

Huawei OceanStor F V5 All-Flash Storage Systems

Overview Presentation



Challenges

The background of the slide features a person in silhouette jumping over a gap between two dark, jagged cliffs. The sky is a vibrant blue with scattered white clouds. The word "Challenges" is written in a large, white, sans-serif font, centered horizontally and partially overlapping the sky and the gap between the cliffs. Below the text, there is a faint, semi-transparent reflection of the word.

The Era of All-Flash DCs



Cloud



Big Data



Mobile Internet

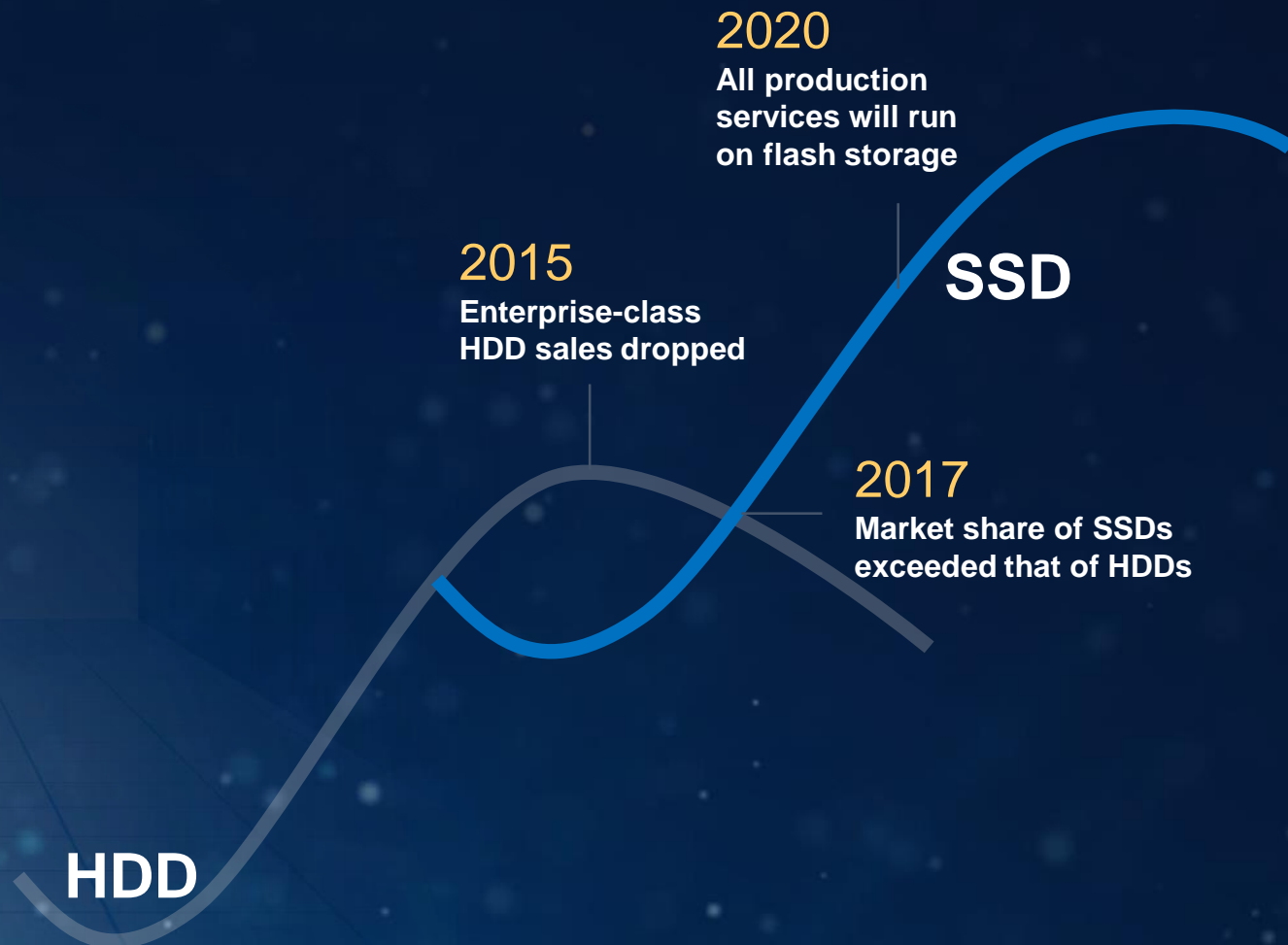


IoT

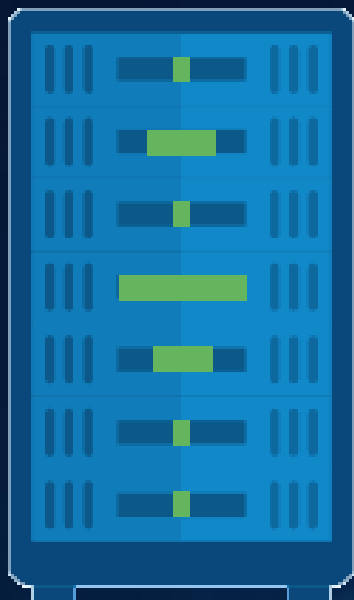
Ever-increasing performance needs

Real-time analysis and response

Ever-decreasing latency



3 Reasons to Put Mission-Critical Business on AFAs



AFA Storage

Mature Technology

AFA storage outperforms hybrid disk arrays in reliability and cost-effectiveness, and is mature enough to help improve business agility and Storage-as-a-Service, despite of insufficient raw capacity.

Cost-Effectiveness

All-flash DCs help customers reduce overheads in operational management, cabinet capacity, power consumption, and cooling devices.

