Eurasia Data Center and Cloud Forum

#HUAWEI Day0, October 3rd

Huawei DC infrastructure Product portfolio

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Solution Architecture and Consulting Dept

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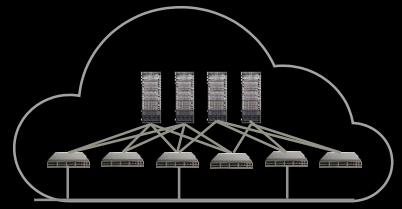
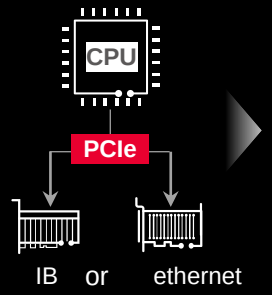
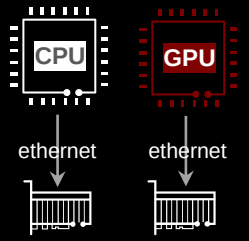
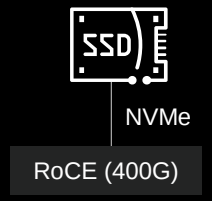
Hyatt Hotel, Tashkent, Uzbekistan

Main directions of the evolution of data center IT infrastructure

		As-Is	To - Be	
Scalability X86 and GPU/TPU servers replace mainframes	IT architecture **Centralized→Distributed**		Quantity: **100x** 	**Ethernet**
Prices All-Over-Ethernet approach is optimal in terms of cost, considering bandwidth	Switching **IP/IB/FC→ IP**		Productivity: **100x** 	**Data transfer between CPU/GPU over Ethernet**
Productivity All-flash storage operates significantly faster than HDD All-flash storage requires less data center space and power	Disc Type **HDD→SSD**		Capacity: 1000x 	**All-flash storage via ethernet**

Huawei Key Products for Data Center IT Infrastructure

Huawei Atlas

Leader in AI and Massive Computing

Huawei Dorado

Highest performance with minimal latency

OceanStor Pacific

Highest 1U data density in the industry

Cloud Engine

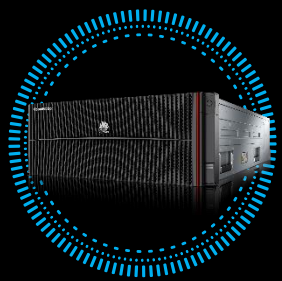
DCN Switches with built-in AI

OptiXtrans

The first AI-powered product in the DCI industry

OceanProtect

Highest compression ratio in the industry



TaiShan

Servers based on CPU ARM Kunpeng

Intelligent Resources: Chip Families

Computing

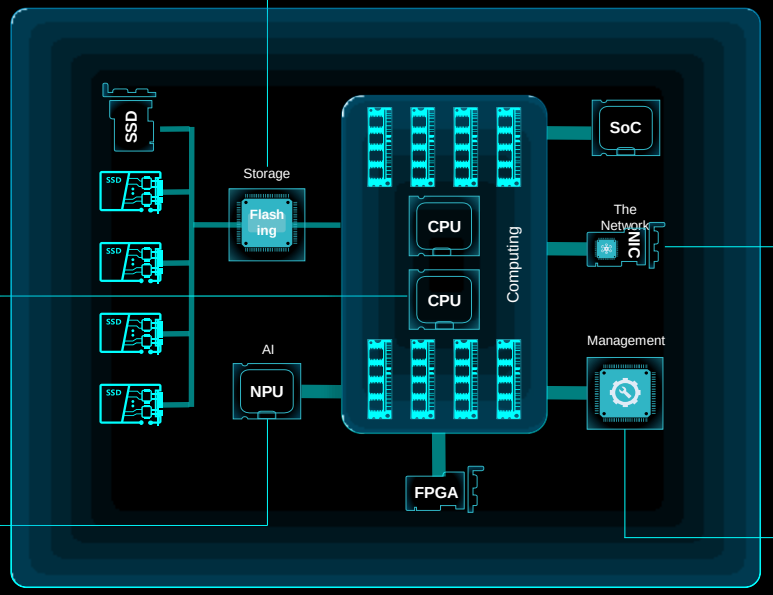
Kunpeng | General Purpose Processor

- High performance: 64 cores, 25% better performance on integers per 1 processor

AI

Ascend | AI Processor

- High Performance: Ascend 910, 256 TFLOPS in FP16, double the industry average
- High energy efficiency: Ascend 310, 16 TOPS of INT8 at 8W consumption (10W for analogs)



Storing

The Network

Management

Controller Chip SSD

- 16-channel concurrency, read/write 15%↑
- Wear Algorithm, 20% Life Cycle↑

Intelligent network card

- Multi-Host, multi-controller AA for increased reliability
- Hardware implementation of OVS, VXLAN and RoCE for high latency networks

Intelligent Control Chip

- Intelligent O&M, 93% fault detection accuracy (vs 60% industry average)
- Dynamic adjustment of power consumption,
- 15–30% reduction in energy costs

