Collaborative and Coordinated Integrative Cloud Services for Sustainable Development

Dulei
Huawei Cloud

Huawei: Leading Global Provider of ICT Infrastructure and Smart Devices

188,000
Employees

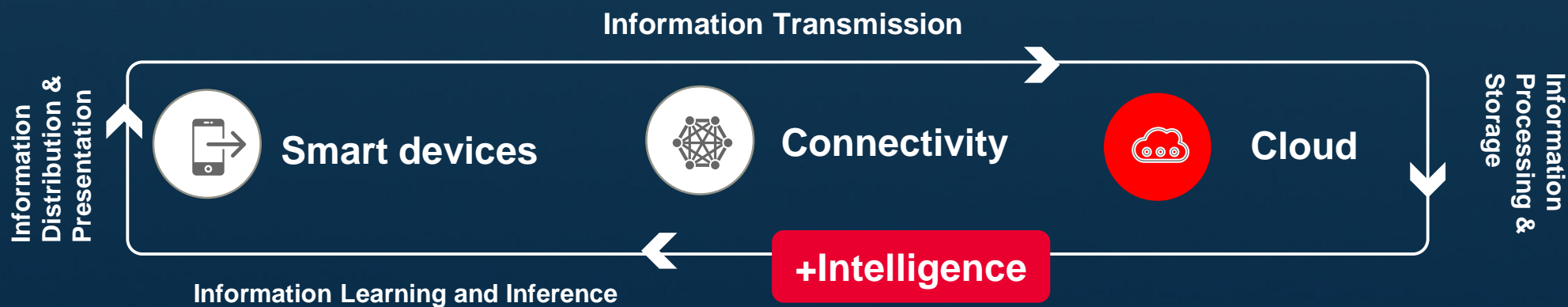**80,000+**
R&D employees

170+
Countries and regions

68 in
Interbrand's
Top 100
Best Global Brands

72 in
Fortune Global 500

Information Transmission

Information Distribution & Presentation

Smart devices

Connectivity

Cloud

Information Processing & Storage

+Intelligence

Information Learning and Inference

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HUAWEI CLOUD Global Footprints
Stable, Reliable, and Accessible Worldwide

Russia

Europe

North China

East China

West China

South China

Hong Kong

Thailand

Singapore

Asia Pacific

Region

South Africa

Northern Latin America

To Europe

Peru

Brazil

Chile

South America

Argentina

20
Regions

36
Availability Zones

1500+
CDN nodes

2018.3	2018.3	2018.9	2018.11	2019.2
Hong Kong	Russia	Thailand	South Africa	Singapore

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HUAWEI CLOUD Services Are Growing Fast

2800+ Applications in Marketplace

1000000+ Enterprise users and developers

6000+ Partners

Computer
ECS	Computing	GACS	FACS	BMS	DeH	As
IMS	CCE	CCI	FGS	FunctionStage	CPS	

Storage
Storage	EVS	VBS	CSBS	CDN	SDRS	SFS	Des	LSA	OBS	DTA

Network
Network	VPC	ELB	NAT Gateway	Elastic IP	Direct Connect	VPN	DNS	CMN	HTTPDNS

Database
Database	Postgre SQL	SQL Sever	DDS	Redis	Memcached	DDM	DRS
Das	Cassandra	Taurus	MySQL	RDS	mysql+	geomesa	opentsdb

Security.
WAF	AAD	Anti-DDoS	Web Scan	HSS	DEW	DBSS
SA	SCM	CBH	ARS	HIDS	HVD	HWAF
Ses	SCA	WTP	AAG	SPO	Kms	PTS

Application service
CSE	SMN	DMS	APM	APIG	CPTS
ServiceStage	ECPC	SWR	BCS	AOM	AOS	CAE

Domain name and website
domains	Web record	optimization server

Management deployment
CES	LTS	Iam	CTS	TMS
RTS	HCUS	CAS	CCS	CRS

Cloud communication
Meeting	Im	CloudPBX	CloudIPCC	VoiceCall	MSGSMS	private number

EI
MLS	DLS	GES	CS	Mrs	MTS	TTS	NLP	Logistics	iWater	Smart Retail	Smart Traffic	upredict
DLI	CloudTable	DWS	USearch	OCR	Face	Moderation	Indicates the RES.	iManufacturing	iTransport	Smart Campus	iRetail	Images Recognition
Image	DLF	Dis	VCT	VCM	ASR	NLP	Image Search	iPower	iFinance	AIS	DAPS	vision service