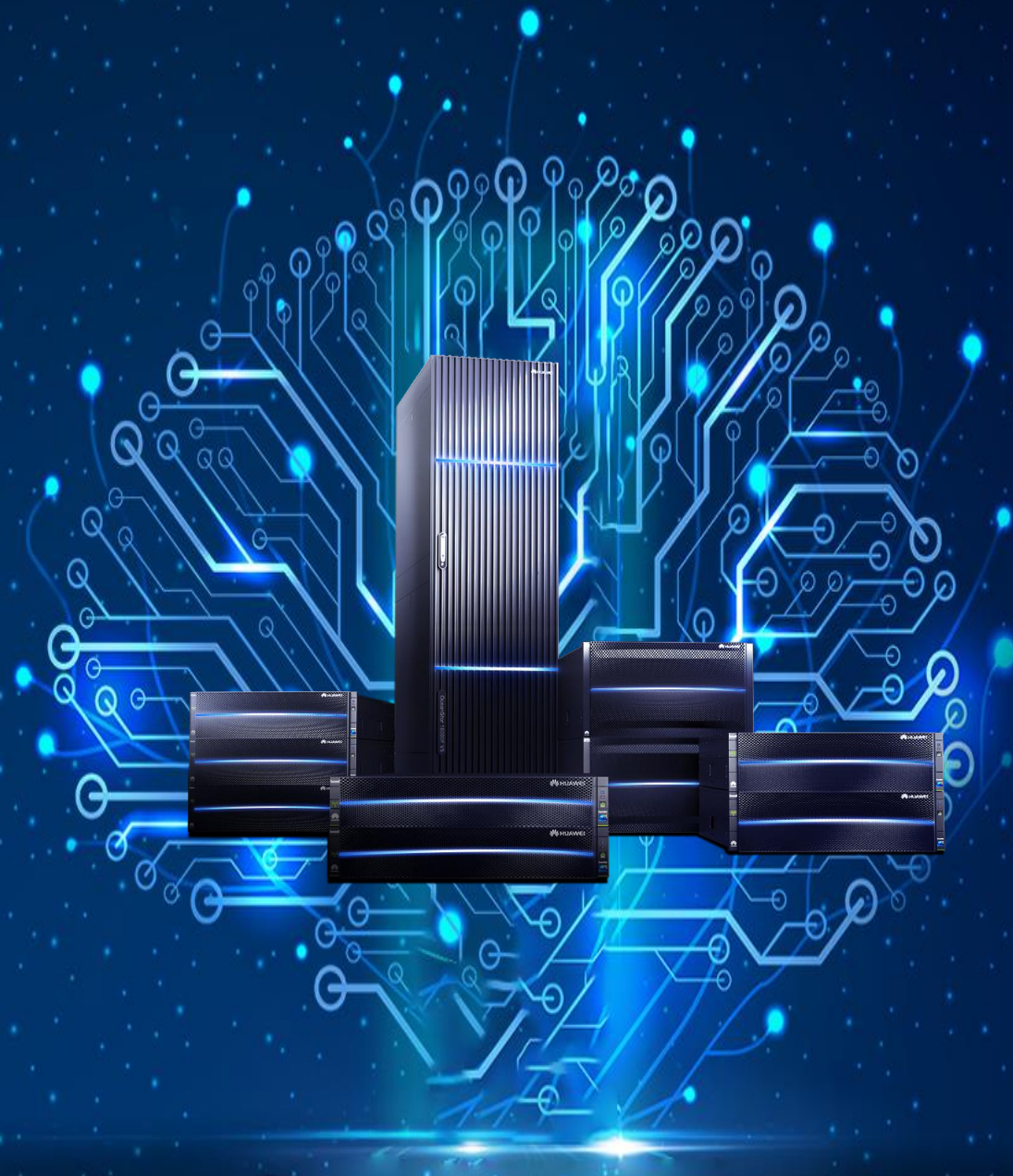
High Efficiency

Large-capacity SSDs speed up enterprise digitization.

Huawei OceanStor F V5 All-Flash Storage

**Born for Mission-Critical
Business**

OceanStor 5000F, 6000F, and 18000F V5



Product Highlights



**Outstanding
Performance**



**Multi-Level
Convergence**



**Intelligent
Services**

Huawei Accelerates All-Flash Adoption in DCs

Business Level

Core

Critical

General

HDD

Flash

Accelerate

Huawei's AFA trend

AFA trend in industry

Time

2010–2015
Flash acceleration

2016–2020
Critical business on AFAs

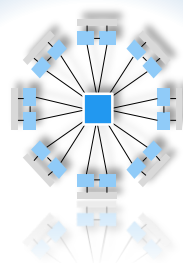
2021-
All-flash DCs

Outstanding Performance

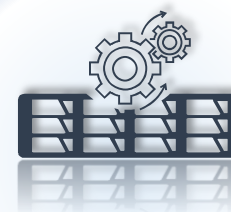
AFAs for Mission-Critical Workload Growth



Fastest SSD



**Superior
scalability**



**Outstanding
performance**

6 million IOPS, **1 ms** latency, fulfills elastic performance
requirements of mission-critical workloads

Leading SSD: Highest Speed and Lowest Latency



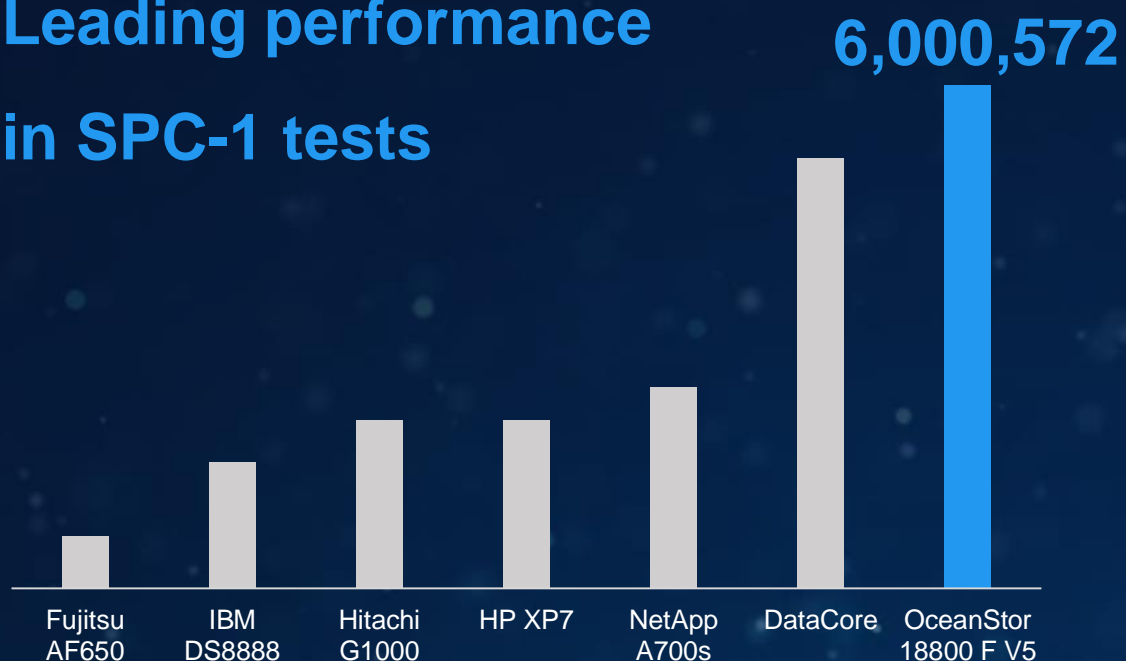
The control chip offloads the SSD FTL algorithm that accelerates data reads and writes, and enables industry-leading write latency.

