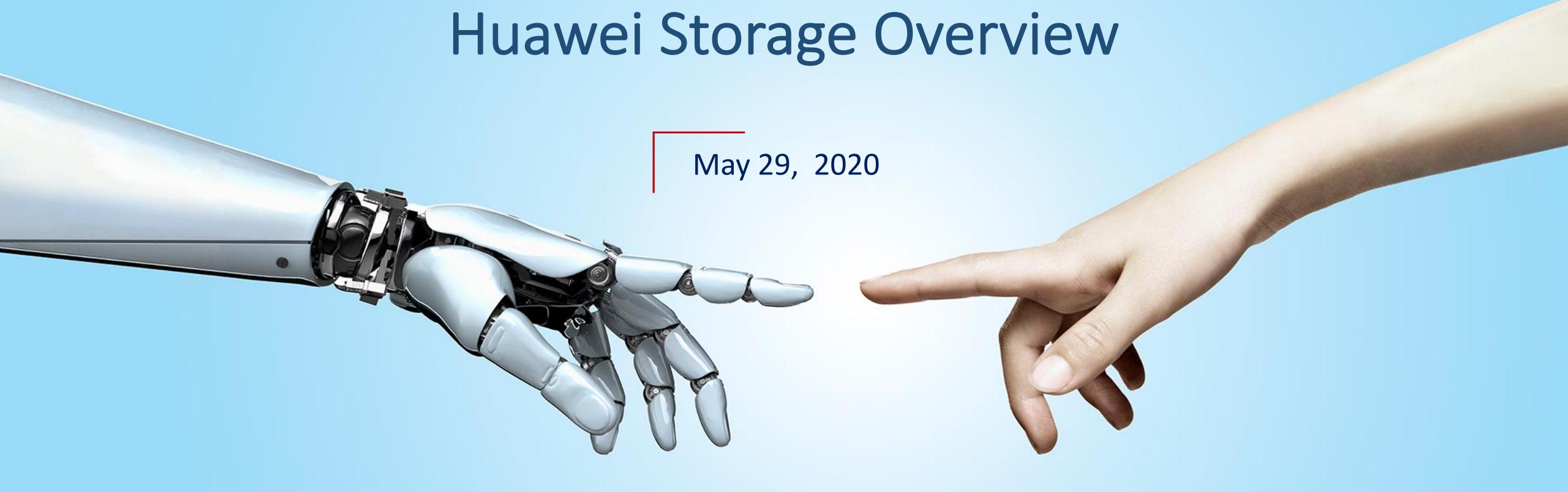


# Huawei Storage Overview

May 29, 2020



# Agenda

- ❖ Relationship Review
- ❖ Huawei Storage Review
- ❖ Next Step Discussion

# Index

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## 1 Huawei Update

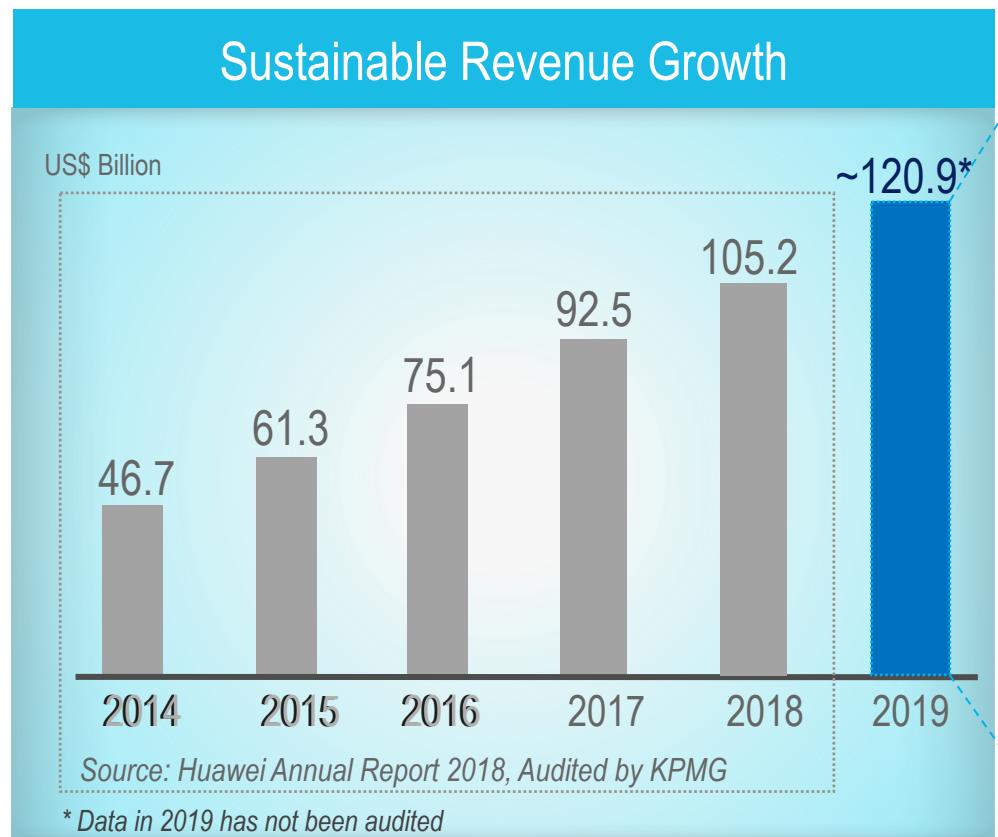
- Huawei 2019 Update
- Storage BU Overview