Software development service
CodeCheck	TestMan	CloudIDE	classroom
CloudPipeline	CodeCI	MobileTest	DevCloud
Collaboration	CodeCheck	ProjectMan	CodeHub	CloudDeploy	CloudRelease

Video
Media Processing Center	Video on Demand	Live	Convergent Video

Migration
OMS	CDM	CMC	SMS

Edge cloud service
IEF

Enterprise application
Workspace	CloudVC

Iot
IoT Platform	IEF

Dec
HCS	DCC	DSS	DESS	BMS

Enterprise network
CMN

18 categories, 160+ services have been launched.

No.1 — No. 1 in China's government cloud market

No.1 — No. 1 in China's big data market

Leader — Leader in China's public cloud market

Source: The Forrester Wave, 2018

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HUAWEI CLOUD Remote Sensing Big Data Solution

Application System

| Disaster prevention | Land classification | environmental protection | Logistics | Agriculture |

Application Service

| Thematic mapping | Statistical Chart | 2D and 3D visualization | Online editor | …… |
| Data exploration | Data mart | Multi-mode search | Knowledge model | Case Scenario |

GIS+AI Center

Data Extract

Element Label

Image segmentation

ModelArts

Model Training

Object detection

Object tracking

Clutter classification

change detection

Data Governance

Image Tile

Image Format Conversion

Data Cataloging Integration

OBS

Cloud Table

RDS

DWS

Data Infra

Compute	**Management**	**AI**	**Storage**	**Transmit**
Hi1710				
Kunpeng 920	Hi1710	**Ascend 310/910**	Hi1812	Hi1822
ARM-based CPU	**Intelligent management chip**	**AI chip**	**Intelligent SSD controller chip**	**intelligent network chip**

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OBS Service: Superb Performance and High Availability

OBS 3.0

Unlimited capacity
100 billions+ objects
10 millions+ TPS
100 Tbps throughput capacity
2.4 Gbps single-stream bandwidth
Latency as low as **10 ms**

Level 5: Regional reliability
Earthquake, flood, war (0.1%)

Level 4: Data center reliability
Wind, fire, water, and electricity faults (1.8%)

Level 3: Cabinet reliability
PDU and switch faults (0.1%)

Level 2: Server reliability
FRU faults (3.4%)

Level 1: Media reliability
Bad sectors and slow disks (3.78%)

Region — Cross-region replication

Data Center — Multi-AZ Cross-AZ EC

Cabinet — Cabinet-level redundancy

Server — EC Partition

Storage Media — GC restoration Detection of slow disks Bad sector detection
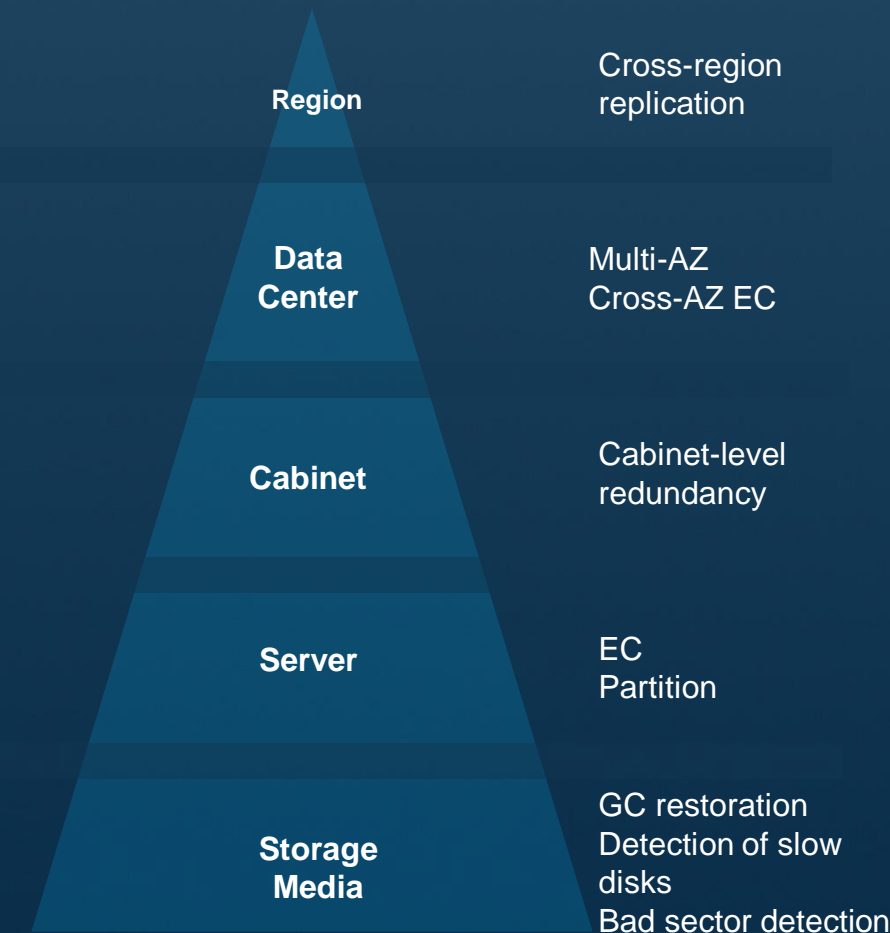
Availability: 99.995%, durability: 99.9999999999%