80 μ S read latency
40 μ S write latency

With the MTBF of 2.5 million hours, Huawei SSDs feature the #1 reliability in the industry.

Industry's Highest Performance

Leading performance
in SPC-1 tests



A graphic celebrating the new SPC-1 performance record set by the Huawei OceanStor 18000F V5. It features the Huawei logo, the product name, and a large, glowing golden number '1' on a dark, starry background.

HUAWEI

Mission-Critical Intelligent All-Flash Array
Huawei OceanStor 18000F V5

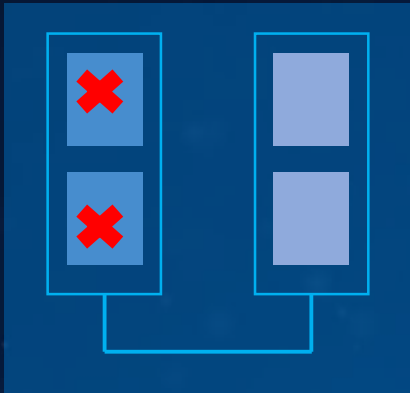
Sets New SPC-1 Performance Record

6,000,572 SPC-1 IOPS™

5 of Huawei's storage products have been listed in the
Top 10 SPC-1 All Versions – by Performance.

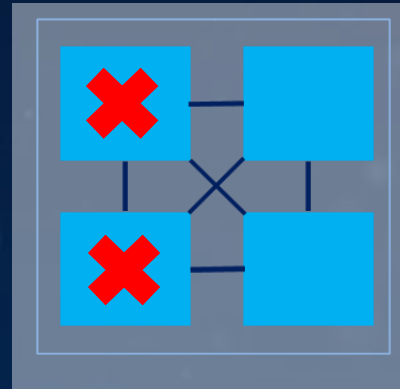
SmartMatrix for Double Fault Tolerance

Traditional mission-critical
storage architecture



Interrupted

SmartMatrix 2.0



Uninterrupted

Interconnection on
passive backplane

Continuous
cache mirroring

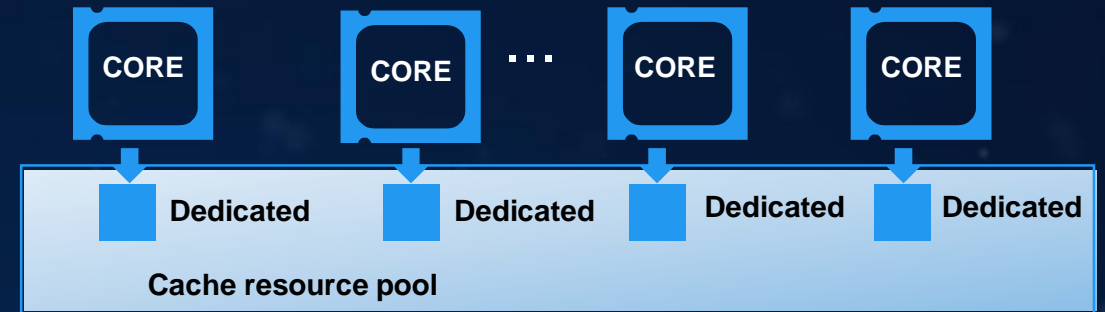
SAS 3.0 full mesh

99.999% Reliability

Optimized Use of CPU Cores



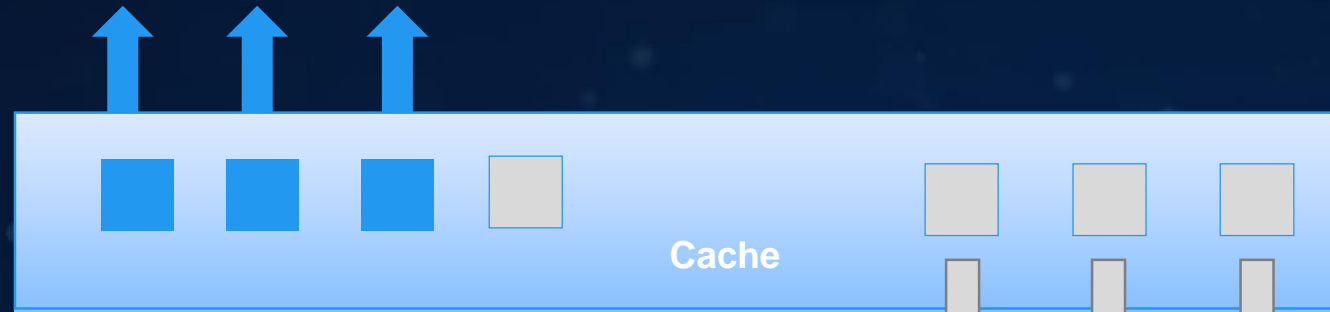
CPU intelligent partitioning
for lower latency and load balancing