Different computing platforms for different tasks

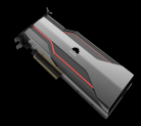
Kunpeng Computing Platform

Kunpeng Motherboards |
TaiShan servers | openEuler OS

openEuler

Ascend computing platform

Huawei Atlas AI Platform



Intelligent acceleration Components

Intelligent management engine

FusionDirector

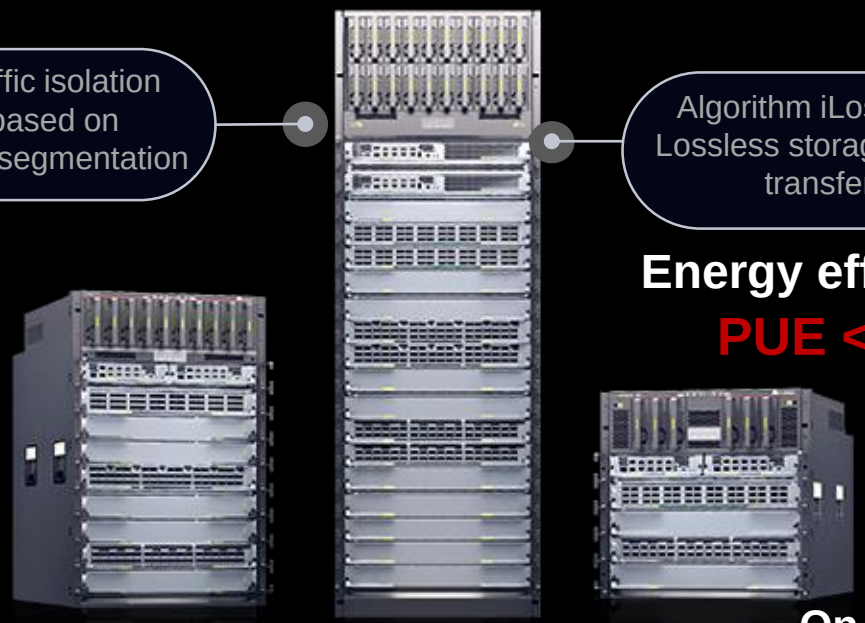
5 intelligent management features

Data Center Intelligent Network

CloudEngine 16800

Traffic isolation based on microsegmentation

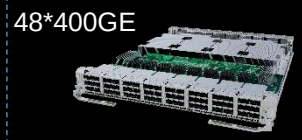
Algorithm iLossless. Lossless storage traffic transfer



Energy efficiency

PUE < 1.1

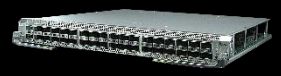
	CloudEngine16800	On average by industry
Blade performance	19.2 Tbit/s	3.6 Tbit/s
Port Density	48*400GE	36*100GE


48*400GE

18/36*100GE

24*40GE

48*100GE


36*40GE

48*10GE

100GE switch

CE8851-32CQ8DQ-P

- 32 x 40/100GE QSFP28 or 32 x 200GE QSFP56
- 8 x 400GE QSFP-DD

25GE switch

CE6863E-48S6CQ

- 48 x 25GE SFP28
- 6 x 100GE QSFP28

CE6863-48S6CQ

- 48 x 25GE SFP28
- 6 x 100GE QSFP28

CE6866-48S8CQ-P

- 48 x 10/25GE SFP28 or 48 x 50GE SFP56
- 8 x 40/100GE QSFP28 or 8 x 200GE QSFP56