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HUAWEI CLOUD EI: a New Engine for Intelligent Industry Upgrade

General APIs

ASR   TTS

Image Recognition   NLP

FRS   Content Moderation

OCR   ...

Advanced APIs

Task-oriented Conversational Bot   ImageSearch

Moderation (Video)   Video Content Tagging (VCT)

Video Guard Service (VGS)   Video Content Comprehension (VCC)

Video Content Recognition (VCR)   ...

Pre-integrated Solutions

City   Internet   Home   IoV

Logistics   Healthcare   Campus   Manufacturing

Basic Platform Services

ModelArts

ExeML   GES   DLS   MLS   Batch   UPredict   RLS

Data Lake

MindSpore

TensorFlow   mxnet   CNTK   PyTorch   Keras   Caffe

Ascend   Ascend 310   Ascend 910

Kunpeng   Kunpeng

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59 services

21 platform services   **22** visual services   **12** language services   **4** decision-making services

159 functions

52 platforms   **99** APIs   **8** pre-integrated solutions

As of Dec 31, 2018
Available on https://www.huaweicloud.com/en-us/ei/

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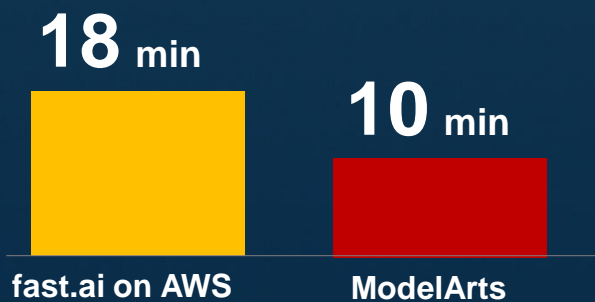# ModelArts Reduces the Model Training Duration by Half

Algorithm optimization

Fast

A training acceleration ratio of over 0.8 for a cluster with 1,000 GPUs
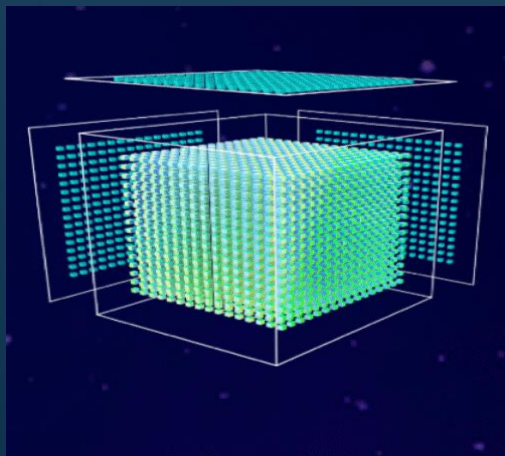
ModelArts
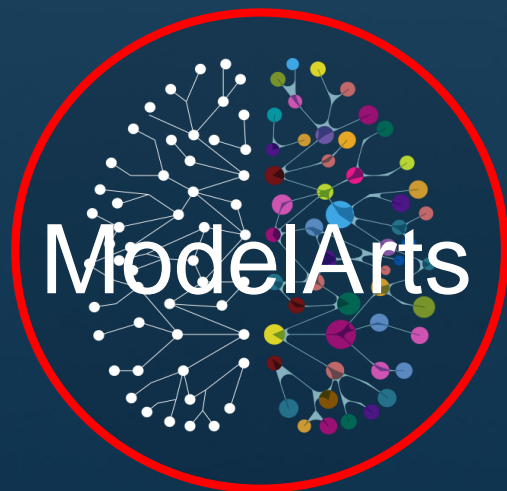
Simplified hyperparameter tuning

Simplified

Simplified coding

18 min

10 min

fast.ai on AWS

ModelArts

fast.ai used to be the fastest training platform.

