



# Commercial Market Scenario-specific Solution Brochure




Get More Information



Download the App

### Trademarks and Permissions

 HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.  
All other trademarks and trade names mentioned in this document are the property of their respective holders.

**Notice**  
The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.  
The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Copyright © Huawei Technologies Co., Ltd. 2024. All rights reserved.  
No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

# CONTENT

## 01 EDUCATION

High-Quality Primary and Secondary School Network Solution .....	01
FTTO Solution for Education.....	04
Digital Classroom Solution.....	08
Smart Classroom Solution.....	10
DCS Lightweight Data Center Solution for Higher Education .....	13

## 02 HEALTHCARE

High-Quality Small and Midsize Hospital Network Solution .....	15
FTTO Solution for Healthcare .....	18
Next-Gen DCS Data Center Solution for Healthcare .....	21
Municipal Hospital Active-Active Data Center Solution .....	23

## 03 GOVERNMENT

High-Quality Government Office Network Solution .....	26
DCS Lightweight Data Center Solution for Local Government .....	29

## 04 MANUFACTURING

High-Quality Small and Midsize Factory Network .....	32
--	----

## 05 FINANCE

High-Quality Simplified Data Center Network Solution .....	35
Ransomware Protection Storage Solution.....	39
Backup Storage Solution .....	41

**06 ENTERPRISE INFRASTRUCTURE**

High-Quality SME Office Network Solution ..... 43

Intelligent Office Conference Solution ..... 49

Virtualization Storage Solution ..... 52

Desktop Cloud VDI Storage Solution ..... 55

**07 REAL ESTATE/RETAIL/HOTEL**

FTTO Solution for Hotel ..... 57

High-Quality Hotel Network Solution ..... 60

High-Quality Retail Network Solution ..... 64

**08 ISP**

FTTH Solution for SME ..... 68

High-Quality MSP Cloud Managed Network Solution..... 71

**09 MINING**

FTTM Solution for Mining Network ..... 75




# High-Quality Primary and Secondary School Network Solution

## Background and Challenges


**Drilling holes to install cables**

Fixed information access points in traditional classrooms cannot meet new requirements.




**Fault locating takes more than one hour**

Problems occur in online classrooms and take a long time to locate faults, affect student's online learning.



**School is under attack**

Schools attack affects students' online learning

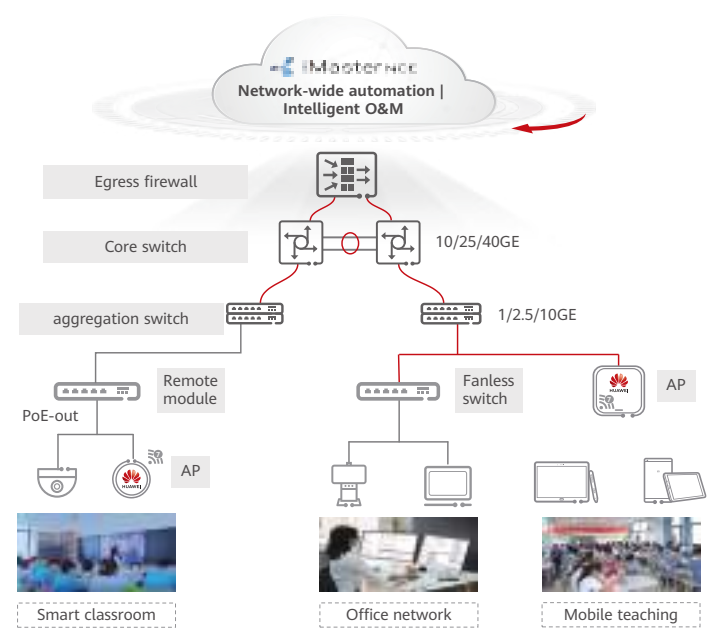


**Flexible expansion of information access points**

**Simplified and intelligent O&M**

**Green Cyberspace**

## Solution Introduction



The diagram illustrates a hierarchical network architecture. At the top, a cloud labeled 'iMaster NCE Network-wide automation | Intelligent O&M' connects to an 'Egress firewall'. Below the firewall is a 'Core switch' (10/25/40GE). This core switch connects to two 'aggregation switch' units. The left aggregation switch connects to a 'Remote module' and a 'PoE-out' switch, which then connects to a 'Smart classroom' (represented by a monitor and a person). The right aggregation switch connects to a 'Fanless switch' and an 'AP' (Access Point), which then connects to an 'Office network' (represented by a person at a desk) and 'Mobile teaching' (represented by a person with a tablet). The entire network is managed by the iMaster NCE cloud.

**Solution descriptions:**

**Network Gateway:** Huawei Firewall provide network gateway function and Refined security management and control.

**Core Switch:** Deployed in the data center, it integrates Access Controller (AC) capabilities and serves as the central hub for data exchange across the entire school.

**Aggregation/Access Switch:** Deployed in classrooms or corridors, it is used for connecting wired terminals, Access Points (APs), and so on.

**WLAN:** APs (Access Points) are deployed in classrooms, corridors, offices, and conference rooms to provide wireless connectivity for wireless devices.

**Management:** NCE-Campus provides user authentication and control as well as intelligent operations and maintenance management.



## Customer Benefits

### Deliver one building in 3 days: Flexible expansion of information points

- Only need one switch on the first floor, reducing network construction and O&M costs.
- Falling silence, Configuration-Free, and online after power-on
- Full Wi-Fi 7 continuous coverage, exclusive AI roaming technology, all wireless smooth teaching anytime, anywhere

### School network service opened in 1 day: Quick network provisioning and visualized experience

- 5K NEs + 20000 concurrent online access terminals
- Device management, access authentication and terminal identification

### All-in-one security capability: Refined management and control, ensuring school security

- Intelligent signature production on the cloud
- The built-in antivirus content-based detection engine (CDE)

## Typical Configuration

Product	Model Type	Quantity
Management Platform(optional)	iMaster NCE-lite	1
Firewall(Gateway)	USG6615F	1
Core Switch	CloudEngine S6730-H24X6C	2
Building Core Switch	S5731-S48ST4X/S5731-S24UN4X2Q	2
Remote Unit	CloudEngine S5731-L8P2ST-RUA	25
AP(classroom/office)	AirEngine 5773-21	24
HD AP (Auditorium/Conference Hall)	AirEngine 6776-56TP	4

- Recommended Product Model for Typical Scenarios:
- \*Taking the example of a primary or secondary school campus network that includes 4 offices, 1 auditorium, and 20 classrooms for both new construction and renovation, the scenario encompasses an auditorium, offices, classrooms, etc.



Download the App

## Solution Highlights

### Flexible port expansion

#### Central switch



- Only one switch deployed in the equipment room, reducing the construction cost
- Gigabit to classrooms, flexible port expansion

### 2.5GE access to classrooms

#### Access switch



- GE/2.5GE access to classrooms, flexible port expansion
- 512 MB large buffer to cope with traffic bursts

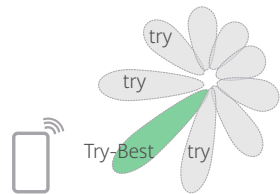
### Fanless and configuration-Free

#### Wired RU



- Fanless, natural heat dissipation, super quietness
- Planning-free, configuration-free, and plug-and-play

### Smart antenna, providing "searchlight-like" signal



Always-on stronger signal, faster speed, and 20% greater coverage distance for users

### Intelligent multimedia scheduling technology, delivering "biometric fingerprint-based" experience



Application identification and acceleration to suppress heavy-traffic bandwidth-hungry services, ensuring audio and video services without interruptions

**Note: This function is supported by some AP models.**

## Success Stories



### Customer Requirements

- Aging equipment: Existing network devices are over 10 years old, with high failure rates
- difficult business integration management: making it challenging to flexibly deploy and migrate terminals.
- Operations and maintenance challenges: Complex configurations demand high skills from operations personnel.



### Customer Benefits

- This school network integrates all-optical Ethernet and SDN with VXLAN for a scalable, cost-effective core.
- It features distributed access for 2.5G classroom connectivity and uses Wi-Fi 6 for comprehensive coverage, supporting flexible learning environments.
- Advanced O&M tools ensure network reliability, real-time monitoring, and swift issue resolution, future-proofing the network for a decade.