Core-level cache reservation
for higher memory request efficiency

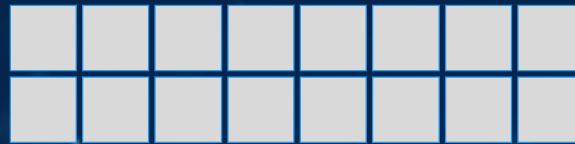
Cache Adaptation

Sequential cache prefetch in the scenario of mixed workloads

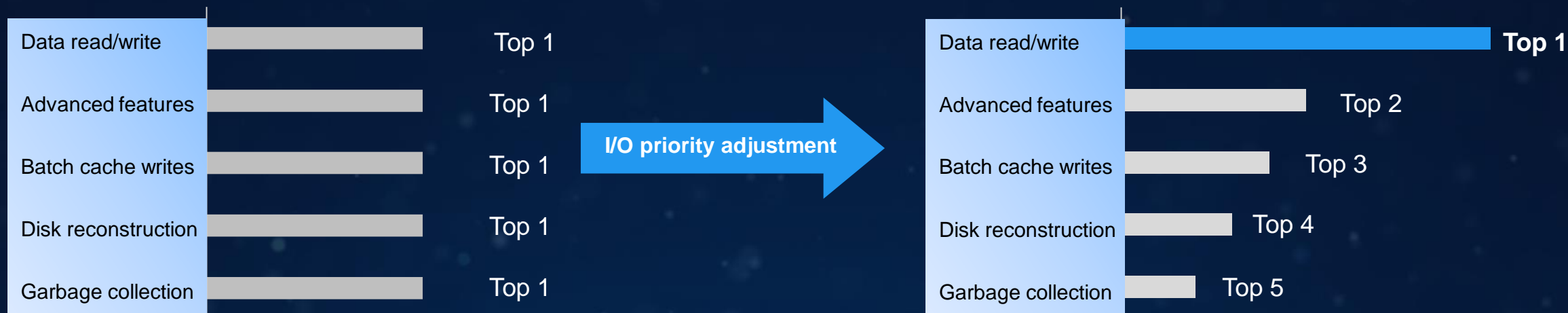


Cache hit rate improved by 100%

Automatic data eviction



Intelligent I/O Scheduling

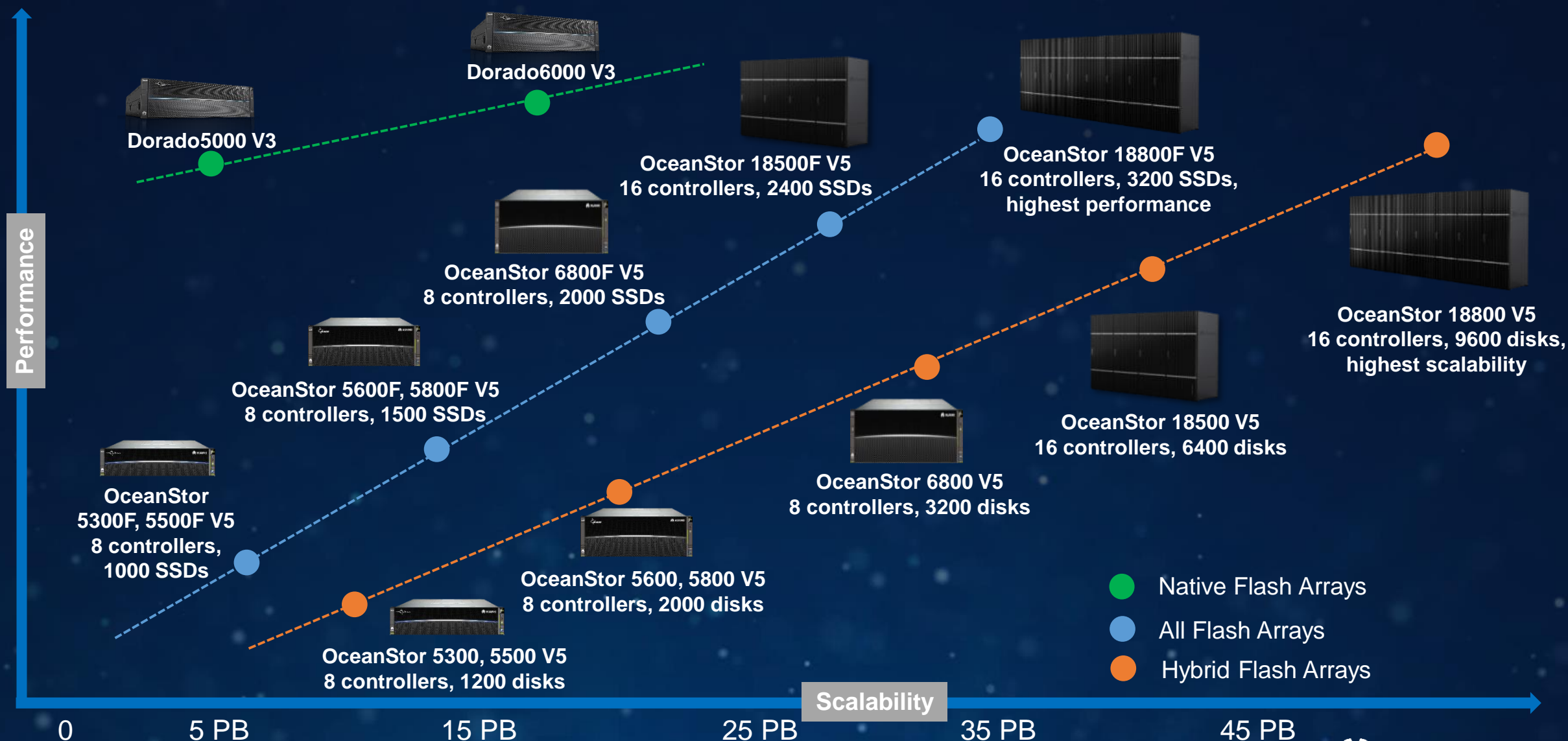


Highest priority and shortest latency for
data read and write I/Os



Multi-Level Convergence

Huawei Flash Storage Portfolio: Industry's Most Complete