## 2 Storage Proposal

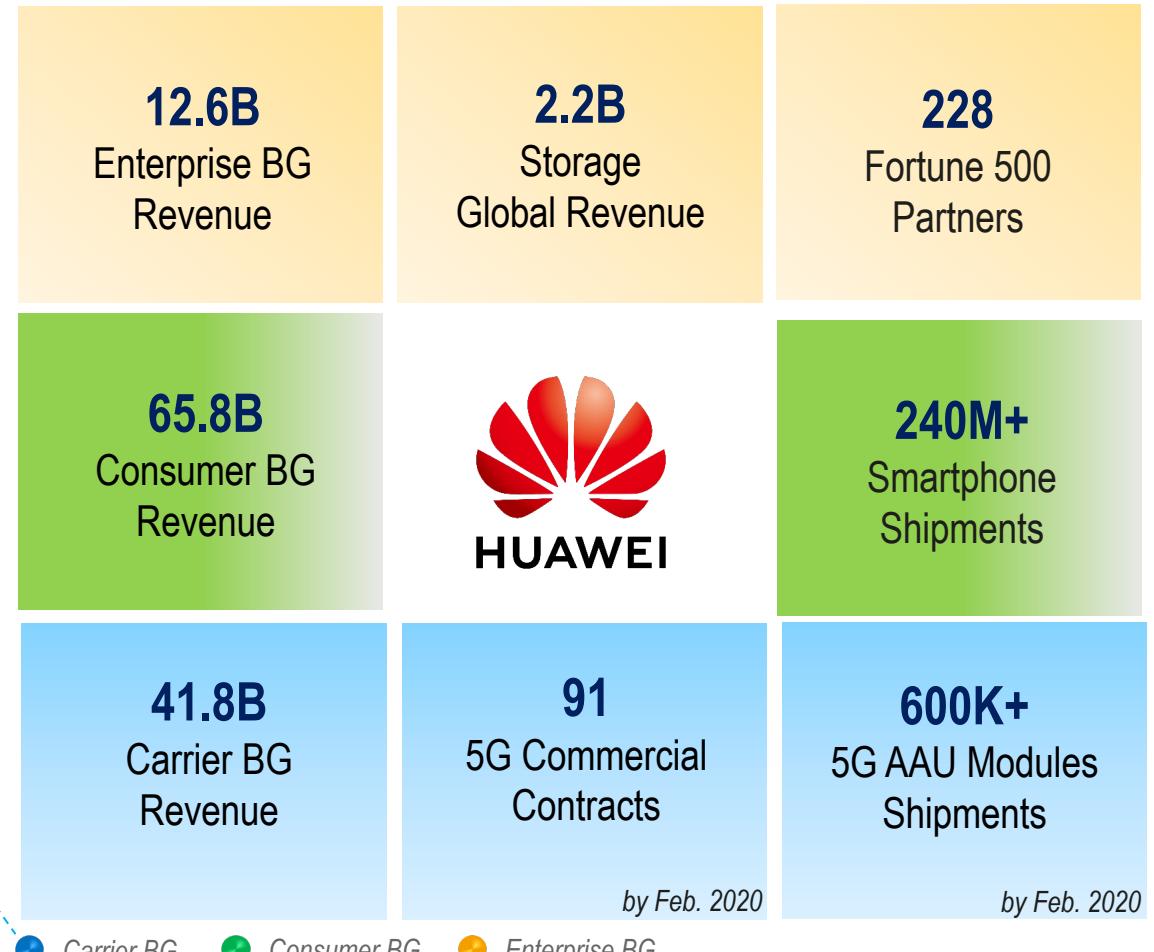
## 3 Compute Proposal

## 4 Global Service

# Huawei in 2019



### Key Operational Achievements in 2019



# Huawei Storage Business

**18+** Years

Acquired Huawei-Symantec  
in 2012



**30+**

Industry Organization Members



**4000+**  
R&D Engineer



**1600+**

Storage Patent



**12**

R&D Center

# Quick Glance at Our Progress Past few Years

1. Leader in Gartner Storage Magic Quadrant
2. Significant progress each year from 2016
3. Overtaking IBM,HDS and better execution than DELL/EMC



2016



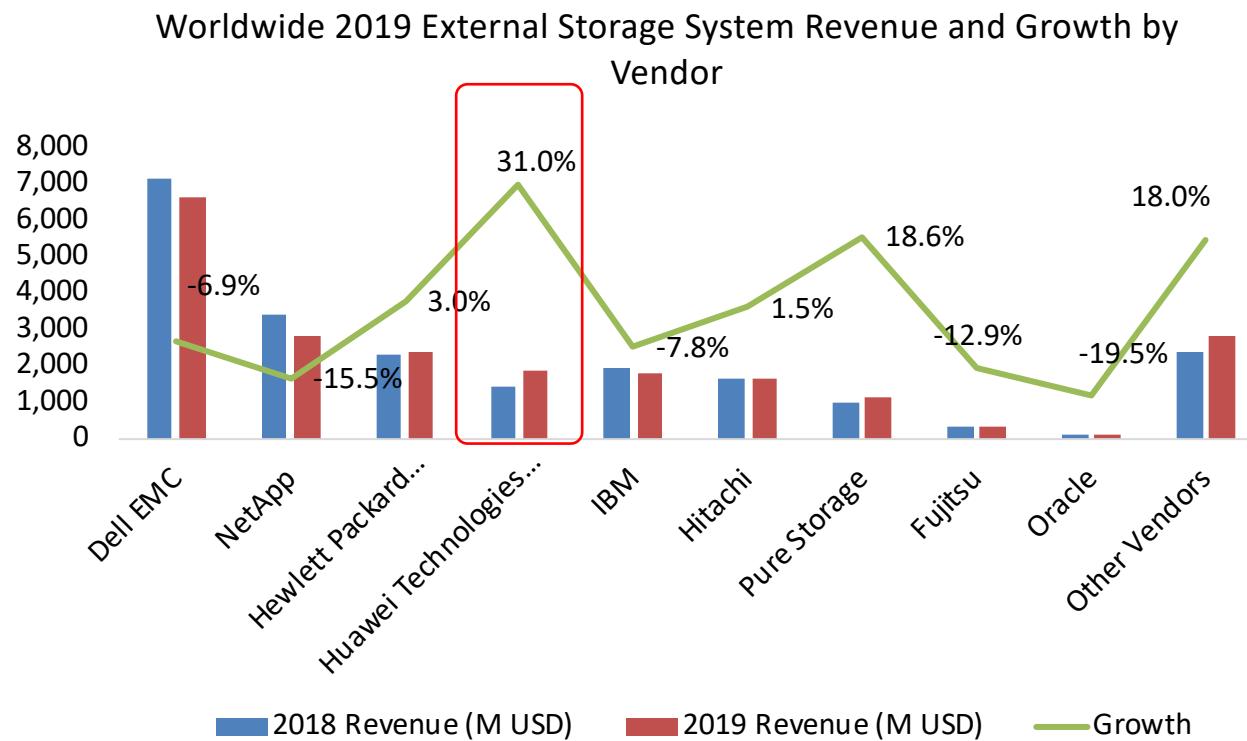
2017



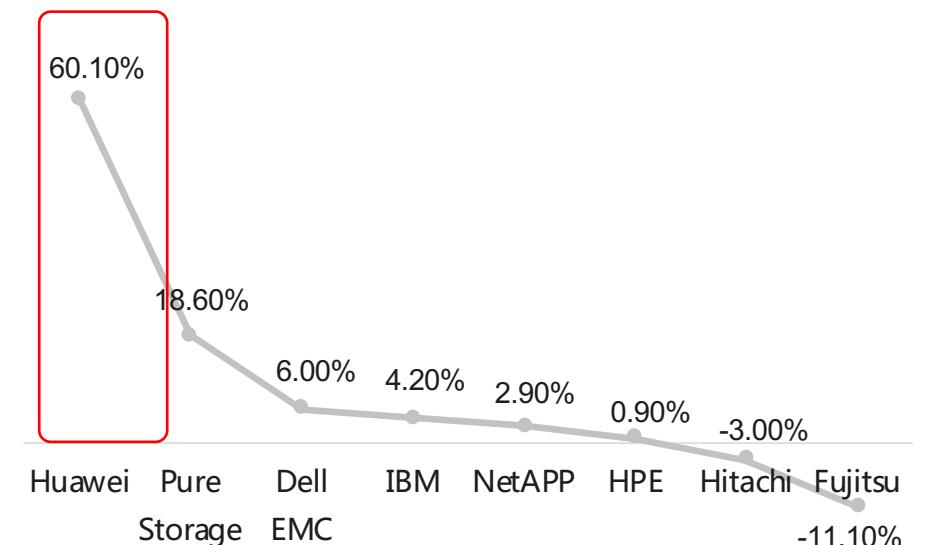
Source: Magic Quadrant for General-Purpose Disk Arrays

