

OceanStor Pacific,

Embracing New Workloads of the Yottabyte Era

More and more new workloads will appear in the upcoming yottabyte era

HPC, big data, and AI

1YB **23x**

of data will be generated annually worldwide by 2030

increase over 2020

Source: GIV



Autonomous driving

Over 30-year retention of hundreds of PB data



Smart factory

1 PB/day production data



AI-driven drug discovery

6 TB/day per sequencer



Smart finance

Tens of PB data analysis

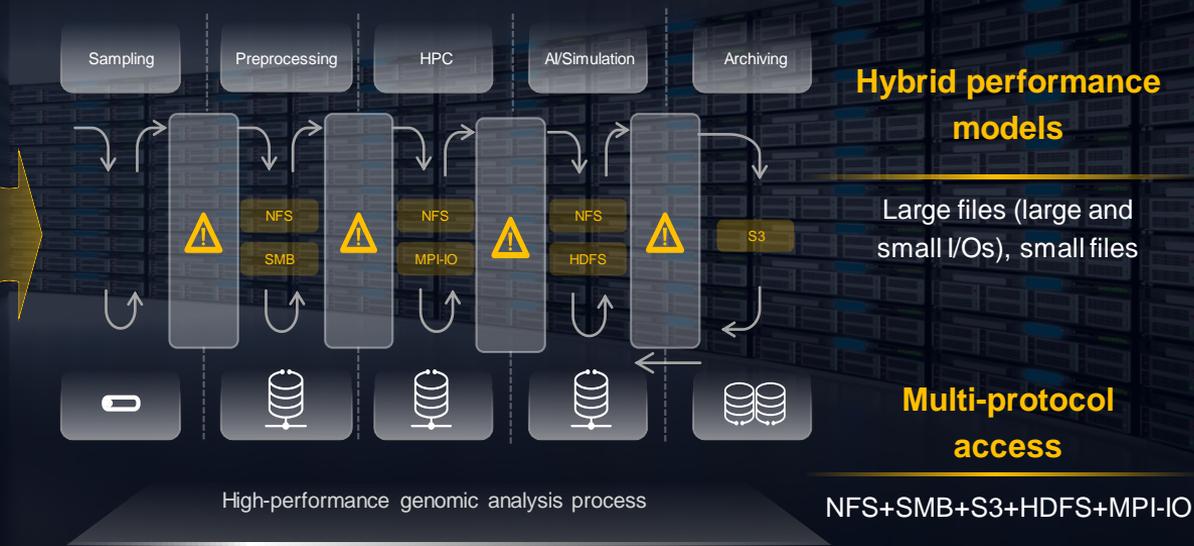


5G

20x data throughput

AI & big data are driving the HPC industry into the era of diversified computing

One-for-all HPDA storage is necessary



All-intelligence is driving big data analytics into the era of real-time processing

The convergence of historical and streaming data is necessary



Real-time risk control

Real-time and historical transaction behaviors



Real-time informed decision

Real-time and historical operation data

Data warehouse

Real-time service



Data lake

Batch service



Streaming data



Historical data

Storage sharing

Data sharing between data lakes and warehouses, thus reducing data migration

Data format convergence

Compatible with data formats of data lakes and warehouses to avoid data format conversion

Mass data is driving data services into the era of all-online, anytime, anywhere

Flexible and reliable modern storage is necessary



Resolution

HD

45 GB/h



8K

1.8 TB/h



40x

data growth

Higher scalability and lower cost

Anywhere

Local and cross-regional data services

24/7

continuity

2DC -> multiple DCs

Redefining a new storage system to meet the uncertainty of new workloads

Hybrid “X”

Access protocols

Performance models

Historical and real-time analysis

Uncertainty

Storage innovation



Huawei OceanStor Pacific Distributed Storage

Hybrid workloads-oriented, one-for-all storage for mass data



Performance models

OceanStor Pacific
9950 | 9920

Balanced model

OceanStor Pacific
9640

Capacity models

OceanStor Pacific
9550 | 9540 | 9520



HPDA



Big data



Video



Backup & archiving

Efficiency for Hybrid Workloads

- Seamless multi-protocol interworking
- **160 GB/s** bandwidth, **6.4 million IOPS**, and **640,000 OPS** per chassis, 20% higher than similar products in the industry

Optimal ROI

- High-density hardware design: **24 disks/U**, 20% higher than similar products in the industry
- High resource utilization: **22+2 EC**