Convergence in Four Domains



Flash storage
compatibility



SAN + NAS

Intelligent features



HDS EMC NetApp

Storage resource
pooling

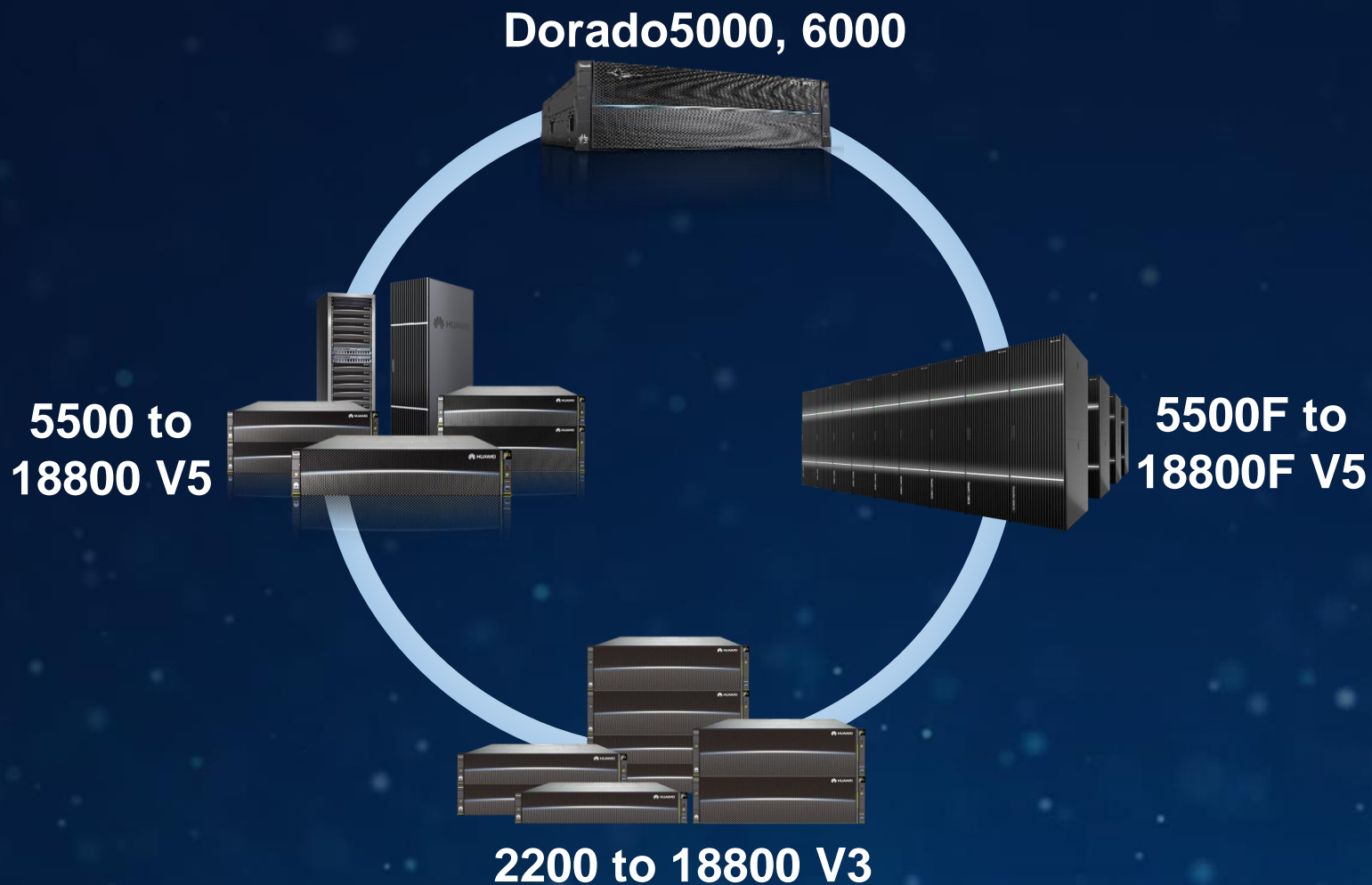
HyperMetro



Inter- and intra-city
DCs

High Agility of Core Services + 99.9999% Availability

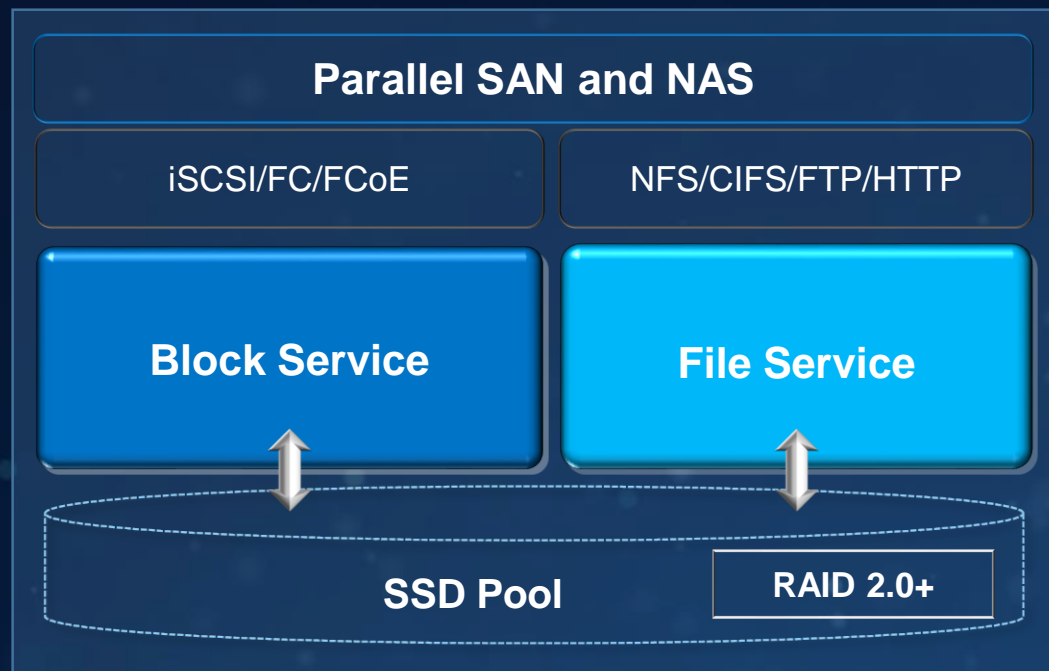
Convergence of Flash Storage of Different Types, Levels, and Generations



Extensive Flash Storage

- Native, converged, and converged hybrid
- High-end, mid-range, and entry-level storage
- OceanStor V5 and V3