# Year 2019: No.4 in Global Market Share and No.1 in Growth Rate

## Storage Revenue and Growth



## AFA Revenue Growth Rate



\*Source: Gartner 2019 Q4

# Trusted by 12,000+ Global Customers in Various Industries



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**1** Huawei Update

**2** Storage Solutions

- OceanStor Dorado V6
- OceanStor 100D
- FusionCube

**3** Management

**4** Global Service

# Huawei Intelligent Data Storage Portfolio

Solutions



FusionData



DR



Backup



Archive

Data Management



DeviceManager

Intelligent Storage Management



OceanStor DJ

Intelligent O&M



eService

Intelligent Storage

All-Flash Storage



OceanStor Dorado  
18000 V6



OceanStor Dorado  
8000 V6



OceanStor Dorado  
6000 V6

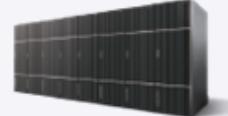


OceanStor Dorado  
5000 V6



OceanStor  
Dorado 3000 V6

Hybrid Flash Storage



OceanStor 18500/18800 V5



OceanStor 6800 V5



OceanStor  
5300/5500/5600/5800 V5



OceanStor  
2200/2600 V3

Distributed Storage



OceanStor 100D



OceanStor 9000



FusionCube  
500

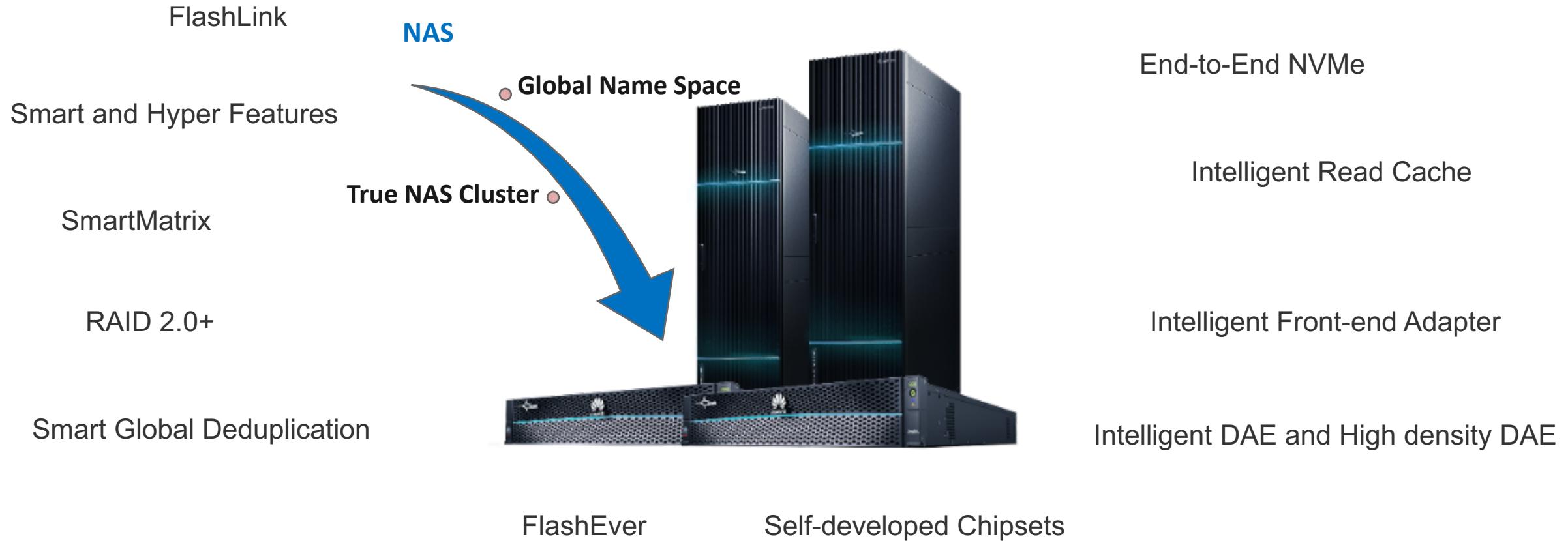


FusionCube  
2000



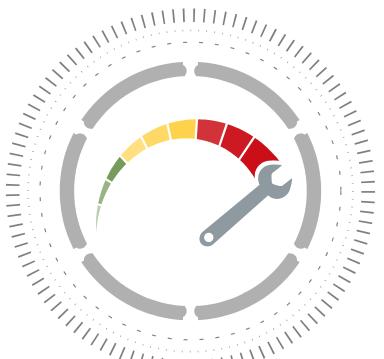
FusionCube  
1000

# OceanStor Dorado V6 Enterprise Features



# OceanStor Dorado V6 Storage Highlights

## Ever Fast



Industry's highest performance and lowest latency

20 million IOPS  
0.1 ms latency



## Ever Solid



SmartMatrix fully-interconnected architecture for always-on applications

Tolerates failure of 7 out of 8 controllers



## AI-Powered



Intelligent full-lifecycle management with AI chips and algorithms

AI-enabled O&M



# Chip-Powered Platforms for 20 Million IOPS



Chip-powered

Seamless storage upgrades for industry-leading performance



Protocol-leading

E2E NVMe for a high-performance expressway

**FlashLink®**

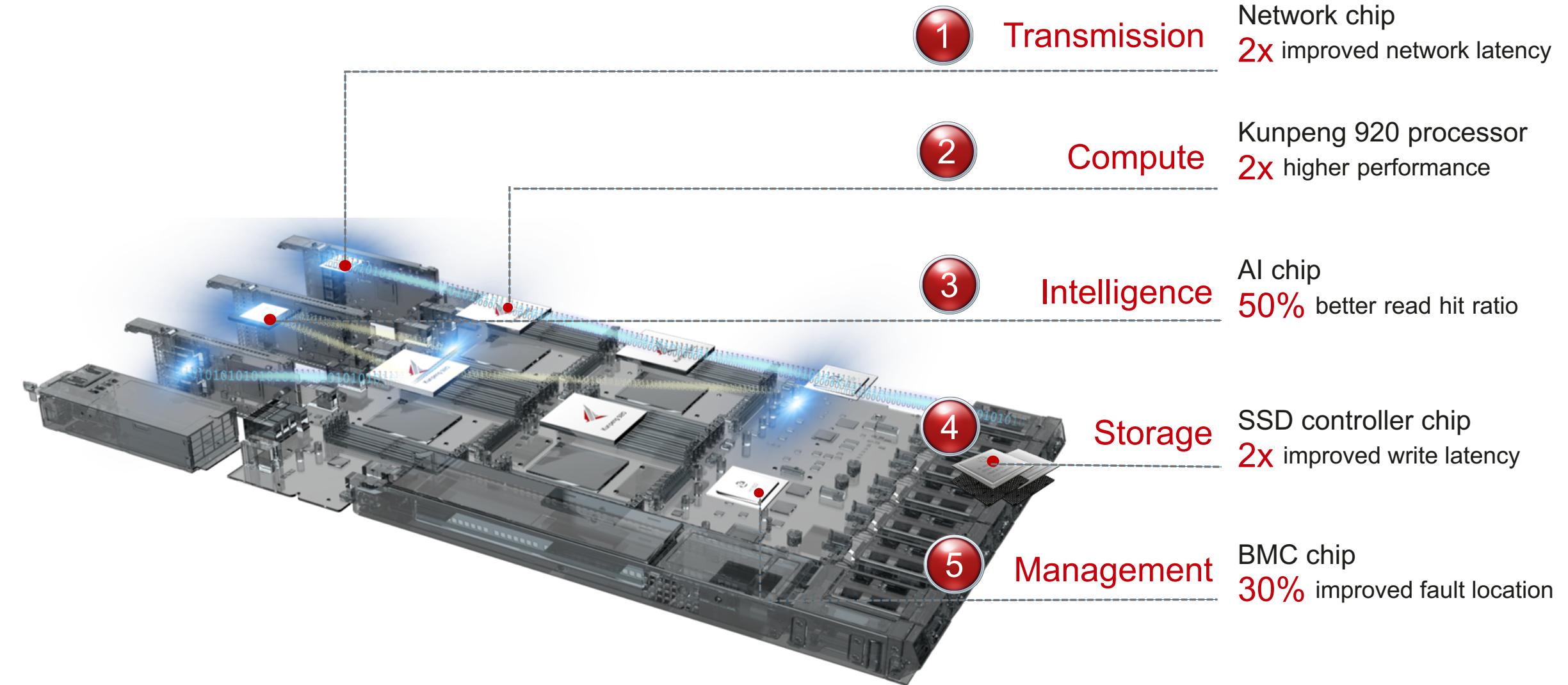
Algorithm-accelerated

SSD-controller synergy with intelligent algorithms for maximized all-flash performance



Industry's  
highest  
performance

# No.1 Performance with 5 Intelligent Chips



# Highest Reliabilities

99.9999%  
system-level reliability

99.99999%  
solution-level reliability



## Cloud backup

- **Gateway-free** cloud backup
  - 30x higher backup frequency
  - 20x faster backup speed
- 
- Gateway-free active-active solution (1 ms latency)
  - FlashEver **without** data migration

## Solution

- Gateway-free active-active solution (1 ms latency)
- FlashEver **without** data migration

## System

- **Comprehensive** enterprise-class features
- Tolerance for simultaneous failures of 3 disks
- Reconstruction of 1 TB data **in 15 minutes**