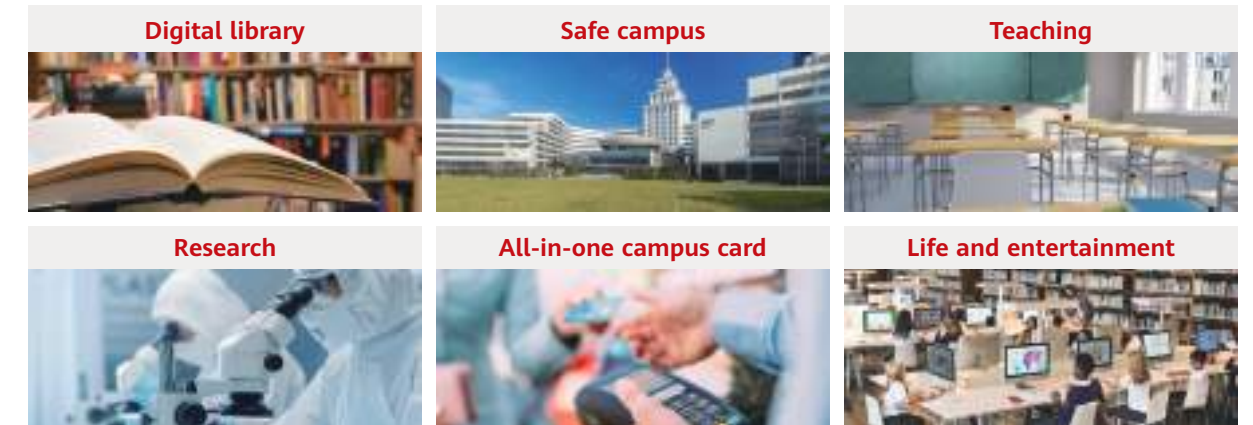
Download the App



# FTTO Solution for Education

## Background and Challenges

Ubiquitous smart campus network featuring service convergence, high bandwidth, and low latency



Video conference, phone, CCTV, IoT, broadcast...

### Campus network requirements

- |   |  |
|---|--|
| • Wide coverage and on-demand deployment, ensuring network accessibility      | • Full-scenario and full-service access, ensuring network availability |
| • High reliability, ensuring no frame freezing in cloud and remote classrooms | • Easy O&M and smooth bandwidth upgrade, reducing O&M costs            |

### Current campus network

High-quality 1000 Mbps Wi-Fi access Covering 4500 dormitories, 1200+ access points, 300/450 Mbps per access point, and 5000+ connections

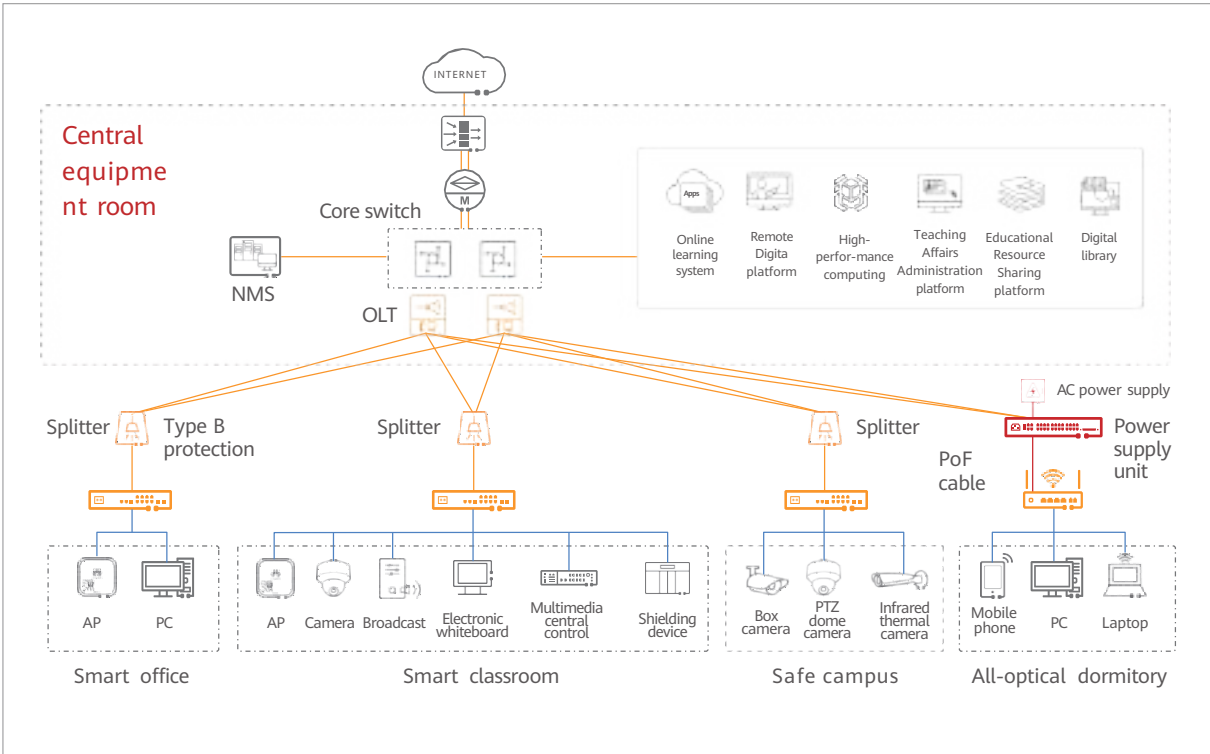
### Future campus network

- |                     |                         |                        |
|---------------------|-------------------------|------------------------|
| x20 data            | x4 connection bandwidth | x10 cloud services     |
| x10 connection rate | x5 smart terminals      | x6.7 Internet services |





Solution Introduction



Customer Benefits

Easy campus coverage saving investment capital

The P2MP architecture provides long-distance coverage for all information points on the campus. In comparison with traditional schemes, the P2MP architecture not only reduces cabling costs by 40%, but also reduces ELV room space and power consumption by 80%.

All-in-one network that meets requirements over the next decade

The new network can carry multiple services to avoid repeated construction, and can smoothly evolve to 50G PON. This effectively meets the service requirements over the next 5–10 years

Efficient deployment and simplified O&M

Compared with a traditional solution, the IP+Optical collaborative deployment mode reduces network design and service deployment time from weeks to days, and improves O&M efficiency by 50%.



Product Introduction

Huawei OptiXaccess OLT series



**EA5800-X15**  
15 service slots  
UNI: GPON/XG(S)-PON/GE/10GE



**EA5800-X7**  
7 service slots  
UNI: GPON/XG(S)-PON/GE/10GE



**EA5800-X2**  
2 service slots  
UNI: GPON/XG(S)-PON/GE/10GE



**EA5801E-GP16**  
Box-shaped OLT  
UNI: 16\*GPON

Huawei OptiXstar ONU series



**P893E**  
NNI: 2\*XGS-PON pro  
UNI: 2\*10GE+8GE(PoE)



**P813E-E**  
NNI: 2\*XGS-PON  
UNI: 8\*GE PoE+



**W827E**  
NNI: XG-PON  
UNI: 1\*POTS+4\*GE(PoE) Wi-Fi 7



**P871E**  
NNI: GPON/XGS-PON  
UNI: 2\*GE



**P815E-G/X**  
NNI: 2\*XGS-PON/GPON  
UNI: 24\*GE + 2\*10GE(optical) + 2\*10GE(electrical),PoE++



**P803E-E**  
NNI: 2\*XGS-PON  
UNI: 8\*GE



**P626E-10**  
NNI: GPON  
UNI: 1\*POTS+4\*GE(PoE) Wi-Fi 6



**P622E**  
NNI: 2\*GPON  
UNI: 4\*GE



## Solution Highlights



### Simplified architecture energy saving

- Two-layer architecture, active devices replaced by passive devices, equipment room space and cabling reduced by 80%, fire risks eliminated, and power consumption cut down by 30%
- The TCO (including engineering deployment, equipment room, power consumption, and maintenance costs) reduced by 30%



### High bandwidth continuous evolution

- Smooth evolution from 2.5G to 10G to 50G, meeting the requirements of VR/AR applications in smart education
- Dynamic bandwidth assignment (DBA), ensuring QoS for key teaching services



### Premium experience in all scenarios

- Multiple services over one fiber, all-in-one terminals in classrooms and dormitories, providing POTS, Internet access, TV, and Wi-Fi coverage services.
- Full coverage of Wi-Fi 7, fast roaming across dormitories, and premium network experience

## Success Stories

High-Profile Canadian University in Egypt Builds a Next-Generation Advanced Campus Network Using Optical Technologies

### Requirements and Challenges

#### Difficult network deployment

The data center, teaching area, and library are far apart, requiring a network solution that can transmit signals over a long distance

#### All-in-one network

Wired, wireless, and telephone services need to be carried over one network to avoid repeated construction

#### Simple installation and maintenance

The new network needs to be rapidly constructed so that the campus can come into operation as soon as possible

### Customer Benefits

Reduced investment, one-time network construction for a decade

The engineering cost is reduced by 30%+, services can be expanded, and the network runs efficiently.

Full coverage by information points, facilitating educational equity and campus security

simplifying construction as well as O&M, and improving resource sharing efficiency by 50%.



# Digital Classroom Solution

## Background and Challenges

### Poor learning environment

- LCDs are harmful to the eyes.
- The connection between the large screen and the blackboard is complicated and not user-friendly.
- Blackboards cannot be used in a digital way.
- IT-based classes lose the richness and immersion of traditional teaching methods.
- Multiple devices in classrooms complicate device maintenance.