Always-On Services

- **3 to 12 active DCs**
- **≤10s** switchover upon a node failure

Hybrid-workloads efficiency: Addressed by fully balanced system design

**Converged
indexing for
unstructured data**

Native seamless multi-protocol
interworking

**Data flow
adaptive to large
and small I/Os**

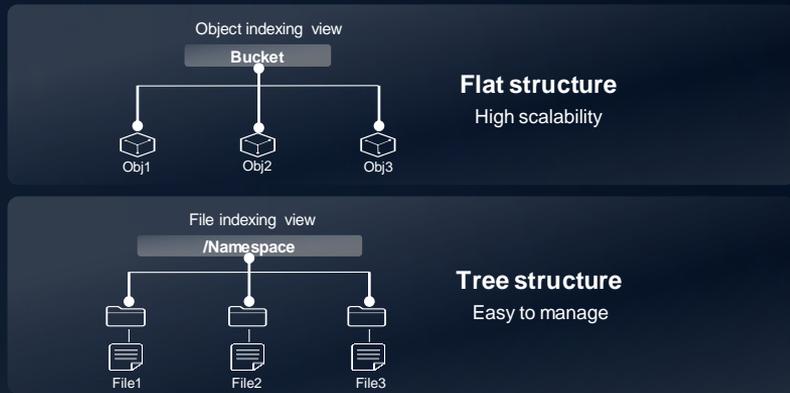
High performance in
processing hybrid workloads

SmartBalance

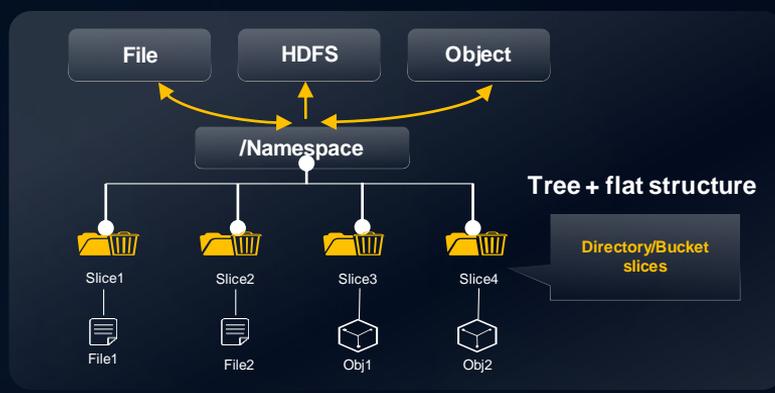
Fully balanced
system design

Native seamless multi-protocol interworking based on converged indexing

Traditional solution: independent indexing



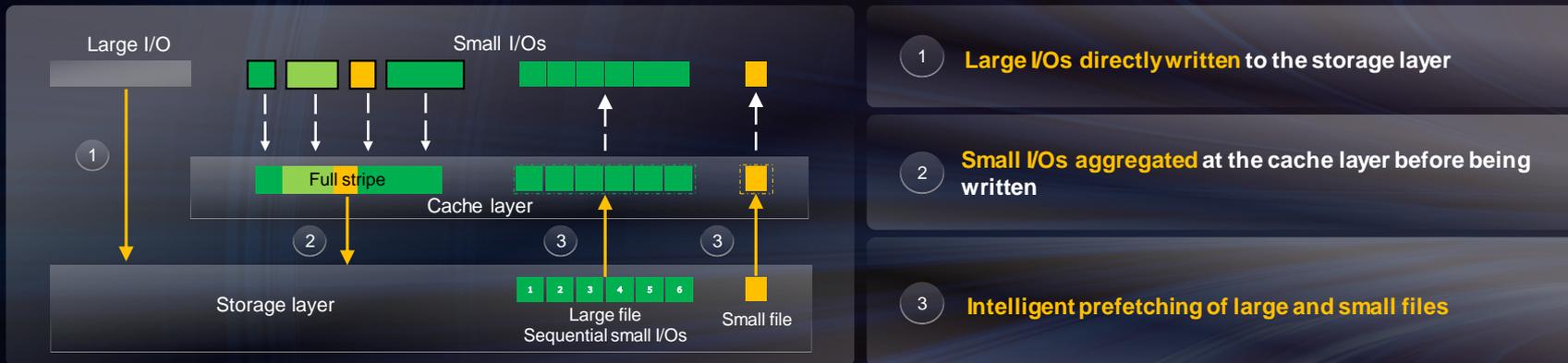
Huawei solution: converged indexing



**Data sharing
with zero
data copying**

Feature	Other Vendors	HUAWEI
Zero gateway plug-in	×	✓
Zero semantic loss	×	✓
Zero performance loss	×	✓