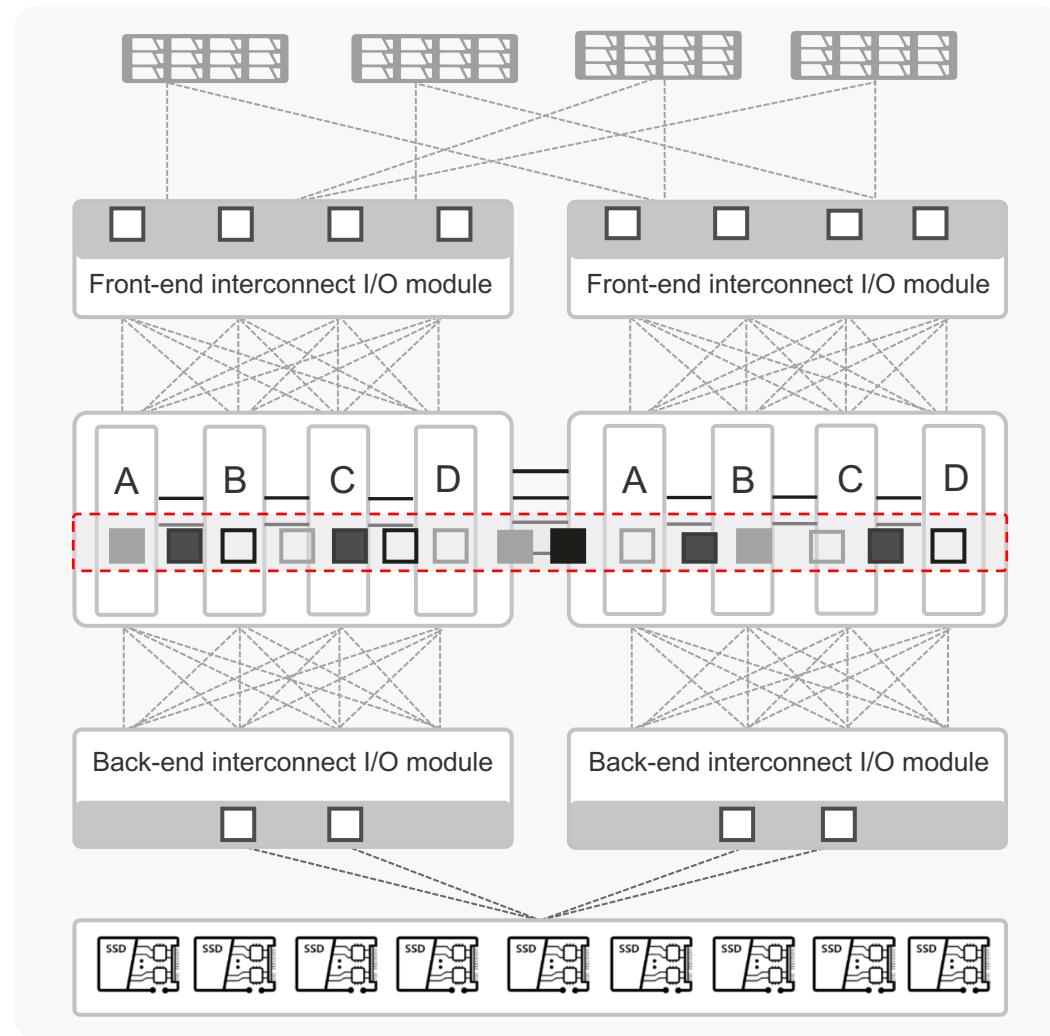
## Architecture

- Tolerance for failures of 7 out of 8 controllers with **SmartMatrix** fully-interconnected architecture
- E2E active-active design

## SSD

- Global wear leveling
- **Huawei-patented** global anti-wear leveling

# End-to-End Architecture Reliability



1

Huawei-developed multipathing software

Distributes I/Os evenly to all front-end ports  
**Access load balancing**

2

Front-end interconnect I/O module

Distributes I/Os evenly to all controllers  
**Front-end load balancing**

3

Global cache

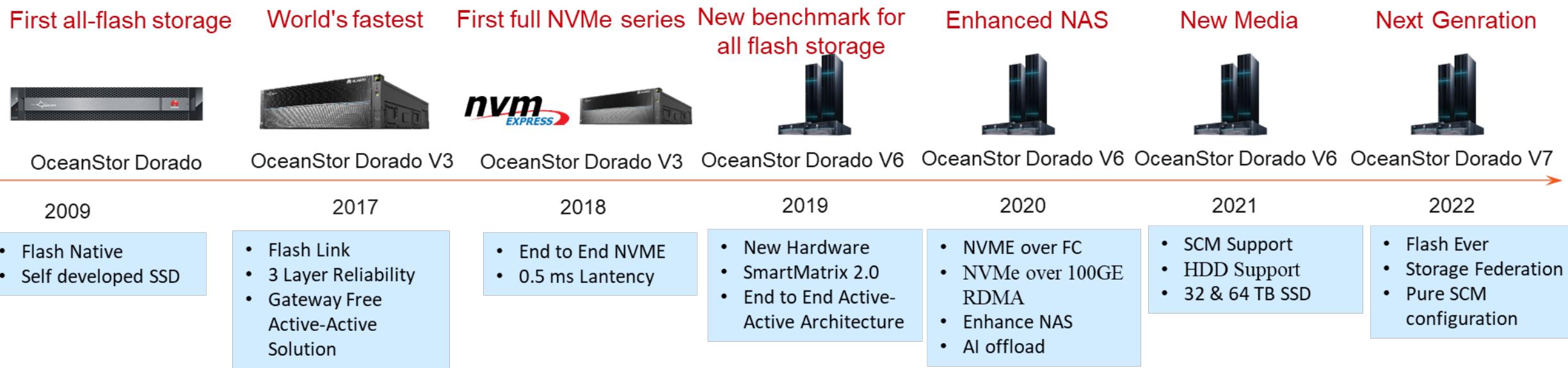
All controllers process service requests  
**Controller load balancing**

4

RAID 2.0+

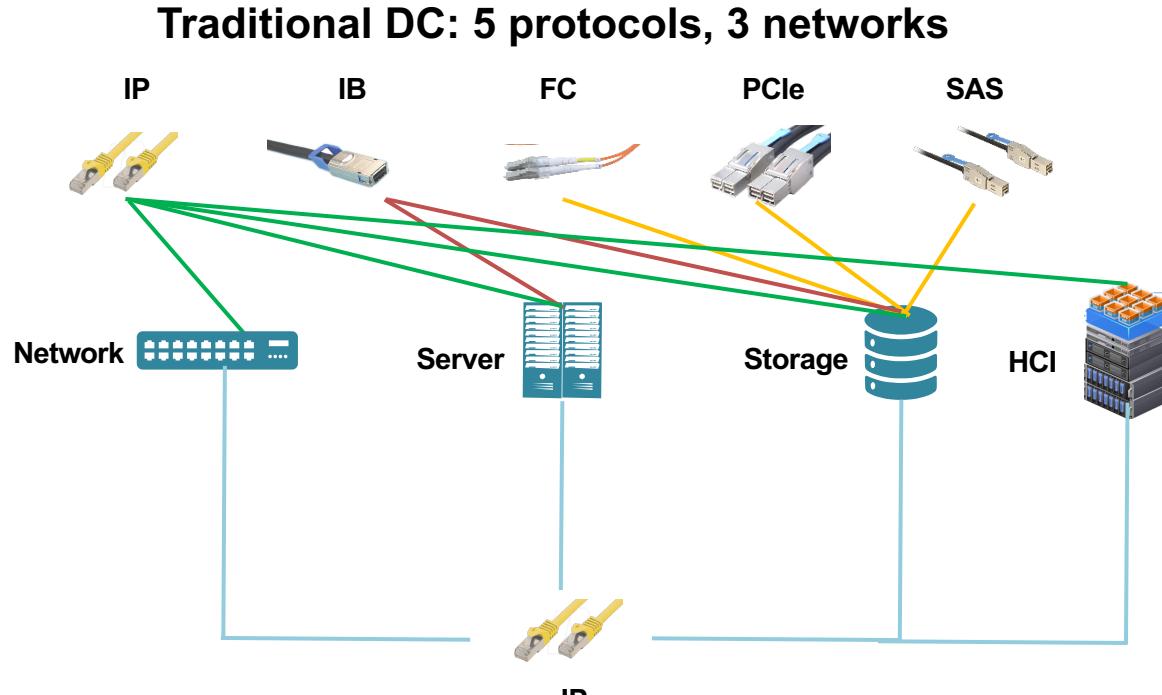
Distributes data evenly to all SSDs  
**Disk load balancing**