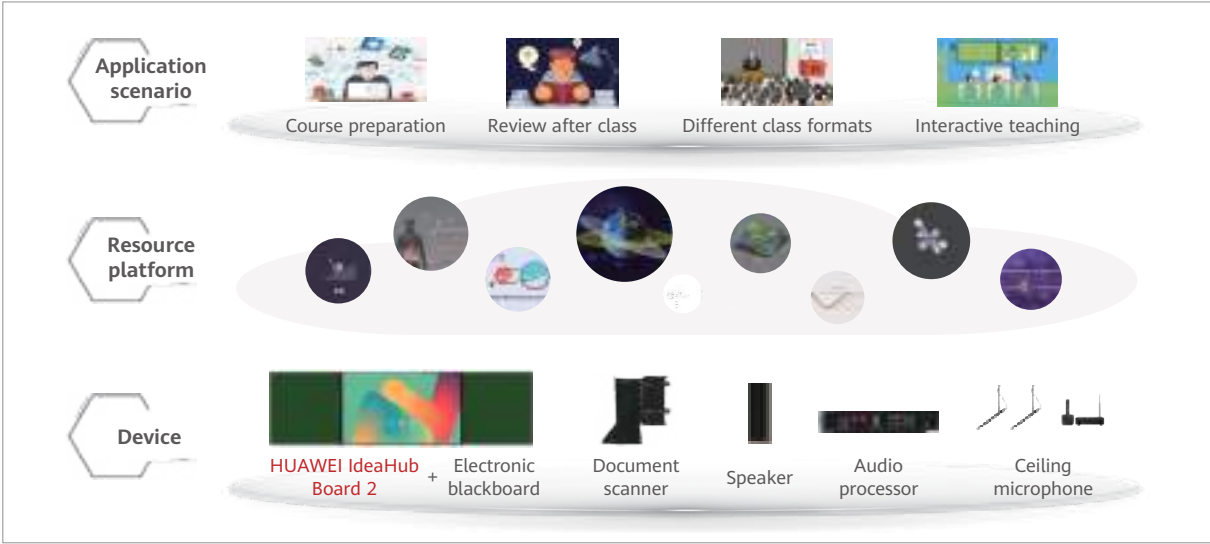
### Traditional teaching methods

- Traditional teaching focuses on unidirectional knowledge output from teachers.
- A passive learning style hinders students' enthusiasm.
- Lack of creativity when teaching content.
- Blackboard content cannot be saved, recycled, or shared, and the area is too restricted.

## Solution Introduction

### Solution description:

Our solution is centered on the IdeaHub Board 2 hardware and education application software, with additional accessories such as document scanners and microphones. This system enables multimedia interactive teaching and enhances the overall classroom experience.



## Customer Benefits

**Teaching Environment Health and Safety:** 4K ultra-high-definition physical blue light protection; meets the hygiene requirements for myopia prevention in children's and adolescents' learning materials.

**Teaching Applications Simple and Efficient:** Lesson plan retention and post-class review; a wealth of teaching tools for more effective teaching.

**Diverse and Rich Teaching Content:** Multi-screen collaboration and pen-paper interaction enable personalized and precise teaching.



Download the App

Typical Configuration

Device System	Product Name	Vendor	For one Classroom	Mandatory/Optional	Remarks
Teaching display system	IdeaHub Board 2	Huawei	1	Mandatory	Huawei integrated education device, providing multimedia interactive teaching
	OPS	Huawei	1	Mandatory	Allows for the deployment of Windows education software.
	Document scanner	Eloam	1	Optional	Supports projection of books and test papers.
	Electronic blackboard	iBoard	1/2	Optional	Preferred: dust-free writing, blackboard content scanning, and writing synchronization delay within 100 ms

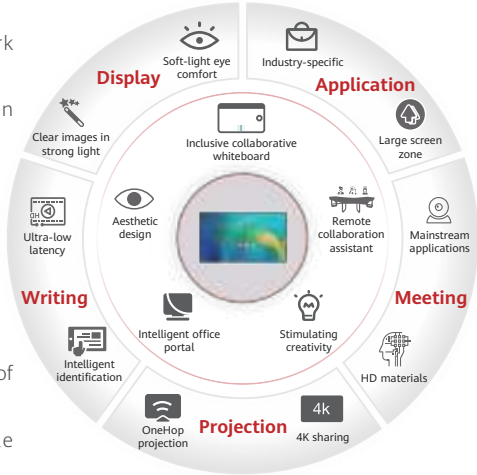
Solution Highlights

Convenient screen projection

- OneHop projection, cross-network segment projection, and HD sharing
- Reverse control and multi-screen interaction

Intelligent writing

- 16–25 ms ultra-low writing latency
- High-precision intelligent recognition of text and graphics
- Retain chalk writing habits while digitizing notes on the board.



4K soft light screen

- TÜV Rheinland low blue light certification
- High color gamut calibration for 4K, delivering clear images even in soft light

Security and reliability

- Fully homemade cloud, pipes, devices, and chips
- CCRC certification for virus/intrusion prevention

Success Stories

Shenzhen Yulv School: Transform Traditional Teaching Methods and Make Breakthroughs in IT-based Teaching



Customer Requirements

- Transform traditional teaching methods and make breakthroughs in IT-based teaching.
- Merge technology with local education resources and provide teachers with opportunities for professional growth and a sense of fulfillment in their careers.



Solution

- The classroom utilizes HUAWEI IdeaHubs, with a teaching application platform that includes a vast library of teaching resources. Content in the platform can be updated and shared in real-time, freshening up classes.
- The solution uses Wi-Fi 6, switches, and auxiliary audio and video devices to ensure a stable and secure campus network. This enables teachers and students to access the network anytime anywhere, ensuring a high-quality learning experience.



Download the App

Smart Classroom Solution

Background and Challenges

Future-oriented open foundation

Digital foundation targeting at teaching scenarios is lacking. Therefore, we cannot enable the E2E process including teaching, learning, evaluation, and management. Also, we cannot further build the environment required for the teaching reform of "Internet+" courses.

Innovation and transformation of teaching modes

In the context of digital teaching transformation, it is required to deeply integrate information technology with teaching, apply innovation in teaching, learning, evaluation, and management, and support the development of student-centered multiple teaching modes to improve teaching quality and efficiency.

Refined evaluation and scientific management

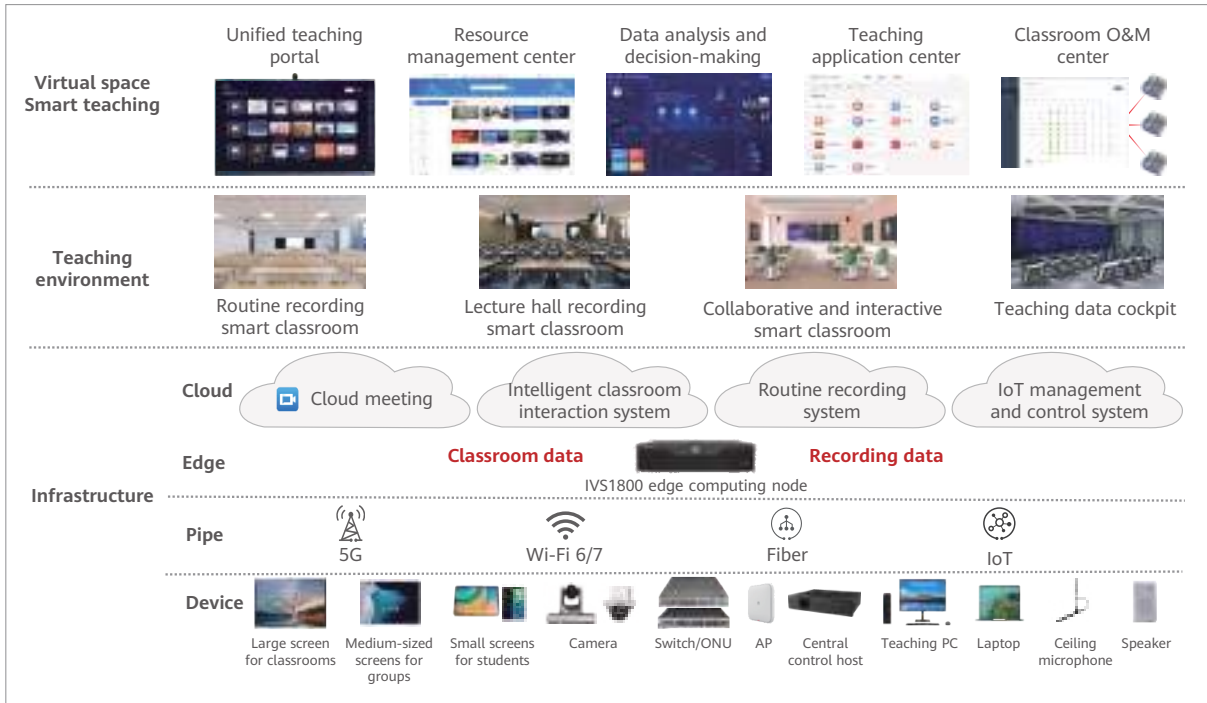
Due to scattered services and data, existing systems cannot cover all data during teaching. Therefore, it is impossible to carry out complete teaching evaluation and scientific decision-making, and realize the high-quality development of teaching.

Continuous development of teaching capabilities

Teachers' digital literacy should be improved. New technologies should be applied to reconstruct teaching modes, supervise teaching quality, optimize teacher development and evaluation, and promote long-term development of teaching capabilities.

Solution Introduction

The solution focuses on experience and uses a platform-based architecture that supports software-hardware integration, openness, and decoupling. The solution facilitates long-term planning and ongoing innovation in university teaching environments.