High performance for hybrid workloads as data flow adaptive to large and small I/Os



✓ **160** GB/s

✓ **6.4** million IOPS

✓ **640** KOPS



One chassis



Video

Hybrid-workloads efficiency: Addressed by fully balanced system design

**Converged
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SmartBalance

Fully balanced
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Optimal ROI: High-density hardware and algorithm design for space utilization



5U **120**
chassis 3.5" SATA disks

OceanStor Pacific
9550

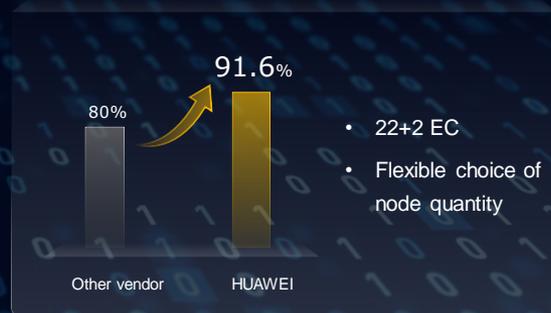
High-density
design

20% higher
disk density per unit space



High-ratio
EC

14.5% higher
space utilization

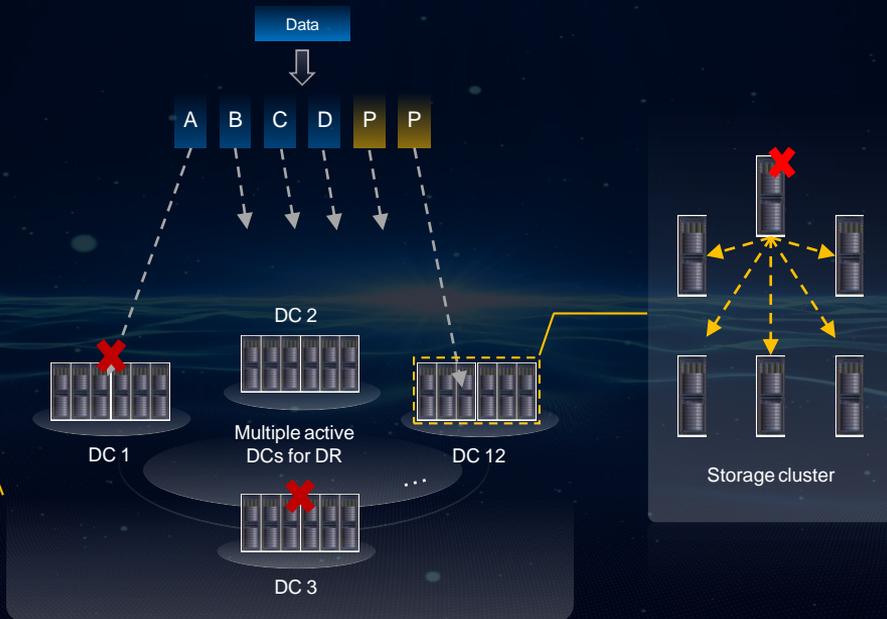


Note: The space utilization rate does not exclude the system reserved space.