# Dorado Roadmap



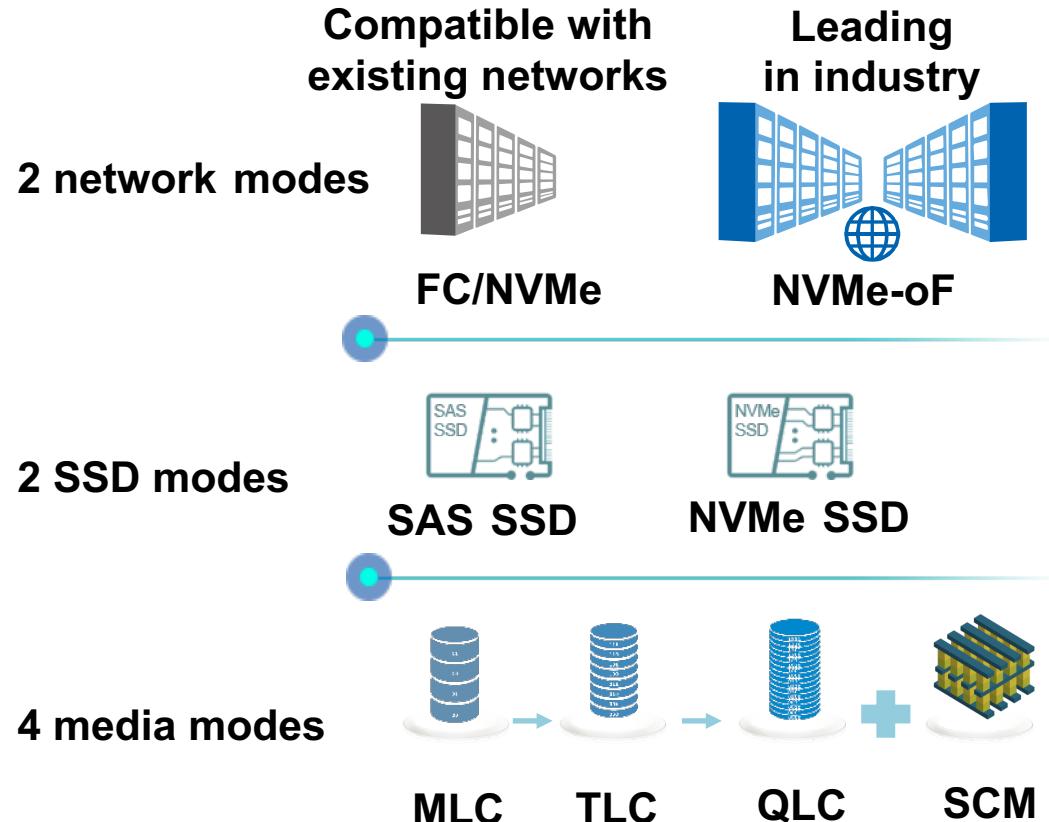
# Future Proof Technologies and Solutions

Network: flexible and future ready



All-flash DC: 1 protocol, 1 network

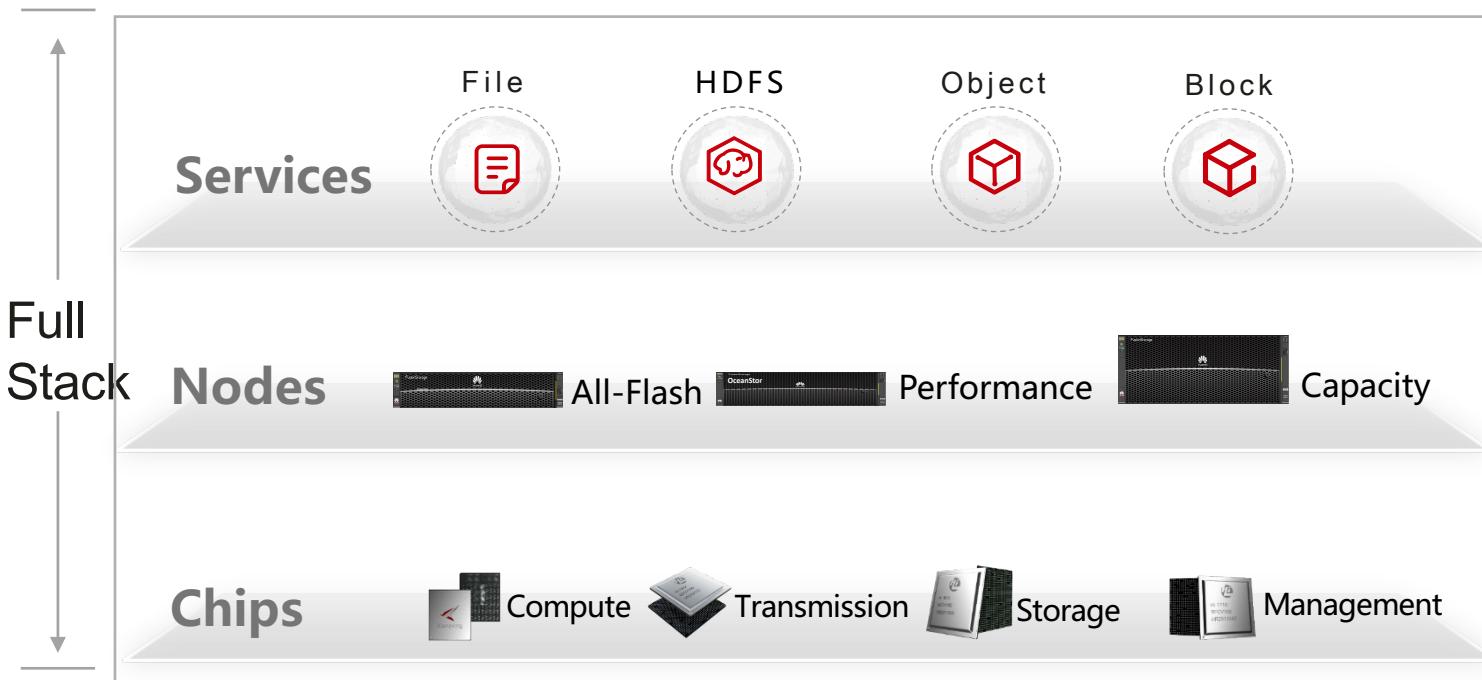
One BOX: E2E compatible



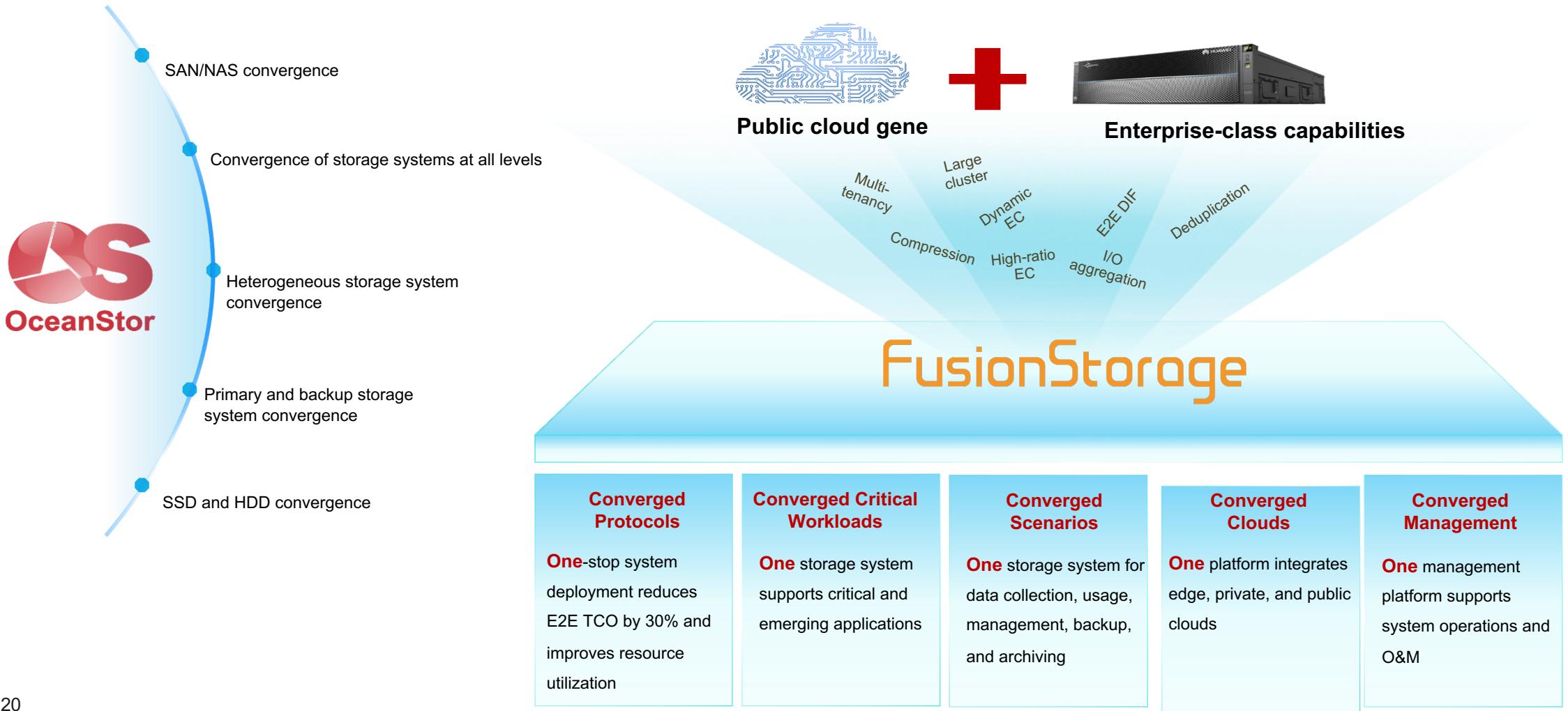
HUAWEI provide the future compatible solution