### Customer Benefits

Improved interactive teaching experience: Random selection of teaching tools/resources, seamless integration of online and offline environments, and flexible hybrid teaching mode instead of a single teaching mode

Reduced burden and increased efficiency for teaching/learning: Digital management and supervision, automatic attendance, and class situation analysis, improving management efficiency; AI-based video knowledge point extraction, annotation, and slicing, improving teaching efficiency

Digital management and decision-making: Multi-dimensional indicator system, optimizing the teaching quality evaluation system

### Typical Configuration

Module	Item	Unit	Quantity
Teaching content display system	86-inch all-in-one touch-screen device	PCS	1
	Electronic blackboard	Set	1
	Digital podium	PCS	1
	Ceiling microphone	PCS	2
	Speaker	Pair	1
Smart central control system	Central control host	Set	1
	Smart IoT management and control platform	Set	1
OMO smart teaching system	Smart classroom system	Set	1
	Smart teaching data analysis system	Set	1
Recording/Live broadcast video management system	Student camera	PCS	1
	Teacher camera	PCS	1
	Recording class observation and resource VOD platform	Set	1
	AI recording and intelligent analysis system	Set	1
Network infrastructure	Access switch	PCS	1
	Wi-Fi 6/7 AP	PCS	1
Common component	Intelligent recording host (IVS1800)	PCS	1
	AI analysis server	PCS	1
	Resource VOD server	PCS	1
	Campus switch	PCS	1



### Solution Highlights

Cloud Service + Huawei Cloud EI/IVS1800	Recording + Extensible functions IVS1800 + Huawei Cloud EI	Interactive Teaching Board + Cloud meeting
<p><b>Cloud service entry:</b> Large screens provide basic teaching functions to guide the implementation of SaaS services (including real-time subtitles and translation).</p> <p><b>AI platform:</b> EI services (ASR/OCR)</p>	<p><b>Edge recording</b> and multi-classroom sharing, simplifying deployment and reducing costs</p> <p><b>Content analysis at edges,</b> automatic attendance, class analysis, and intelligent security, meeting bandwidth, security, and real-time service requirements (for public cloud/data equipment rooms)</p> <p><b>Sustainable and scalable functions:</b> Resource tagging, electronic exam supervision, and more</p>	<p><b>Simplified configuration and comprehensive functions:</b> Wireless projection and multi-screen interaction functions of large screens; automatic camera tracking and rear-mounted recording device</p> <p><b>Deep integration and smooth use:</b> Cloud meeting is deeply integrated with teaching applications. Teaching applications invoke remote interaction capabilities in the background, and access the cloud with one click.</p>

### Success Stories

Future Smart Classrooms of Ningxia University	
	<p><b>Customer Requirements</b></p> <p>Construction content: nearly 300 classrooms, including normalized recording smart classrooms, interactive &amp; collaborative smart classrooms, and interactive &amp; collaborative classrooms</p>
	<p><b>Customer Benefits</b></p> <p>The construction of the multi-form classroom physical space, as well as the integrated virtual teaching and management space, helps the school realize E2E teaching management, intelligent O&amp;M control, personalized teaching mode, and data-based learning situation analysis.</p>



# DCS Lightweight Data Center Solution for Higher Education

## Background and Challenges

**Equipment room resource utilization < 20%**

Applications exclusively occupy resources, resulting in underutilization.

**Average project delivery time > 2 months**

Complex commissioning of new systems causes slow rollout.

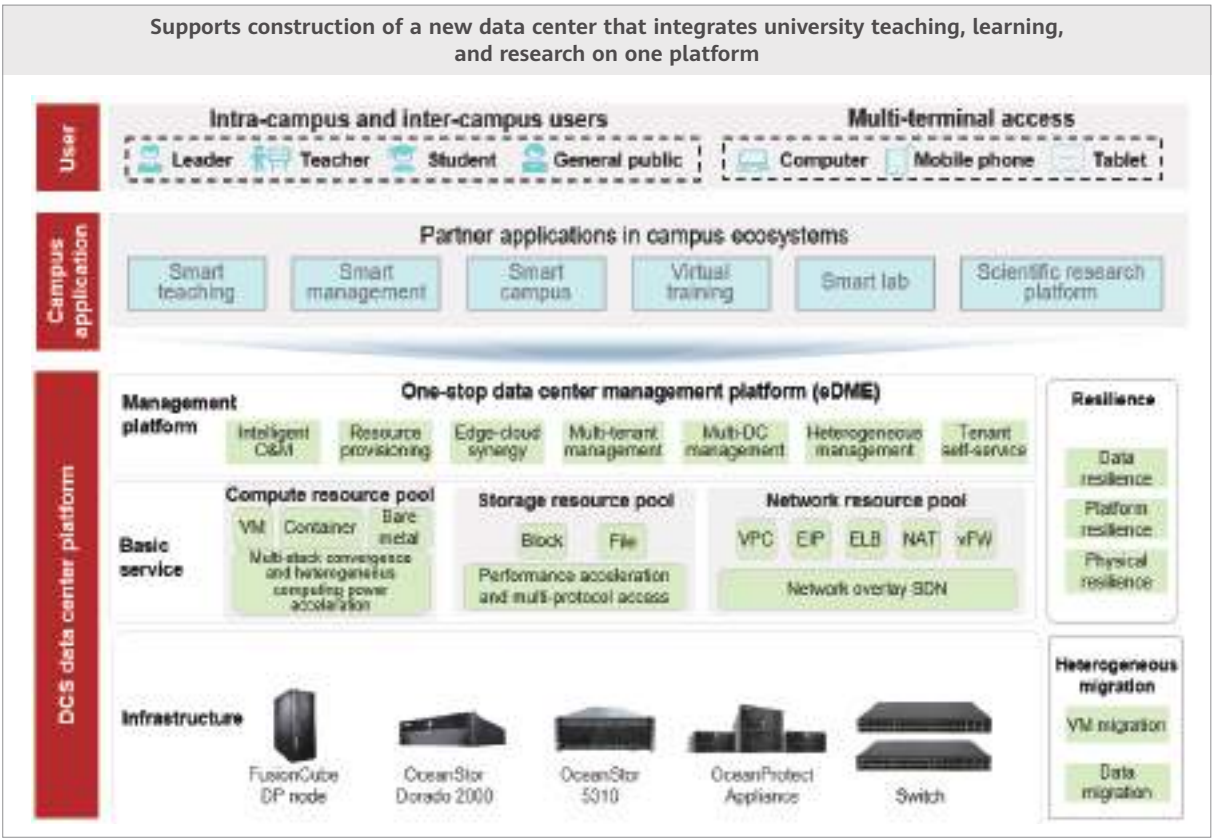
**O&M manpower shortage > 3 persons**

Shortage of dedicated O&M personnel results in slow troubleshooting.

**Chance of malicious attack = 100%**

Insufficient data protection increases vulnerability to attacks.

## Solution Introduction



## Customer Benefits

**Reduced TCO**

- The DCS enables a **minimal configuration of two nodes** without independent management nodes, as well as block-like deployment, and **slashes the initial investment by 50%**.

**Unified management**

- The data center manages both software and hardware and implements unified O&M at **30% lower costs**, improving O&M efficiency with less manual workload.

**Situational awareness**

- Situation monitoring and visualized analysis of core indicators of states and cities assist managers in refined decision-making and coordinated emergency response, **doubling urban management efficiency**.

## Typical Configuration

Scenario	IT architecture	Computing & Storage Offering	DP Offering	Management Platform Offering	Switch Offering
500-5000 people	Storage and computing separation	Computing nodes *4, CPU*2, 512GB of memory, 2*10GE interface cards, 2*600GB SAS HDD (10k rpm) Storage node *1: OceanStor Dorado 2000 (all-flash, supports SAN) / OceanStor 5310 (hybrid flash, supports both SAN and NAS).	Backup: OceanProtect X3000 *1 (optional)	DCS Virtualization Advanced Edition Suite (CPU *8)	Server Switch: 10-Gigabit Switch Switch: Gigabit Switch

## Solution Highlights

**Lightweight and efficient**

- Flexible infrastructure expansion and on-demand function deployment
- Smooth evolution of data centers from virtualization to cloud and support for extensive cloud services
- Intelligent algorithms running on innovative hardware and advanced architecture, enabling one storage system to carry multiple services

**Leading performance**

- Collaborative optimization of software and hardware for higher system-level performance

**Resilient and reliable**

- Three-level reliability design for devices, systems, and solutions for zero data loss or service interruption

**Simplified management**

- Online and offline migration options for heterogeneous resource pools for fast service rollout
- Unified data center management, quick resource provisioning, and VMware management by eDME for unified O&M
- Intelligent O&M with minute-level fault demarcation and location

## Success Stories

**Customer Requirements**

- The campus services were complex, so the university needed to build more than 20 systems, including a model training platform, a teaching affairs system, and an all-in-one card system. Therefore, a data center :
- Various application systems required high service rollout efficiency.
- GPU virtualization was needed for student model training.
- A high-reliability data center was needed.