10GE switch

CE6820H-48S6CQ

- 48 x 10GE SFP+
- 6 x 100GE QSFP28

CE6820-48S6CQ

- 48 x 10GE SFP+
- 6 x 100GE QSFP28

CE6881-48S6CQ

- 48 x 10GE SFP+
- 6 x 40/100GE QSFP28

CE6881-48T6CQ

- 48 x 10GE Base-T
- 6 x 40/100GE QSFP28

Storage network switch

CE8850-SAN

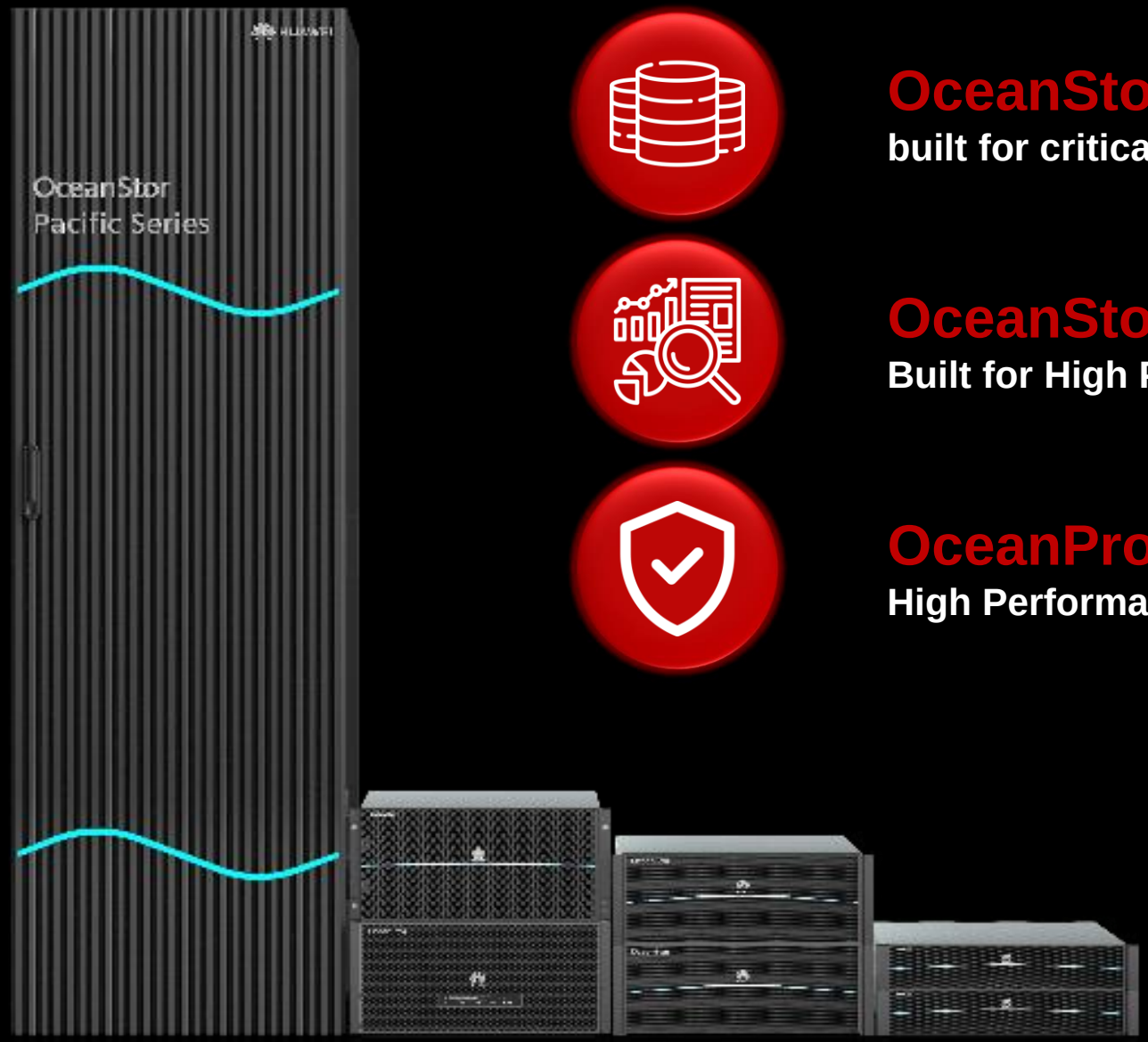
CE6860-SAN

NOF+

GE switch

CE5882-48T4S

Intelligent storage



OceanStor Dorado:

built for critical workloads, AI from controllers to disks

OceanStor Pacific:

Built for High Performance Computing and BigData

OceanProtect:

High Performance Backup

From 'D2D2T' to 'F2F2X'
Huawei OceanProtect all-flash backup storage

D2D2T	Backup	F2F2X
Disc	3-5 times higher throughput	Flash
Disc	**Storage TCO**	**Flash**
	Only 10% higher	
Tape	**Restoration**	Anything (tapes, disks, etc.)
	Recovery time: ≤ 30 min.	

Efficient data compression

72:1 compression ratio

Fast recovery

172 TB/hour

Fast Recovery

155 TB/hour

Compression algorithm adapted for SMB

Associated blocks combined

Inline adaptive dedupe

Characteristics-trained predictive models

Intelligent management and monitoring – IT + IP

Day 0

Day 2

DME

AI

iMaster NCE

AI

DME

Resource provisioning

Intelligent O&M

Data protection

Data mobility

SmartIDC

AI

Hot

Warm

Cold

Production

Analytics

DR

Backup

Archiving

OceanStor Dorado

OceanStor Pacific

OceanProtect

uNetVision

AI

Large ring

Long link

Ring with a cascaded link

Access ring across aggregation devices

Single-homed ring

Access layer

Aggregation layer

Core layer

Huawei solutions for any IT services

HPC

Computing
Diversified computing power: Kunpeng, Ascend, x86, and GPU

Storage
OceanStor Pacific

Virtualization

Computing
Diversified computing power: Kunpeng, x86

Storage
OceanStor Pacific

OR

FusionCube

DBMS

Computing
Diversified computing power: Kunpeng, x86

Storage
OceanStor Dorado/Pacific

OR

FusionCube

OR

Computing
Bare-Metal: Kunpeng, x86

Edge/AI

Computing
Diversified computing power: Kunpeng, x86

OR

Atlas 500

Storage
OceanStor Dorado

Thank you

把数字世界带入每个人、每个家庭、
每个组织，构建万物互联的智能世界。

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

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