# OceanStor 100D Performance, Scalability and Versatility

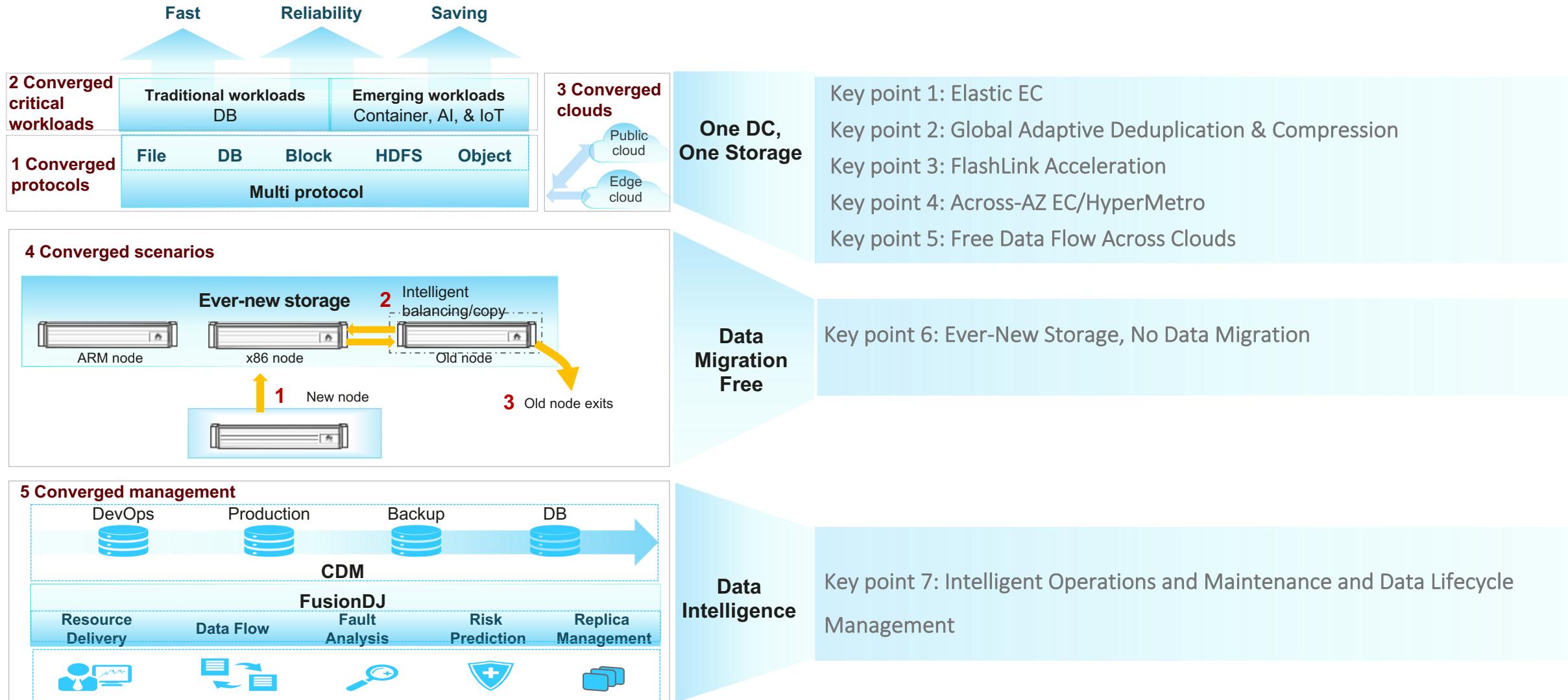
- Industry leading distributed storage systems with up **to 4096 nodes and 576PB** in a single cluster.
- Support all popular storage interface and scenarios.
- Full stack optimized for best performance in the same category: **sub 1ms latency under stress, millions of IOPS per cluster.**