**Customer Benefits**

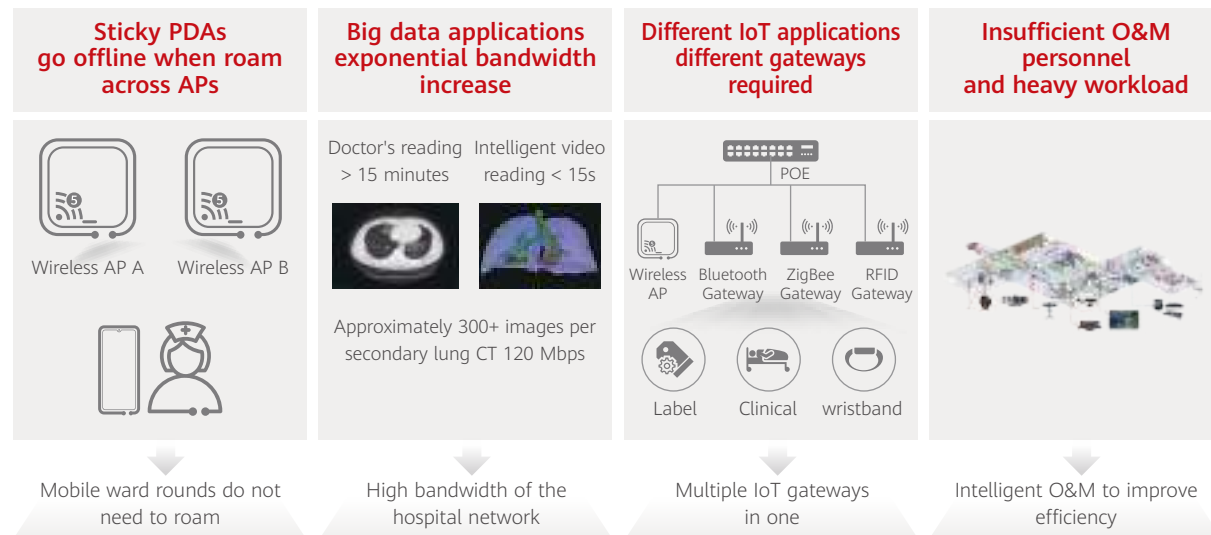
- Huawei DCS solution provides FusionCube hyper-converged infrastructure and FusionCompute virtualization with scale-out storage and virtualization HA capabilities to ensure service continuity.
- FusionCompute pools GPU resources and uses vGPU capabilities to maximize resource utilization for image training.
- FusionCompute is used for unified management to help HKUST(GZ) improve service rollout efficiency.



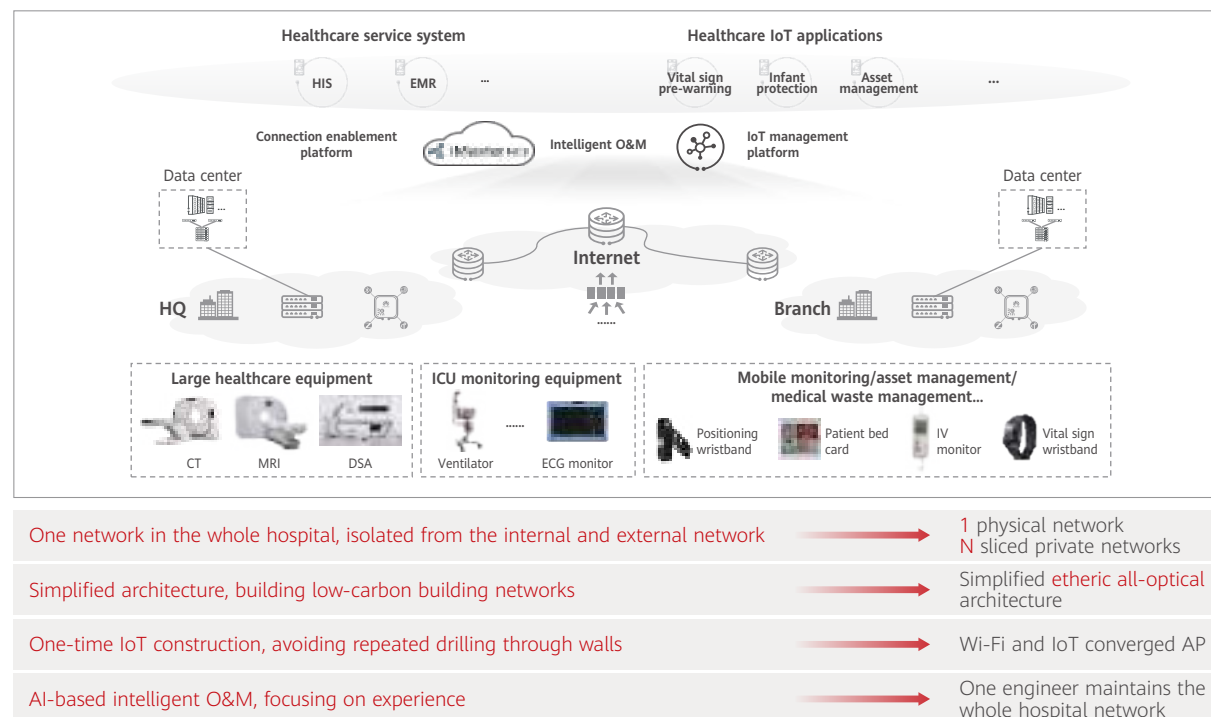
Download the App

# High-Quality Small and Midsize Hospital Network Solution

## Background and Challenges



## Solution Introduction



Download the App



## Customer Benefits

<b>Zero-Roaming</b> Innovative zero-roaming distributed Wi-Fi solution. One AP Covers 64 rooms and multiple floors in one building. Mobile rounds of sticky PDA do not drop offline	<b>Easy Deployment</b> Simplified architecture, reducing investment and deployment costs by 50%
<b>Increased Efficiency</b> Wi-Fi & IoT converged construction, 1 IoT gateway, N IoT protocols; IoT applications such as infusion monitoring improve medical service efficiency	<b>Easy O&amp;M</b> Intelligent O&M with AI: Fault locating and rectification within seconds. Reducing complaint rate by 90%

## Product Introduction

<b>CloudEngine S6730-H-V2</b>  Next-generation 10GE fixed switch	<b>HiSecEngine USG6525F</b>  10GE AI firewall	<b>CloudEngine S5735-L-V2</b>  1000M fixed access switch
<b>CloudEngine S5731-H</b>  Optical/electrical Hybrid Central Switch	<b>CloudEngine S5731-L-RUA</b>  Remote Unit	<b>CloudEngine S8700</b>  New-generation high-end intelligent routing switch
<b>Zero Roaming Distributed Wi-Fi</b>  AirEngine 9700D-S AirEngine 5760-11DH	<b>AirEngine 5761-12</b>  Indoor IOT Wi-Fi 6 AP	<b>AirEngine 5773-23HW</b>  High performance Panel Wi-Fi 7 AP

## Solution Highlights

<b>Full Wireless Coverage</b> <ul style="list-style-type: none"><li>Exclusive zero-roaming technology, 1 floor, 1 AP</li><li>1000m POE power supply, floor-free weak-current Room</li><li>Global Unique 4 in 1 Wi-Fi &amp; IoT Converged AP</li></ul>	<b>Fast Deployment</b> <ul style="list-style-type: none"><li>Planning-free, management-free, and plug-and-play, enabling fast hospital network deployment</li></ul>	<b>Simplified Network</b> <ul style="list-style-type: none"><li>S8700+Remote Unit: One device is deployed in one building, reducing investment and deployment cost;</li><li>Wired and wireless convergence, Converged forwarding, and authentication, Simplifying hospital management;</li></ul>
---	---	--





Download the App

## Success Stories

### Shenzhen Traditional Chinese Medicine Hospital:

The Mobile Ward Round Experience Has Been Improved, with a 30% Increase in Nursing Efficiency



One of the earliest grade-A tertiary hospitals in China, and the only TCM hospital that has reached level six in China's electronic medical record rating

#### Customer Challenges

- Long image retrieval time: 3–5 minutes to obtain the images, affecting medical efficiency
- Disconnections during mobile ward rounds: in-roaming packet loss, resulting in disconnections from the service system and making subsequent re-login required

#### Benefits



Smooth loading of intranet services on mobile diagnosis and treatment trolleys



Wi-Fi signal strength in wards: > -40 dBm



- **Six times higher than the industry average bandwidth: 10.75 bit/s**, allowing image retrieval and reading in seconds
- **Always-on signals:** signal strength > -40 dBm, ensuring no signal or service interruption during mobile ward rounds

Download the App



## FTTO Solution for Healthcare

### Background and Challenges

#### Challenges in Healthcare Network Construction

##### Complex cabling and difficult O&M

- There are many terminals. In a traditional solution, small communication devices are connected randomly, complicating management. If a fault occurs, it takes a long time to recover the network.
- With the construction of IoT hospitals, a hospital network becomes larger, and the O&M workload increases year on year.