Convergence of SAN and NAS



Gateway-free
Procurement costs



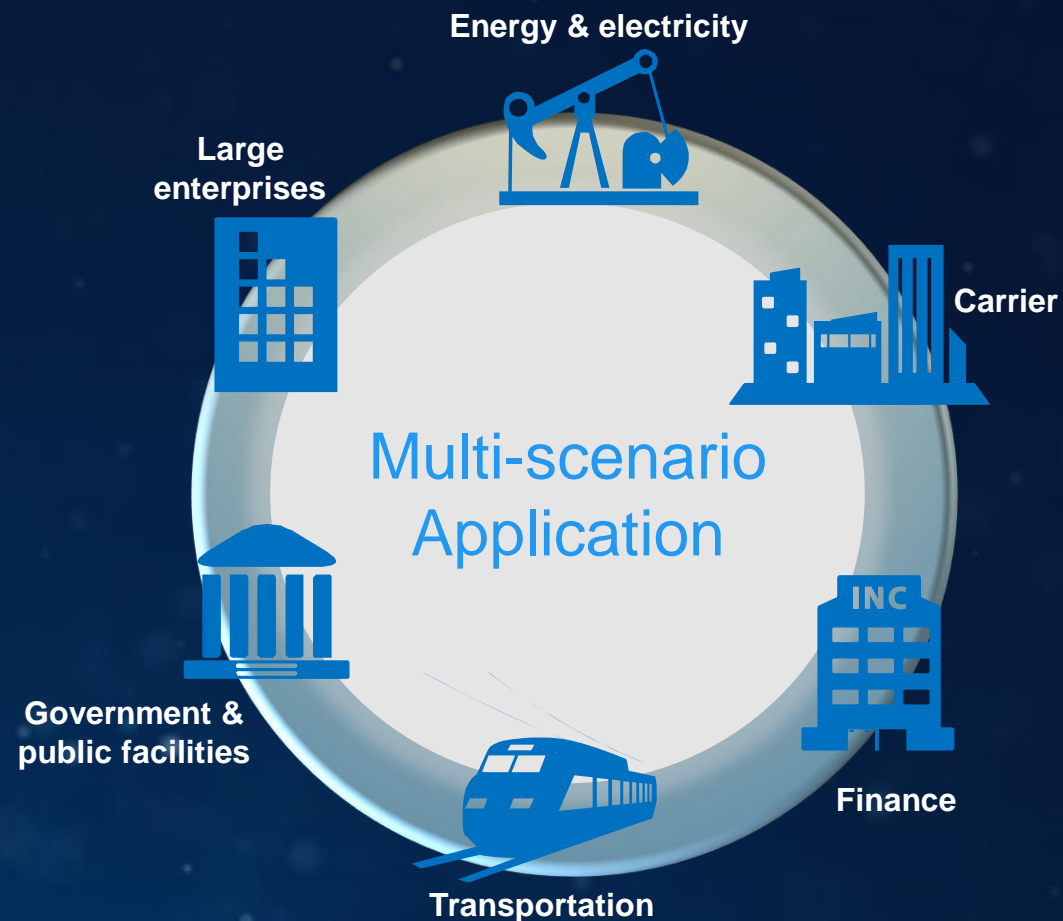
20%

Parallel architecture

Access performance



Higher



Convergence of Storage Resource Pools

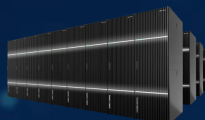


Automated service orchestration

Converged storage resource pool



Dorado



F V5



V5

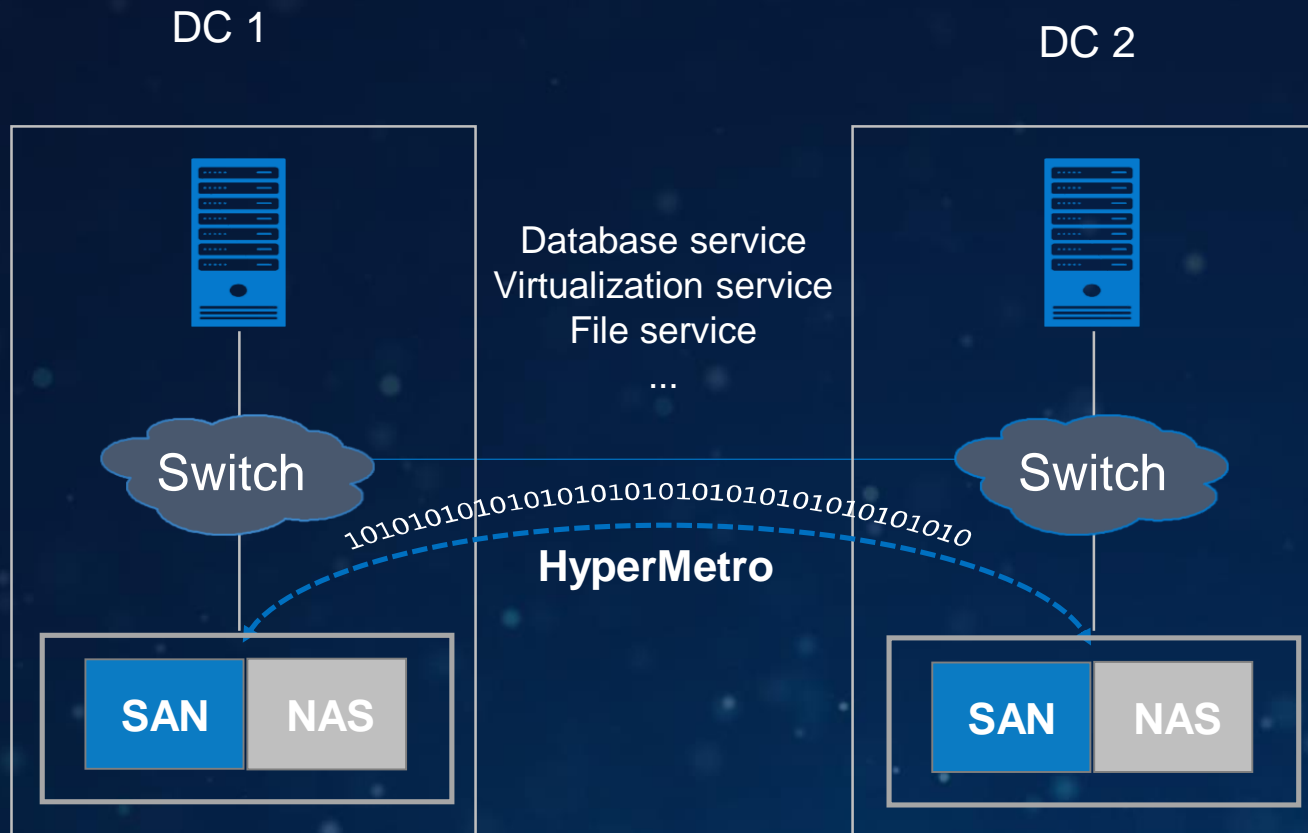


V3

EMC HDS NetApp HPE

300+ Arrays, 0 Service Disruption

HyperMetro: Converged Active-Active Solution

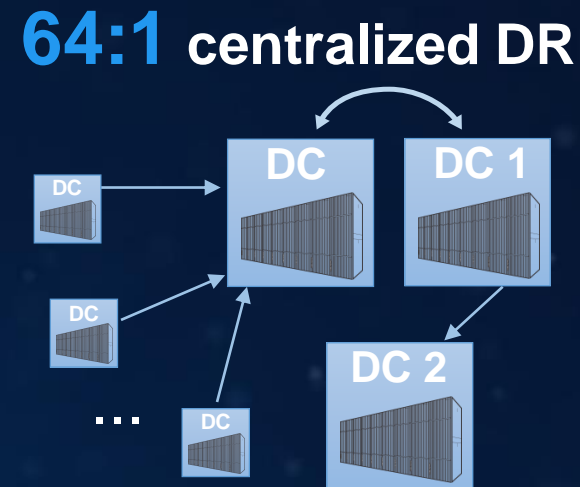
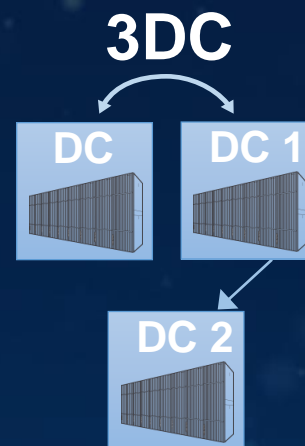
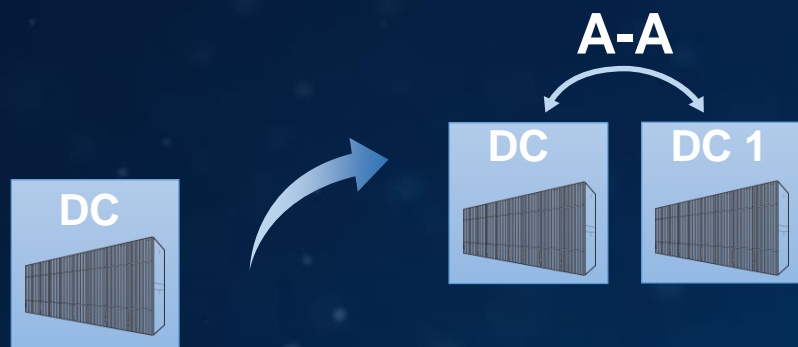


- **24/7 service @ 1 ms latency**
- **Active-Active load balancing**
- **RPO = 0, RTO ≈ 0**
- **Convergence of SAN and NAS**

Convergence of Data Centers

Seamless protection level upgrade

0 service impact





Intelligent Services