# OceanStor 100D Storage Highlights



# OceanStor 100D Unified Enterprise Storage Solution



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**1** Huawei Update

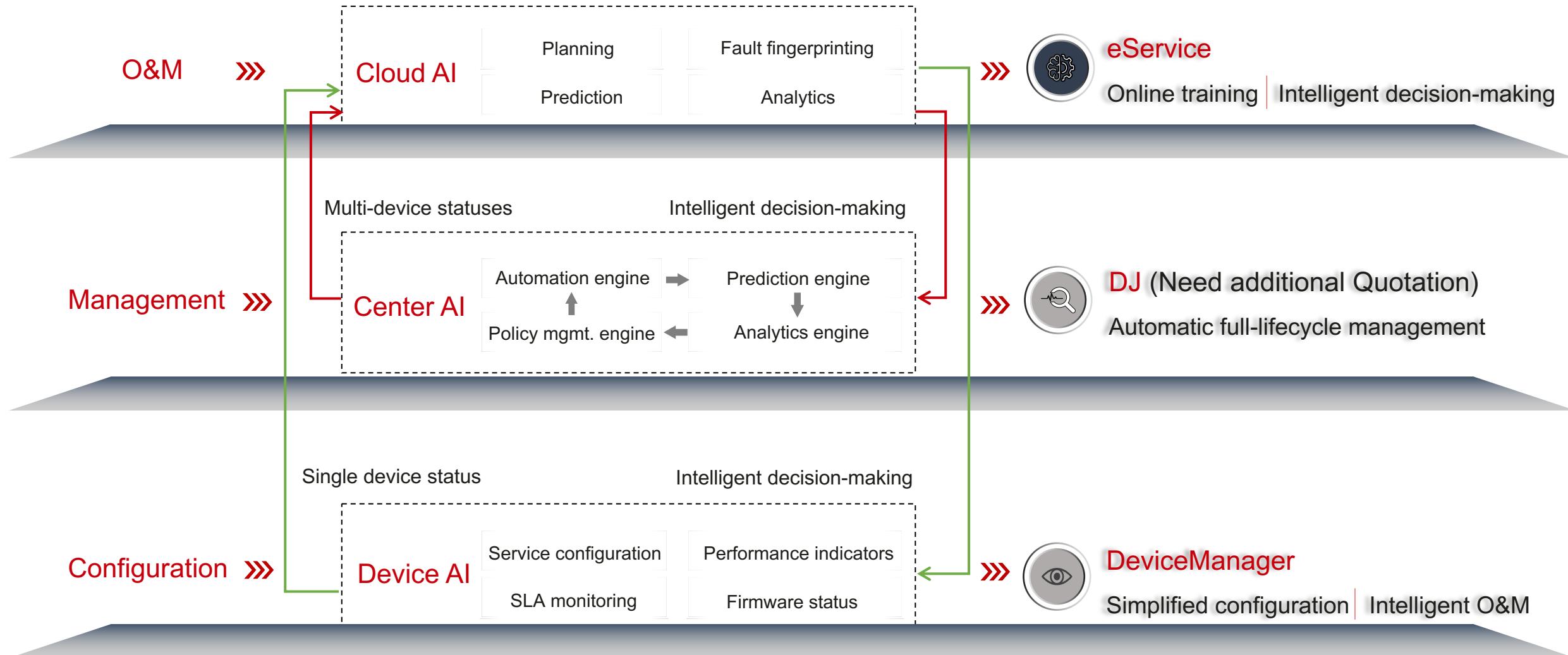
**2** Storage Solutions

**3** Management

**4** Global Service

- Device Manager
- OceanStor DJ
- eService

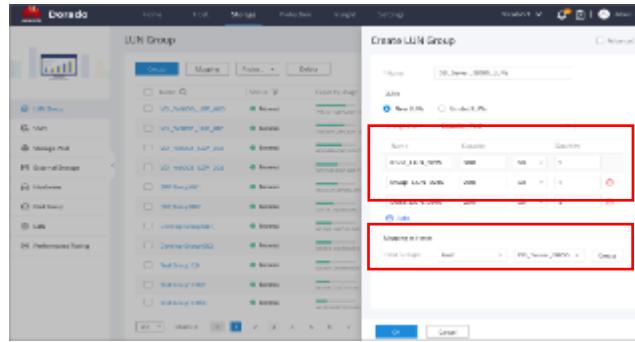
# 3 Layers of Management Capabilities



# Device Level Highlights

## Simplified configuration

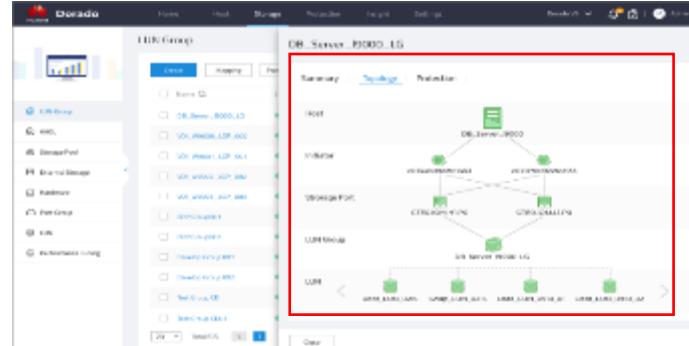
- The storage pool does not need to be configured
- Automatically discover hosts
- 1 Step complete configuration
- Single-ended configuration



Complete the mapping in one step.

## Object relationship visualization

- Topology of Service object
- Topology of protected objects



LUN group topology

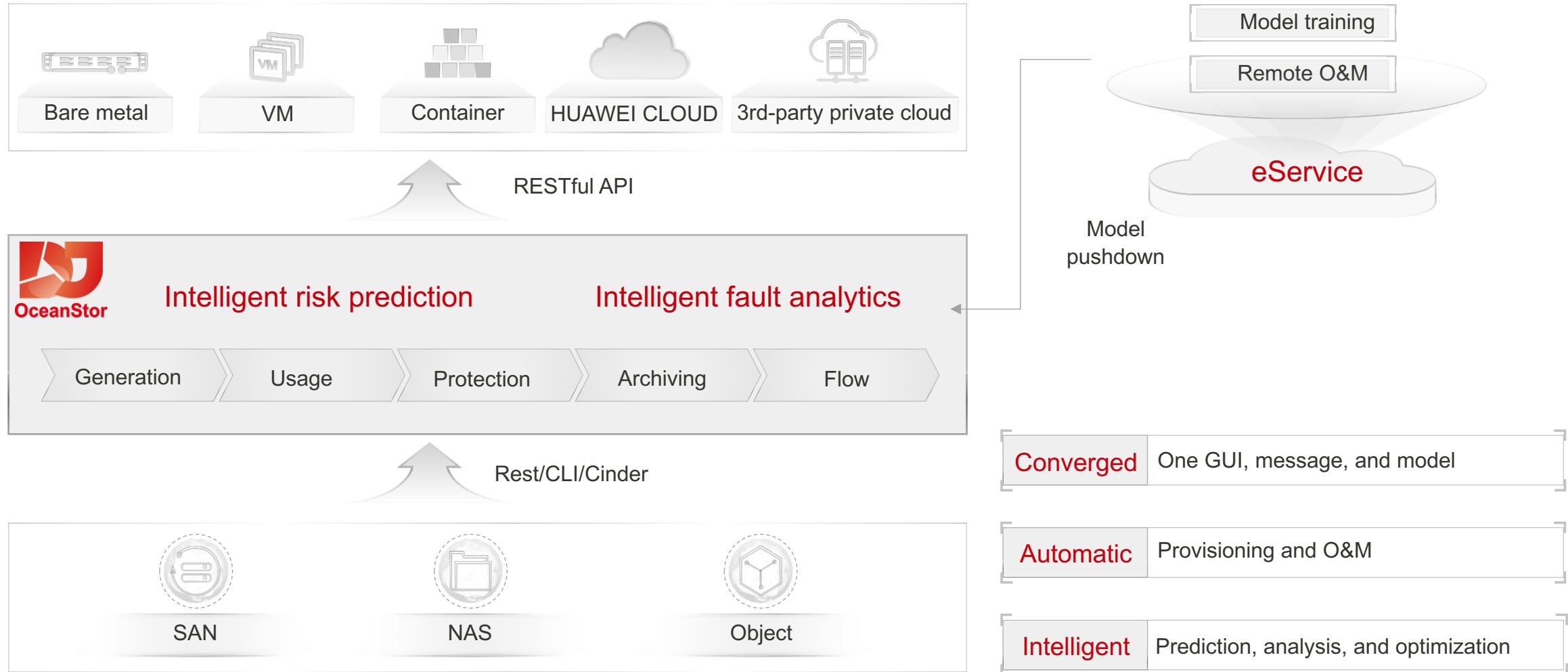
## Powerful performance analysis capability

- Presetting a Performance View Template
- Historical and real-time performance data is displayed at the same time.
- Performance association analysis



Performance association analysis

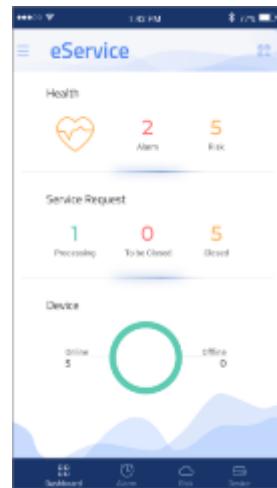
# Data Center Level Highlights



# Cloud Level Highlights

## Storage status can be obtained anytime and anywhere

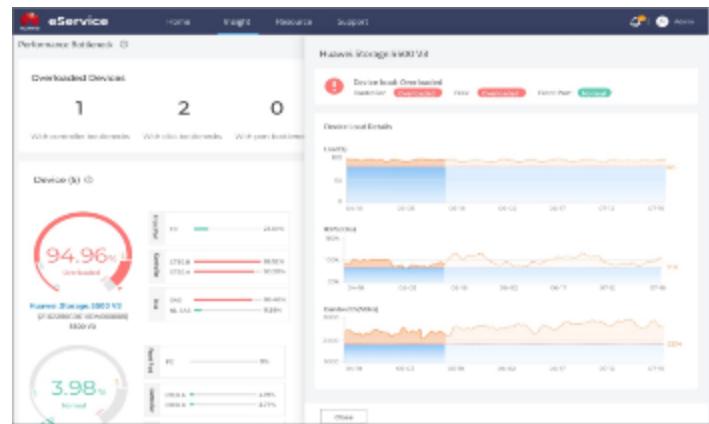
- Mobile app
- Proactive trouble ticket creation



Mobile phone application:  
Huawei storage systems that can  
be viewed and  
managed at any  
time

## Intelligent prediction and optimization suggestions

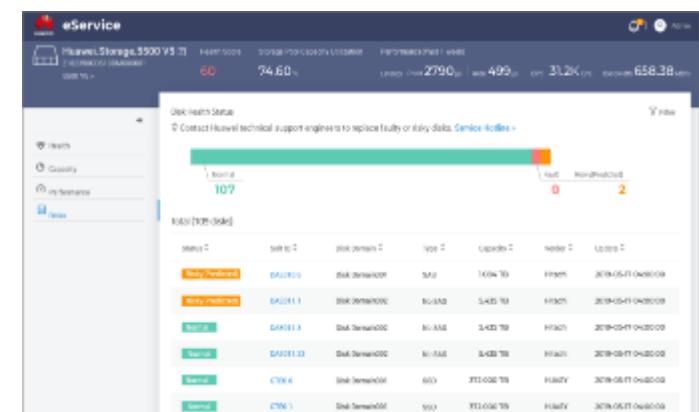
- Capacity Planning
- Performance bottleneck analysis