##### Crowded space in ELV rooms

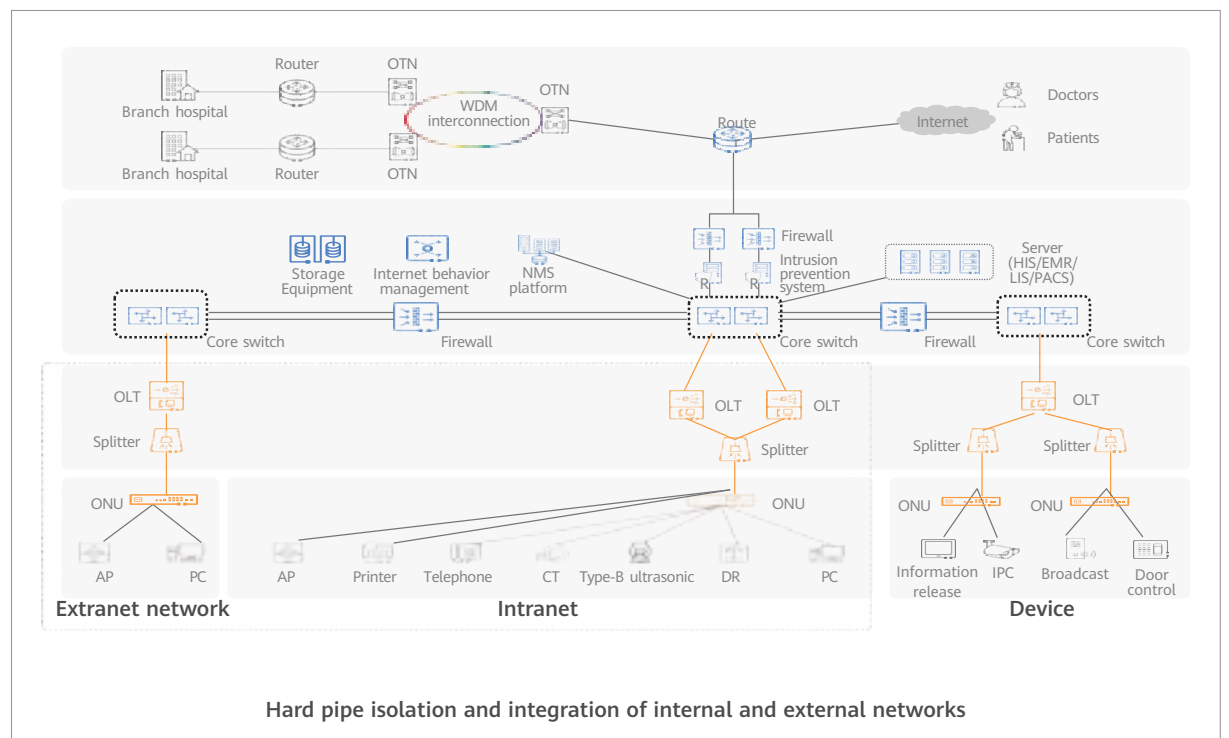
- Many access switches and control devices are deployed in the ELV room on each floor, exhausting space for capacity expansion.
- High fire hazards exist in crowded spaces.

##### High requirements on bandwidth and latency

- Massive medical terminals pose high requirements on Wi-Fi 6/7 AP backhaul bandwidth and latency.
- Telephone, wired, and wireless services need to be centrally carried on one network.
- CT image data is large. Traditional network latency leads to long image reading time, reducing doctors' diagnosis and treatment efficiency.

### Solution Introduction

#### Huawei's FTTO Solution for Healthcare







Download the App

## Customer Benefits

### Fast construction

- 2-layer architecture, no telecom room
- Free of fibers splicing, all devices plug-and-play, one-click service provisioning

### High reliability

- All-optical transmission media, Anti-electromagnetic and corrosion
- Network resilience, 99.999% reliability





### Easy O&M

- One-time construction for all services
- Wi-Fi 6/7 100 Mbit/s anywhere, 15ms ultimate experience

## Product Introduction

<p>EA5800-X7      EA5800-X2</p>  <p><b>Huawei OptiXaccess OLT series</b></p>	<p>P613E-E      P813E-E</p>  <p><b>Huawei OptiXstar ONU series</b></p>	<p>W826E      W626E-10</p>  <p><b>ONU series with Wi-Fi 6</b></p>
<p>W827E *      P893E *</p>  <p><b>ONU series with Wi-Fi 7</b></p> <p>Products marked with an asterisk (*) are expected to be released in the first half of 2024.</p>	<p>E6608      E6608T</p>  <p><b>Huawei OptiXtrans series</b></p>	

## Solution Highlights

	Simplified architecture: power consumption 30%↓	3 layers to 2 layers Fiber to the room, easy service provisioning	Active devices replaced by passive devices ELV rooms 80%↓, cabling 90%↓
	Ultra-fast bandwidth: 30x increase in image reading and downloading efficiency	Symmetric 10 Gbps upstream and downstream Thousands of CT images downloaded within one second	10Gbit/s → 20Gbit/s → 50Gbit/s Future-oriented smooth evolution
	Simplified O&M O&M efficiency 60%↑	Unified management Office, healthcare, and security protection	Maintenance-free passive devices Failure rate reduced by 80%
	Hospital interconnection Exclusive pipe @ 1 ms latency	Self-owned more cost-effective than releasing ROI in 2 years & high bandwidth	Superior experience Fast service provisioning & deterministic low latency

Download the App



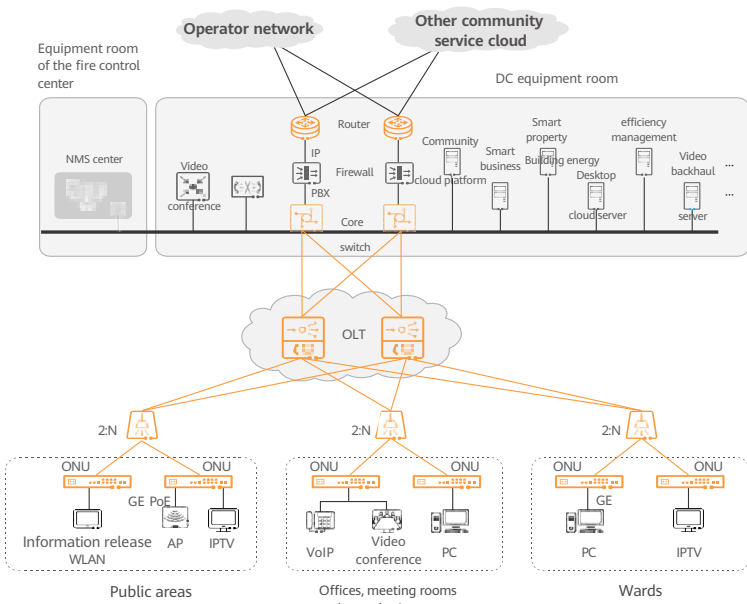
## Success Stories




### Nanshan Hospital: Low Failure Rate, High Bandwidth, and Flexible Expansion

#### Challenges & requirements

- **Frequent network adjustment:** In areas such as ICUs, information points need to be flexibly expanded. The operations are complex, error-prone, and time-consuming.
- **Difficult bandwidth upgrade:** Each bandwidth upgrade requires reconstruction of not only switches but also the ELV cable system, which is time-consuming and labor-intensive.
- **High O&M pressure:** Active devices are prone to faults. Network adjustment may damage the existing copper cables and it is difficult to locate faults.
- **High burst bandwidth:** The maximum number of CT images in a single case reaches 300+, and the download takes a long time.

#### Solution and benefits



	<b>High 3D image reading efficiency</b>	3D image reading rate 80%+
	<b>Fewer faults in the passive optical network</b>	network fault rate 90%+
	<b>Fast capacity expansion in wards</b>	Expansion period 91%+



Download the App

# Next-Gen DCS Data Center Solution for Healthcare

## Background and Challenges

**High reliability requirements**

- Hospital informatization raises higher requirements on disaster recovery (DR), backup, and archiving systems.
- Hospitals often lack professional protection measures for critical data, making them huge targets for ransomware attacks.

**Siloed construction**

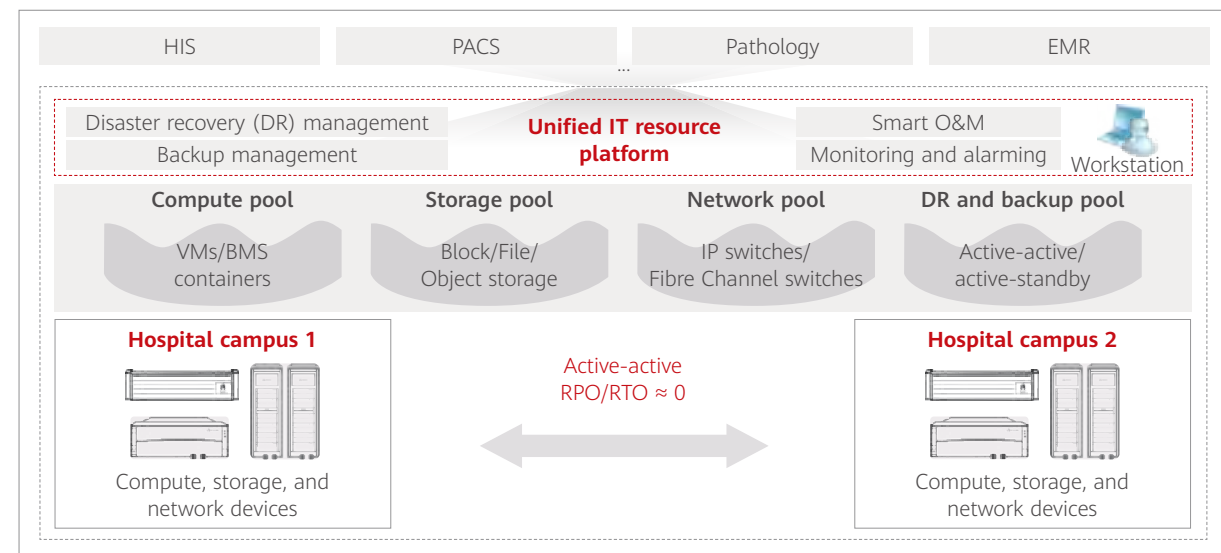
- Siloed-system construction lacks elasticity.
- Available resources are often difficult to scale out and cannot be shared between different resource pools.
- Traditional physical deployment methods lead to slow service rollout.