Uses the same 128 GPUs to train millions of images with ImageNet.

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Delivering Pervasive Intelligence Through Chip-Inspired Innovations

Da Vinci Architecture

- 16 x 16 x N scalable cubes
- Simultaneous support for tensor, vector, and scalar units
- All scenarios: devices, edge, and cloud

Year	Kunpeng	Ascend	Kirin	Honghu
2021	Kunpeng 930	Ascend 920	Kirin xxx	
2020		Ascend 320 / Ascend 610	Kirin xxx / Kirin 990(5G) / Kirin 990	
2019	Kunpeng 920	Ascend 910	Kirin 810	Honghu 818
2018		Ascend 310	Kirin 980	
2017	Kunpeng 916		Kirin 970	

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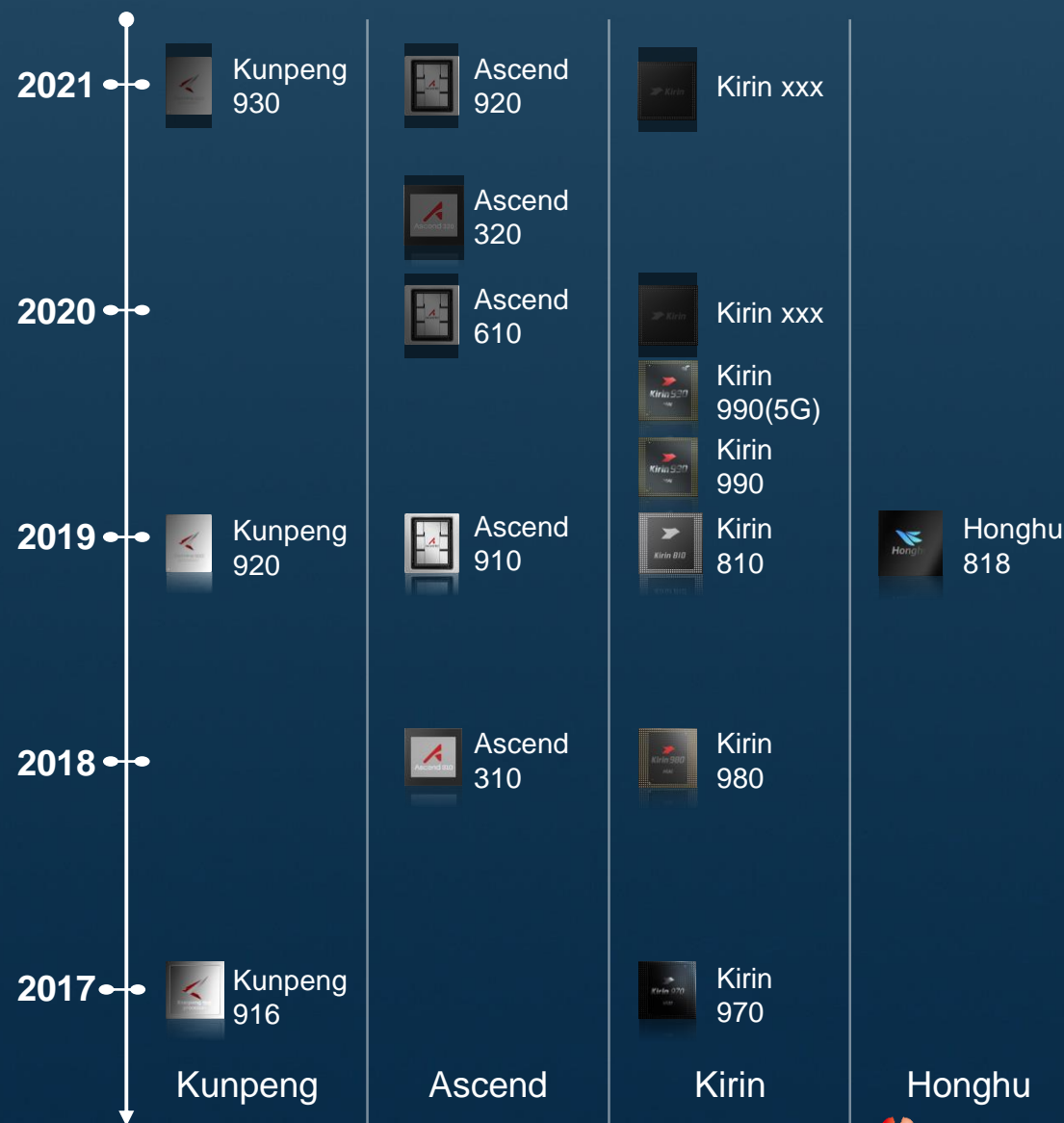
"Siwei Earth" Building a Remote Sensing Industrial Cloud to Offer Internet+ Services for the Remote Sensing Industry