Performance Analysis and Optimization  
Suggestions

## Intelligent fault analysis

- Disk fault prediction
- Intelligent fault diagnosis system



Disk Fault Analysis

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# Support and Delivery: Global Coverage for 170+ Countries

## Technical Assistance Centers (TACs)

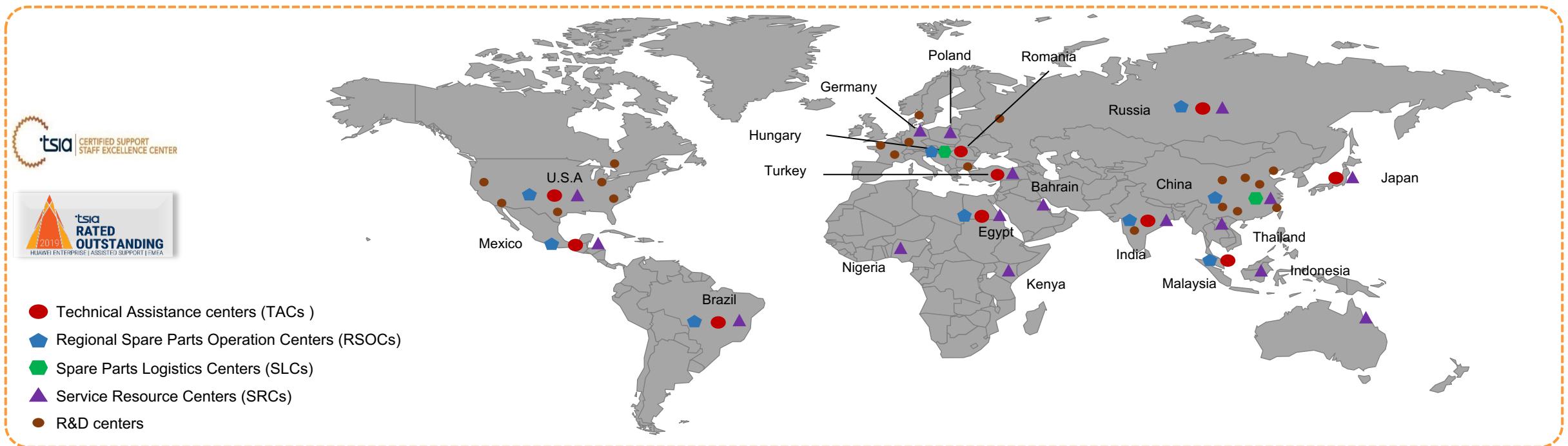
- 3 Global TACs (China, Romania, Mexico)
- 5 Regional TACs (incl. Malaysia, Cairo)
- 8 Country TACs (incl. Japan, Russia, Brazil)

## Spare Parts Operation Centers (SOCs)

- 1,000+ Field Stock Locations (FSL)
- 122+ Country SOCs
- 6 Regional and Global SOCs

## Resource, Logistics & Knowledge Centers

- 3,000+ Service engineer at 125 offices worldwide
- 45 Training centers & 80 Authorized Partners
- 23 R&D sites + 3 GSRC + 22 RSRC



# Thank You

Bring digital to every person, home, and organization for a fully connected, intelligent world.

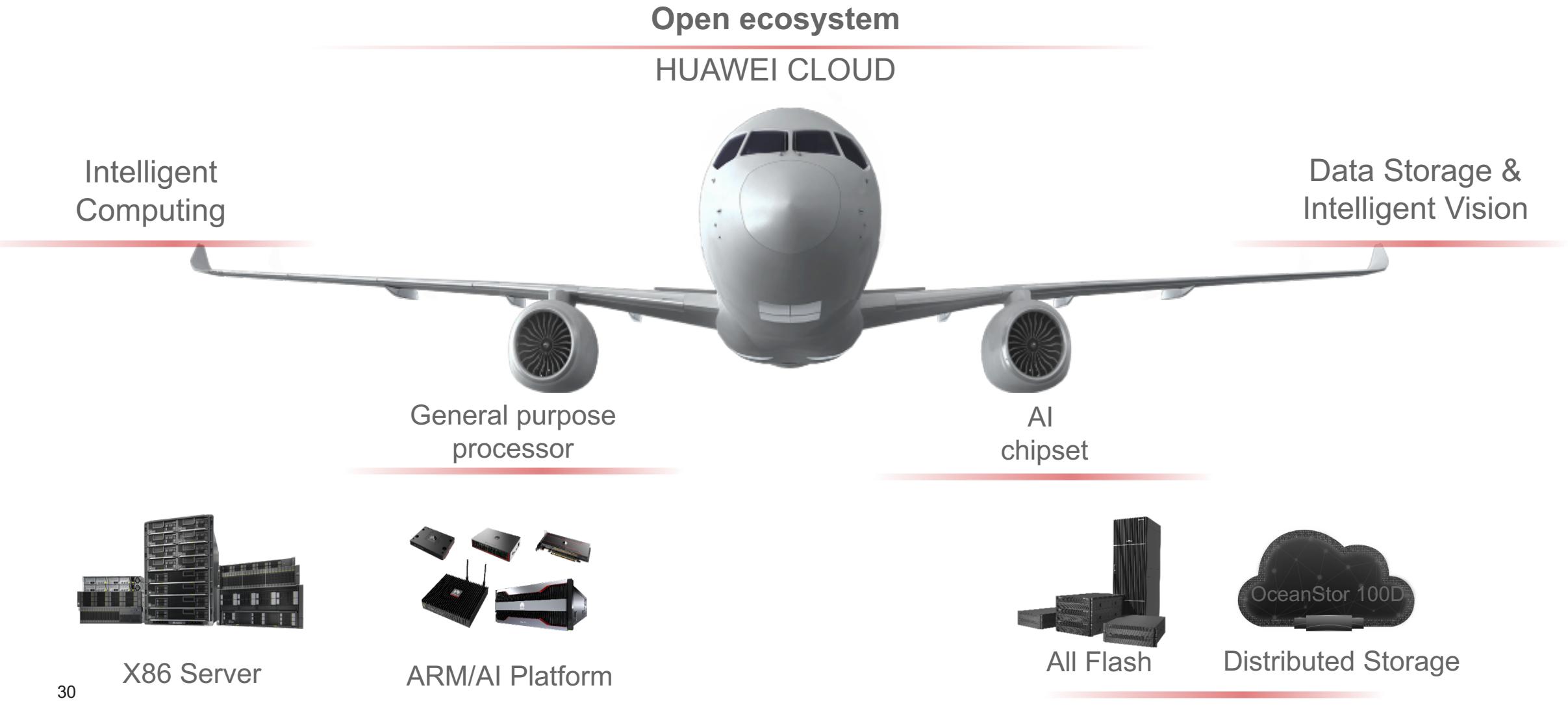
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# Cloud and AI BG in 2020

1 Cloud, 2 Wings, 2 Engines, bolstered by an open ecosystem



# The Supplier of main Dorado V6 components

OceanStor Dorado V6 is the latest generation of Huawei Dorado all-flash storage. It is fully developed by Huawei and all of the Main Component come from china except the Memory(Korea) and SSD Particle(Japan/Korea)

Category	Description	V6 Supplier or location
CPU	CPU, Memory of the controller;	Huawei HiSilicon
Memory		Korea
Mainboard	Mainboard	Huawei
SSD Controller	Chip in SSD;	Huawei HiSilicon
SSD Particle (SAS/NVMe)	Storage particle in SSD;	Japan / Korea
Front-End/Back-End Card	4 ports I/O module: FC/NoF/iSCSI; 2 ports 100Gb RDMA I/O module;	Huawei HiSilicon
Cabling	MiniSAS HD Cable; 100G QSFP28 High Speed Cable; DLC/PC,DLC/PC,OM3,SFP+;	China
Power Supply (PDU)	Power Distribution Unit;	China