**Incomplete informatization infrastructure**

- Incomplete or low-level IT systems.
- Customers who rely on cloud services for informatization have high requirements for network latency and stability and face data leakage risks when migrating data to the cloud.

Traditional hospital informatization systems face challenges in IT resource elasticity, usability, and manageability.

## Solution Introduction



## Customer Benefits

**Always-on services**

DR and backup protection across multiple campuses for 24/7 running of core services

**Efficient resource sharing**

Breaking down resource silos and reducing TCO by more than 30% for future services

**Intelligent management**

Intelligent O&M, making IT O&M 90% simpler and 10x more efficient

Download the App



## Product Introduction

Intelligent O&M & data management engine & device management				
Management software		DCS Virtualization Suite		
DCS eDME		FusionCompute eBackup UltraVR		
Hyper-converged infrastructure (HCI)	All-flash storage	Backup storage	Ransomware protection	Data Center Switch
FusionCube 1000	OceanStor Dorado	OceanProtect	OceanCyber	CE series switches

## Solution Highlights

### Lightweight and elastic:

two-node startup configuration for lower initial procurement costs, on-demand function addition in a building-block approach, and fast service provisioning in hours (down from days)

### Intelligent O&M:

AI-assisted minute-level fault demarcation for simplified O&M, customized dashboards and reports for unified and comprehensive management, and support for key decisions such as IT resource expansion and investment by hospital directors

### Resilient and reliable:

always-on services, gateway-free active-active setup, and RTO/RPO ≈ 0 for core services; data resilience and ransomware protection

## Success Stories

The first batch of members of China-ASEAN Hospital Cooperation Alliance

**Challenges:**

- Lack of investment strategy and slow construction
- Difficult fault demarcation and location: Multi-vendor collaboration was difficult and fault location was slow, resulting in long patient waiting times.
- Poor elasticity due to siloed construction

**Solution:**

- Two OceanStor Dorado 5000 systems for HIS database services
- One OceanStor 5510 system for virtualization application storage

**Customer benefits:**

- DCS provides comprehensive protection for all scenarios, such as active-standby DR and intra-city active-active DR, to ensure 24/7 service continuity.
- The next-gen DCS data center solution makes troubleshooting 10 times more efficient, shortens patient wait times by 10%, and improves patient satisfaction by 30%.
- DCS is the first solution to accurately locate faults based on data streams and automatically predict data traffic. It is an industry benchmark for converging software and hardware during medical informatization.



# Municipal Hospital Active-Active Data Center Solution

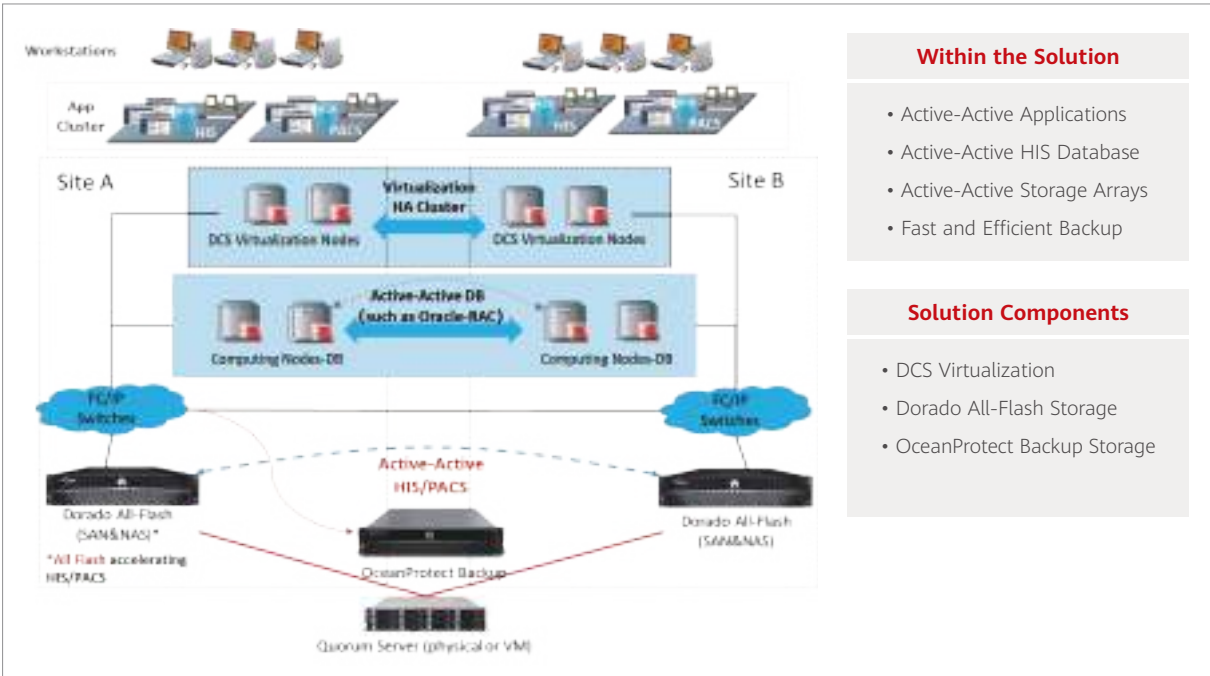
## Background and Challenges

Traditional IT infrastructure is difficult to ensure the stability and reliability of hospital systems

### Traditional IT infrastructure facing 3 challenges

Stability & Reliability	<ul style="list-style-type: none"><li>IT systems must be online 7*24*365</li><li>IT system (for example, HIS) failure causing whole hospital shutdown</li></ul>
Powerful Performance	<ul style="list-style-type: none"><li>HIS facing peak-hour workload requires high performance, low latency solution</li><li>PACS requires high resolution image and real-time diagnosis access to these images</li></ul>
Fast Recovery	<ul style="list-style-type: none"><li>Ransomware virus is rampant, and the recovery time after business compromised must fast and short</li></ul>

## Solution Introduction



### Within the Solution

- Active-Active Applications
- Active-Active HIS Database
- Active-Active Storage Arrays
- Fast and Efficient Backup

### Solution Components

- DCS Virtualization
- Dorado All-Flash Storage
- OceanProtect Backup Storage



## Customer Benefits

<b>Simple</b>	<b>Everlasting</b>	<b>All-Flash</b>	<b>Powerful Backup</b>
SAN&NAS Unified Gateway-free TCO less by30%	Fully redundant No downtime No data loss	All-Flash storage accelerate HIS/PACS performance by 60%	Fastest Backup & Recovery Efficient data reduction ensure more capacity

## Typical Configuration

Hospital Size	Virtualization Layer	A-A Storage Arrays	Backup Storage	Network
Small-size Hospital (100 < beds < 500)	DCS Virtualization Suite (DCS Virtualization Suite Platinum Edition,5 Year Subscription and Support, per CPU)	<b>All Flash (recommended)</b> Dorado 3000V6 (SAN+NAS) *2 Single array configuration, 192GB Cache,8*1Gb ETH,8*10Gb, 155TiB effective capacity, SAN&NAS advanced license	OceanProtect X3000 with 3.84TB SSD x 12	24-port 10GE IP switch x 2
Medium-size Hospital (500 < beds < 1000)	Same as above	<b>All Flash (recommended)</b> Dorado 5000V6 (SAN+NAS) *2 Single array configuration, 512GB Cache,4*100Gb RDMA,36*Palm 260TiB effective capacity, SAN&NAS advanced license	OceanProtect X6000 with 7.68TB SSD x 12	Same as above
Large-size Hospital (1000 < beds)	Same as above	<b>All Flash (recommended)</b> Dorado 6000V6 (SAN+NAS) *2 Single array configuration, 1TB Cache,4*100Gb RDMA,36*Palm <b>300TiB</b> effective capacity, SAN&NAS advanced license	OceanProtect X6000 with 7.68TB SSD x 15	Same as above

## Solution Highlights

<b>Reliability and 30% Lower Costs</b>	<b>Improves PACS Efficiency by 60%</b>	<b>Ensures Uninterrupted Service Even After a Single Fault</b>
Huawei storage solution provides active-active capability for both SAN and NAS, helping realize easier networking, better performance, and lower procurement and O&M costs.	Huawei SmartQoS uses I/O priority scheduling, traffic control, and performance control to improve PACS image retrieval efficiency based on hospitals' QoS requirements on PACS.	Huawei active-active solution supports simultaneous read and write of core services in two data centers, improving the overall write performance by 100%.