Always-on services: Multiple active DCs for DR, fast node switchover in seconds

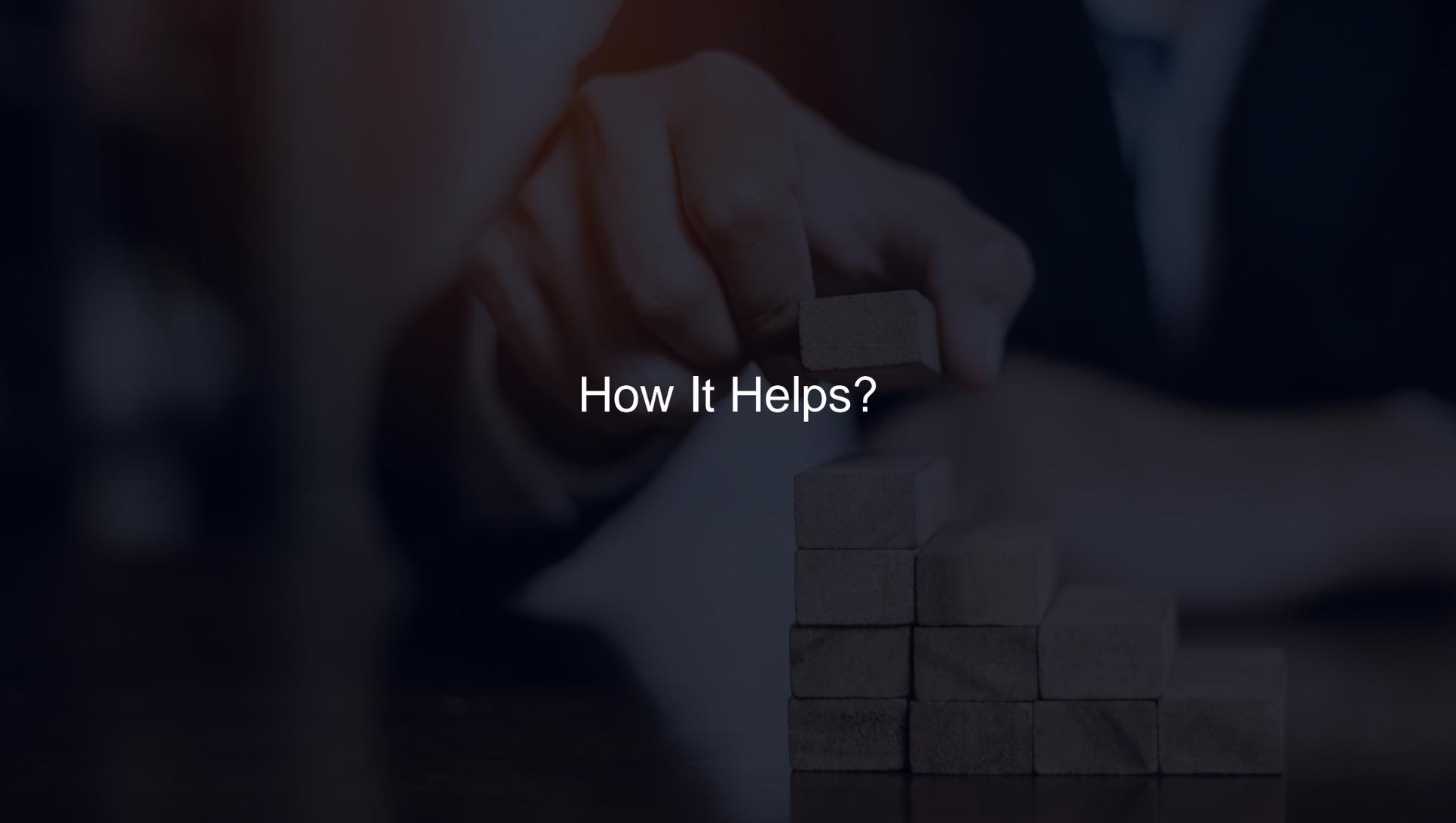
Multiple active DCs for DR

- +1 or +2 EC across DCs
- Simultaneous access to 3 to 12 DCs
- Industry-leading space utilization of up to 61%



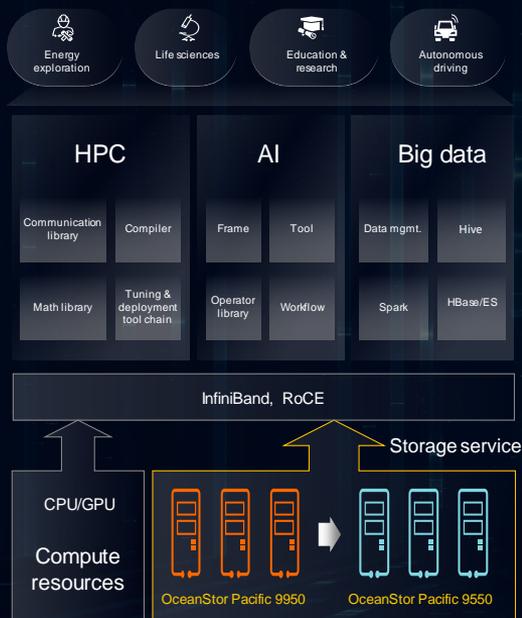
≤ **10S** switchover upon a node failure

- Intelligent heartbeat detection
- Fast service takeover

A person's hands are shown stacking wooden blocks on a table. The person is wearing a dark suit jacket and a light-colored shirt. The blocks are stacked in a stepped pattern, with the tallest stack on the left and the shortest on the right. The background is dark and out of focus.