Natural resources	Water conservancy/ environmental protection	Territory supervision	Finance/ insurance	Logistics/ e-commerce	Agriculture, forestry, water, and grass	Disaster prevention/ mitigation

Siwei Earth

Common Product Services	Intelligent Information Product Services	Application Development Services
Base map	Regional map	Clutter classification	Object detection
Daily map	Customized base map	Change detection	Standard interface

Data storage
EVS   OBS   SFS

Data access
BMS   ECS

Image processing
ECS   Kunpeng
BMS   AS

Image analysis/ AI analysis
BMS   ECS
CCE/CCI   MRS

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30 min
fault detection time

90%+
recognition accuracy

2 tpm
detection frequency

Common Product Services: Making Remote Sensing Data Inclusive on Demand and in Quasi Real-Time

Orthophoto Fusion

100%

Coverage

Base map

Quasi-Real-Time Publishing

2 hours

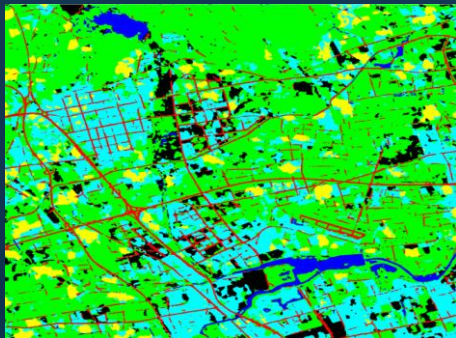Time
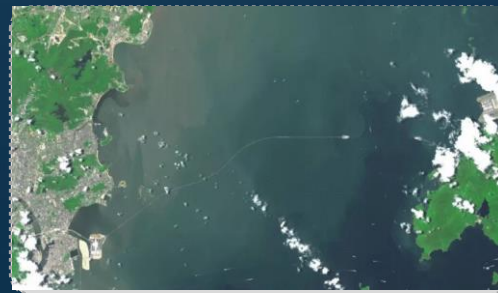
Daily map

Long Time Series

2 decades

Lasting

Regional map

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Use AI Technologies to Gain Instantaneous Perceptions of Clutter Changes