Intelligent Services for Smooth Transformation to Cloud



Intelligent O&M
eService



**Inter-cloud
mobility**

Data mobility between
private and public clouds

Intelligent and Cloud-enabled

providing quality data storage for core business

eService: Your Most Trustworthy O&M Assistant



Highlights

- Proactive prediction
- Rapid response
- Automatic reporting

Scenarios

- Device health evaluation
- Capacity planning
- Performance insight
- Risk management

Huawei's intelligent storage O&M system

Smooth Data Mobility Between Private and Public Clouds

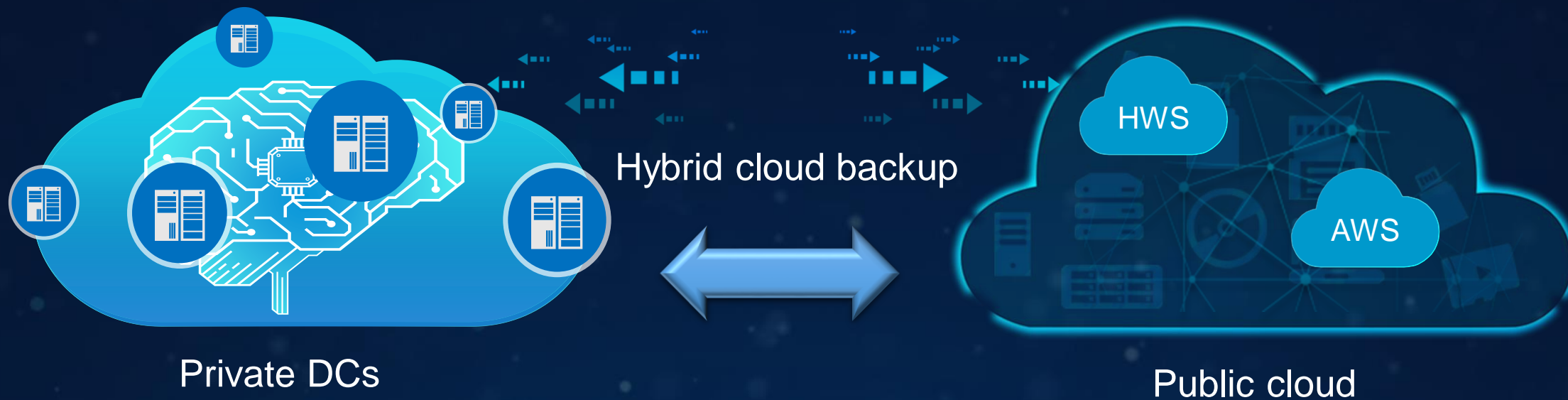
Exclusive storage resources

Inter-cloud data mobility



99.9999% availability
Ultra-high performance

Ultra-Efficient Hybrid Cloud Backup



TCO
60%

- On-demand lease, maintenance-free
- Permanent incremental backup and restoration