How It Helps?

Hybrid workloads-oriented HPDA storage that achieves zero data copying improves data analysis efficiency



Hybrid workloads oriented

High-density design

Case: high-performance genomic analysis



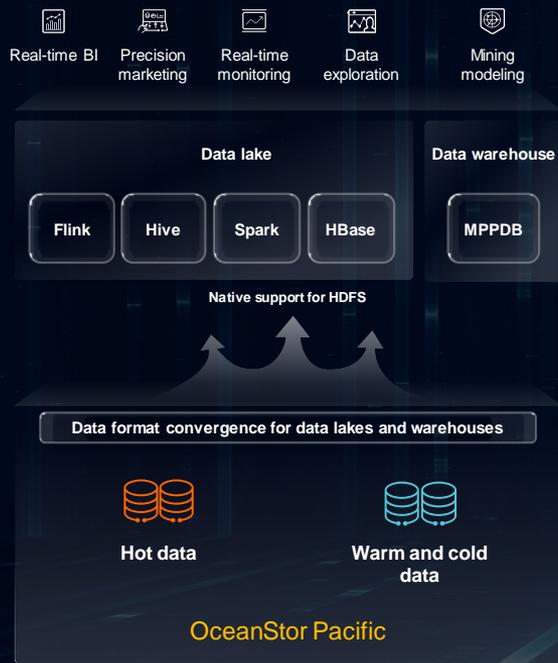
7 mins

Human WGS data analyzed within minutes for the first time



Ranks among the top 1%, Essential Science Indicators (ESI)-Clinical Medicine, by Clarivate Analytics

Big data storage that converges data lakes and warehouses enables informed decisions in minutes



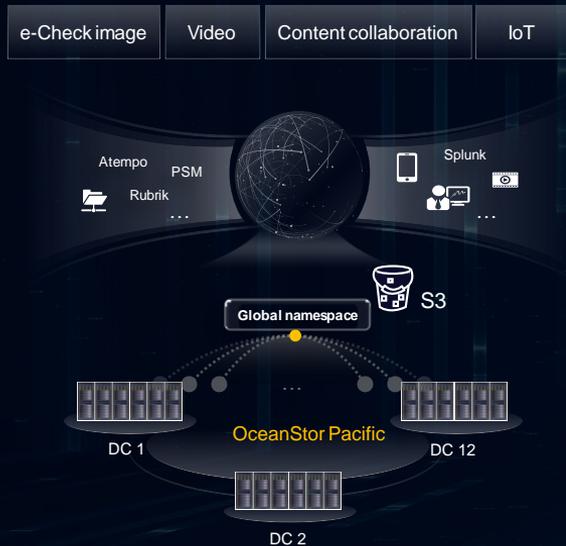
Storage-compute decoupling
On-demand resource expansion and lower TCO

Data format convergence
Reduce data lakehouse ETL

Intelligent takeover of existing clusters
Smooth architectural evolution



Elastic, HA backup & archiving storage for mass data ensures 24/7 service continuity



Stable performance with 100 billion objects/bucket



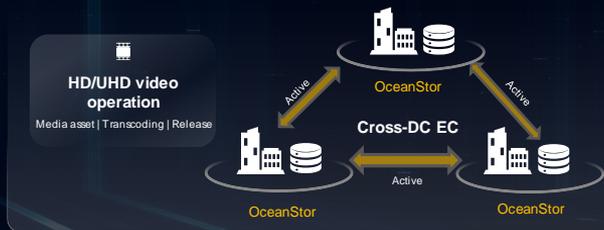
Index searching in seconds

Multiple active DCs for DR

3 active DCs

56% resource utilization

A large online video carrier with 200+ million monthly active users



Huawei OceanStor Pacific

Hybrid workloads-oriented, one-for-all storage for mass data

Efficiency for Hybrid Workloads | Optimal ROI | Always-On Services



A group of business professionals in a modern office setting, silhouetted against large windows. The scene is dimly lit, with light streaming in from the windows, creating long shadows on the floor. The professionals are engaged in various activities, some holding documents or laptops. The overall atmosphere is professional and collaborative.

Let's embrace new workloads to seize business opportunities together!