Clutter classification

> 90%

Precision

Automatic Selection of Cloud Amount

< 30%

Cloud amount

Geometric Positioning Accuracy

10 m

Precision
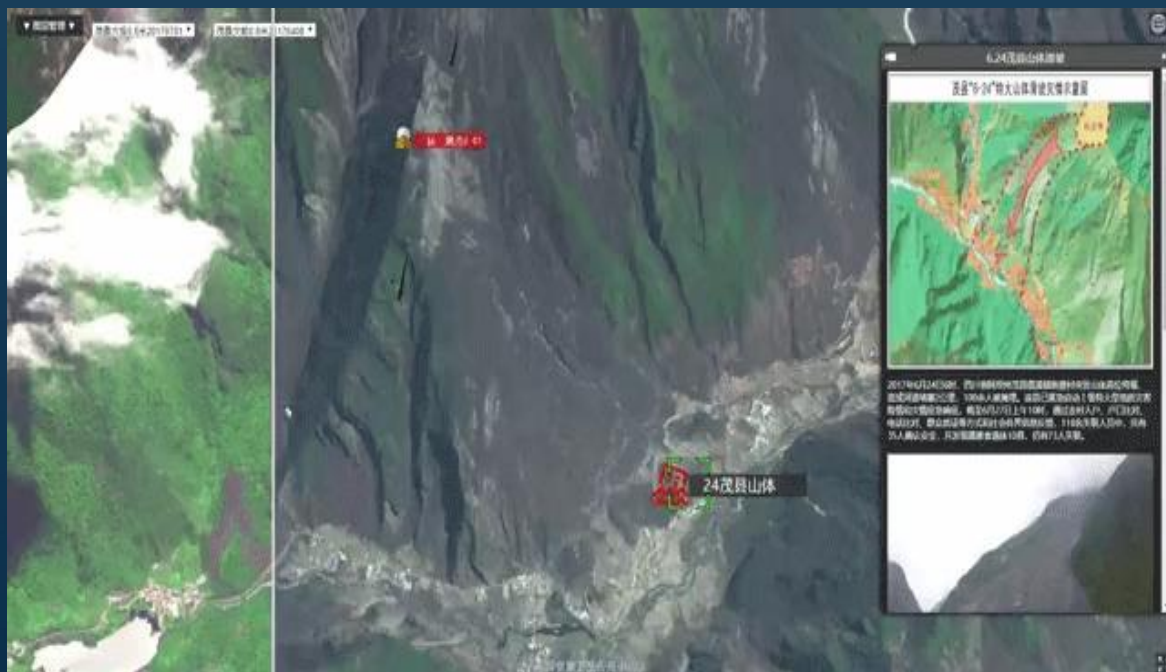
Clutter classification

Object detection

Change detection

HUAWEI

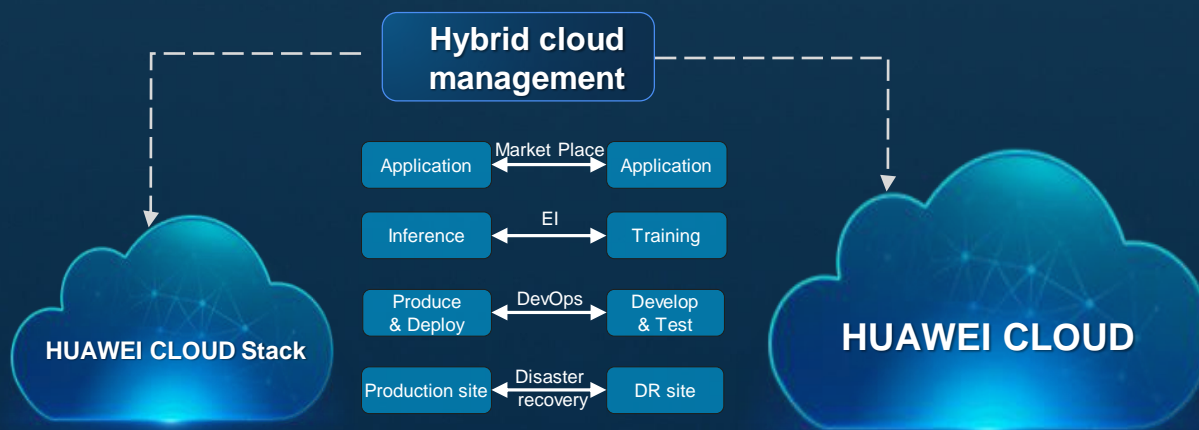# Remote Sensing Data on the Cloud Ensuring Accurate and Timely Disaster Warning
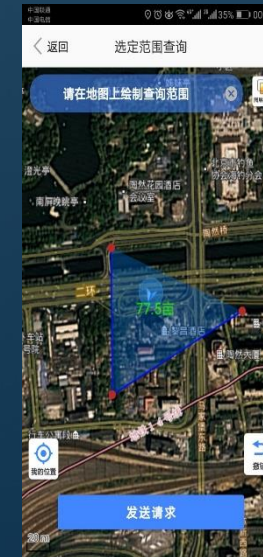

Massive volumes of data

PB-level remote sensing data on the cloud

Real-time obtaining

Information sharing and collaborative operation

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HUAWEI CLOUD Support 3rd China Land Survey, Build Fundamental Data for Sustainable Development

Hybrid cloud management

Application	Market Place	Application
Inference	EI	Training
Produce & Deploy	DevOps	Develop & Test
Production site	Disaster recovery	DR site

HUAWEI CLOUD Stack

HUAWEI CLOUD

Data Compliance with hybrid architecture

OBS support massive data

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Saving the Rainforest by Listening

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Tech for all. Pass it on.
科技普及天下

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