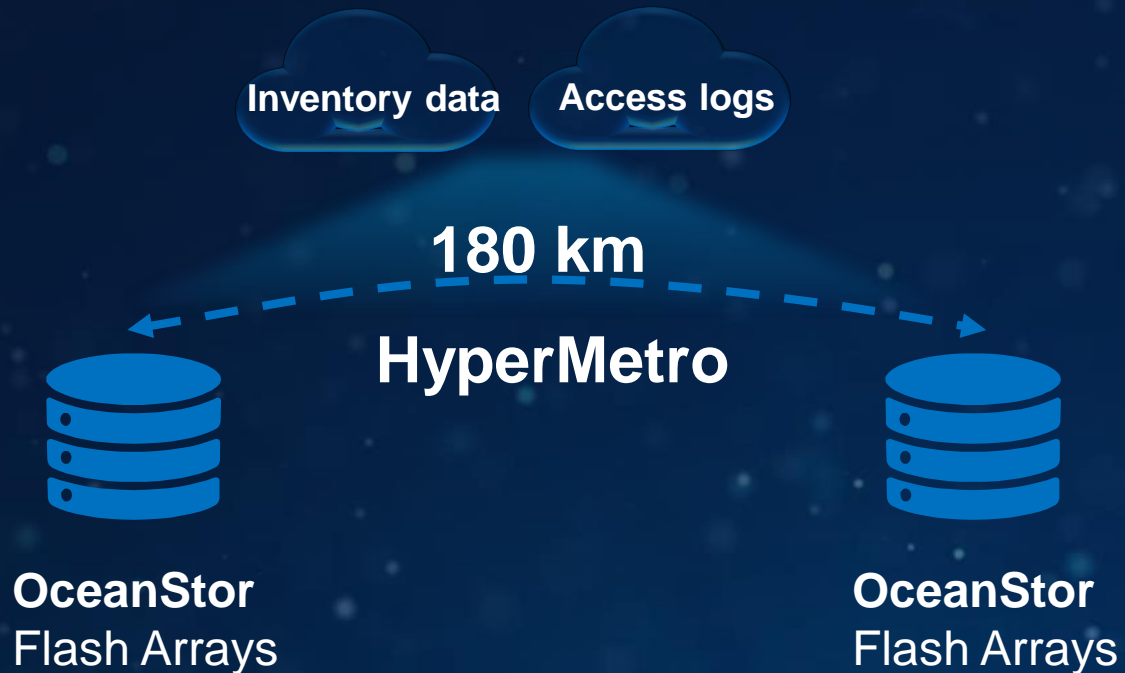
- Data encryption
- Operations audited and backtracked

**Secure
Reliable**

Global Cases

Builds a Real-time Inventory Data System

Need: real-time update of inventory data about goods in the online shopping mall, and reliable data storage



Real-time

synchronization of online and offline inventory data

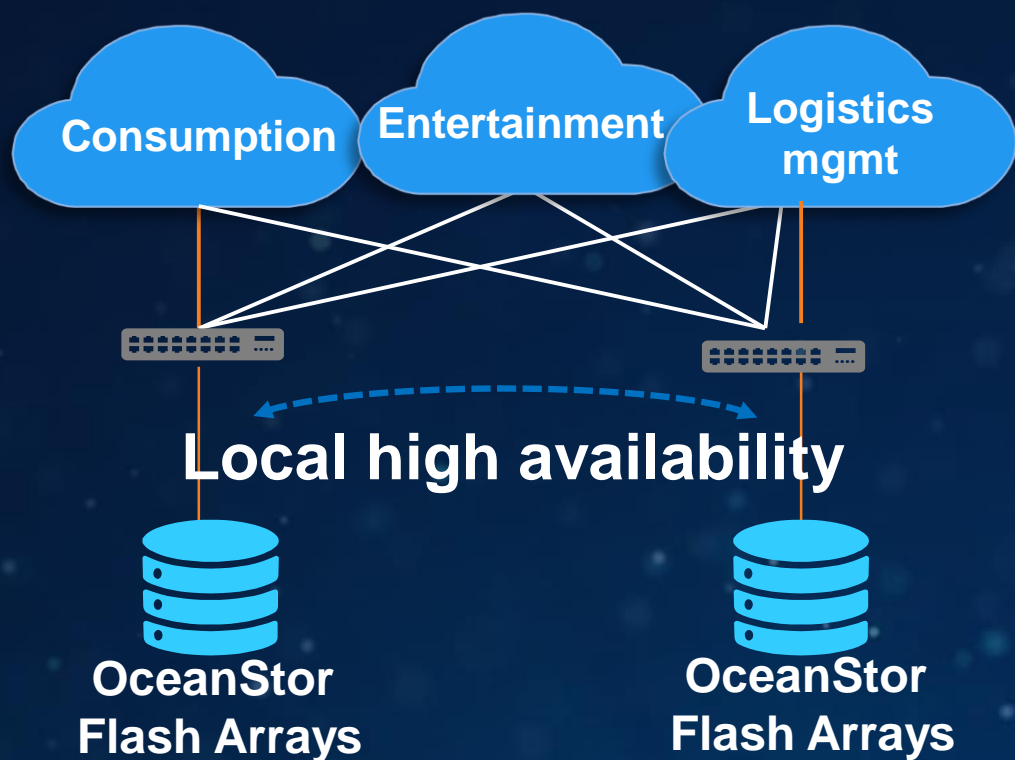
99.9999%

availability with business-level A-A solution

5x

faster speed with service switchover between sites 180 km apart within seconds

Efficient and Stable Data Centers Aboard



99.9999%

HyperMetro-based local HA solution

9x

Faster business processing speed

Shockproof & anti-corrosion

To adapt to the ocean environment with violent vibration and extreme weather

Summary



OceanStor 5000F, 6000F, and 18000F V5

Outstanding Performance

Multi-Level Convergence

Intelligent Services

THANK YOU



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