Download the App

## Success Stories

### Kliniken Südostbayern in South-East Bavarian

#### Customer Introduction:

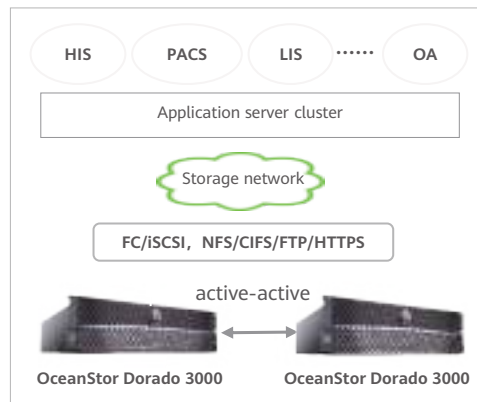
As the largest healthcare service provider in southeast Bavaria, Kliniken Südostbayern employs around 4,500 staff

#### Project Overview

Customer needed a modern, largely virtualized infrastructure to increase the IT performance for the hospital information system

#### Customer Values

- 1. Secure, reliable and risk-free:** zero single point of failure,
- 2. Integrated data without silos:** integrated data in one storage device
- 3. Improved performance without stuttering:**  
1600+ users concurrently access storage resources, **2x resource utilization**



Download the App



# High-Quality Government Office Network Solution

## Background and Challenges

### Accelerating Digital Government Cloud-based Systems and Wireless Terminals on Government Campuses

#### Frequently used mobile e-Government services

- e-Government services becoming the new normal in some developed areas, with 60% active users

**Office anywhere, anytime**  
**Consistent permissions/experience**

#### Wired network devices still being the main ones

- 2-3 mobile terminals for each office personnel, but insufficient wireless coverage and poor signal

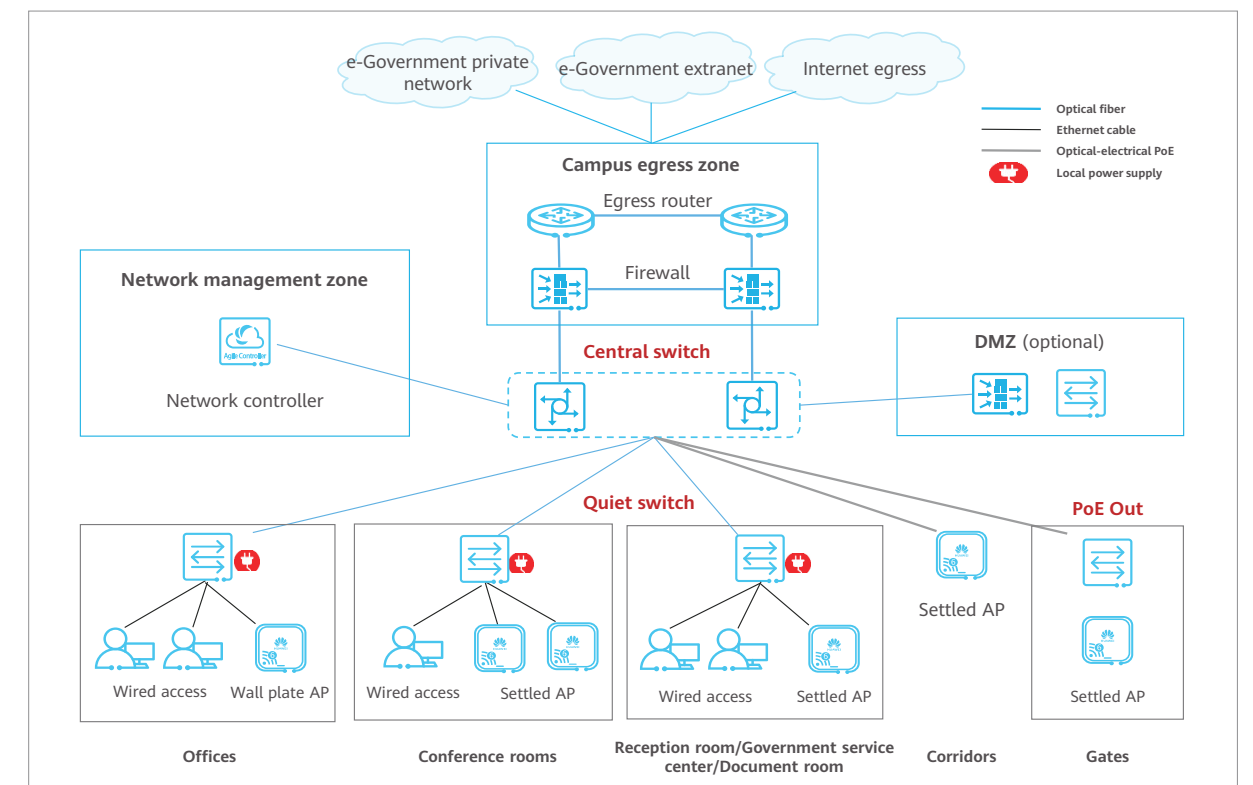
**Wireless network without disconnection**  
**Interruption-free mobile office**

#### Rapid growth of video/ multimedia services

- 400+ remote "video office" for services in X city
- 20% annual growth of video conferencing driven by digital governments

**Smooth video conference**  
**Optimal remote e-Government service experience**

## Solution Introduction







Download the App

## Customer Benefits

### Access Anytime, Anywhere, with Consistent & Good Experience

#### Mobile e-Government Service

- **Policy implemented based on unified user identity:** one-time authentication valid on the entire network, office anytime and anywhere
- **Simple network planning:** no need to consider IP addresses when configuring user group policies

#### Wireless Office Anytime, Anywhere

- **20% wider coverage:** Smart antenna, providing "searchlight-like" signals. Always-on signals for users, stronger signals, higher speed
- **Stronger signal:** Interference suppression in two coverage modes, providing "spotlight-like" signals. Targeted coverage, with less interference and less packet loss
- **Interruption-free mobile service**

#### Intelligent Service Experience Assurance

- **Experience assurance of multimedia services without rate limiting, latency reduced by 56%–66% compared with the industry average**
- **AI-powered application classification, intelligent identification of multimedia services**

## Product Introduction



**CloudEngine S8700**  
Modular core switch



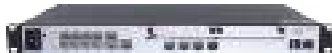
**CloudEngine S5735-S-V2**  
2.5G Standard Access Switch



**CloudEngine S5735-L-V2**  
2.5G Compact Access Switch



**CloudEngine S5731-L-RUA**  
Remote Unit



**NetEngine AR6121E**  
Small and medium-sized enterprise routers



**HiSecEngine USG6500F**  
AI Firewall



**AirEngine 6776-57T**  
High-density Mounted Wi-Fi 7 APs



**AirEngine 5776-26**  
Wi-Fi 7 AP



**AirEngine 5773-23HW**  
wall plate Wi-Fi 7 AP

Download the App



## Solution Highlights

**Unified account, one-off access, and policy migration**

**0** waiting time  
Office anytime, anywhere

**Continuous Wi-Fi coverage, stable as wired coverage**

**20%+**  
Higher bandwidth and wider coverage

**Intelligent audio and video scheduling, HD conferencing anytime, anywhere**

**0** frame freezing  
Audio and video service experience

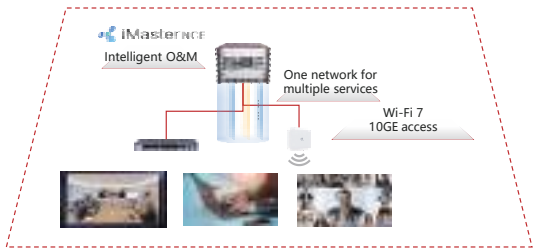
## Success Stories

### Swiss S Government: Chooses Huawei Multi-GE Switches and Wi-Fi 7 APs to Build a High-Quality 10 Gbps Campus Network

#### Challenges & requirements

- **More scalable solution:** Traditional MPLS network cannot support fast-growing service needs and a new alternative is urgently needed.
- **Higher network bandwidth:** The legacy network bandwidth is insufficient, which cannot meet the modern healthcare, teaching, and office needs of hospitals, schools, and government agencies.
- **Higher O&M efficiency:** Networks are scattered. O&M staff struggle with network faults if occurred.

#### Solution and benefits



**More scalable:** VXLAN-based network enables one network for multiple services

**Higher network bandwidth:** Wi-Fi 7 offers ultra-high bandwidth needed for services in the next 5 to 10 years

**Higher O&M efficiency:** Unified NMS improving O&M efficiency and reducing maintenance costs



# DCS Lightweight Data Center Solution for Local Government

## Background and Challenges

Countries around the world are laying out their digital strategies

### Tight budgets vs. Complicated cloud platforms

- **Limited initial investment:** Multi-phase and gradual construction follows a step-by-step principle.
- **Heavyweight cloud platform:** Advanced services are interdependent and sold in a package, leading to higher construction costs.

### Service integration needs vs. Decentralized infrastructure

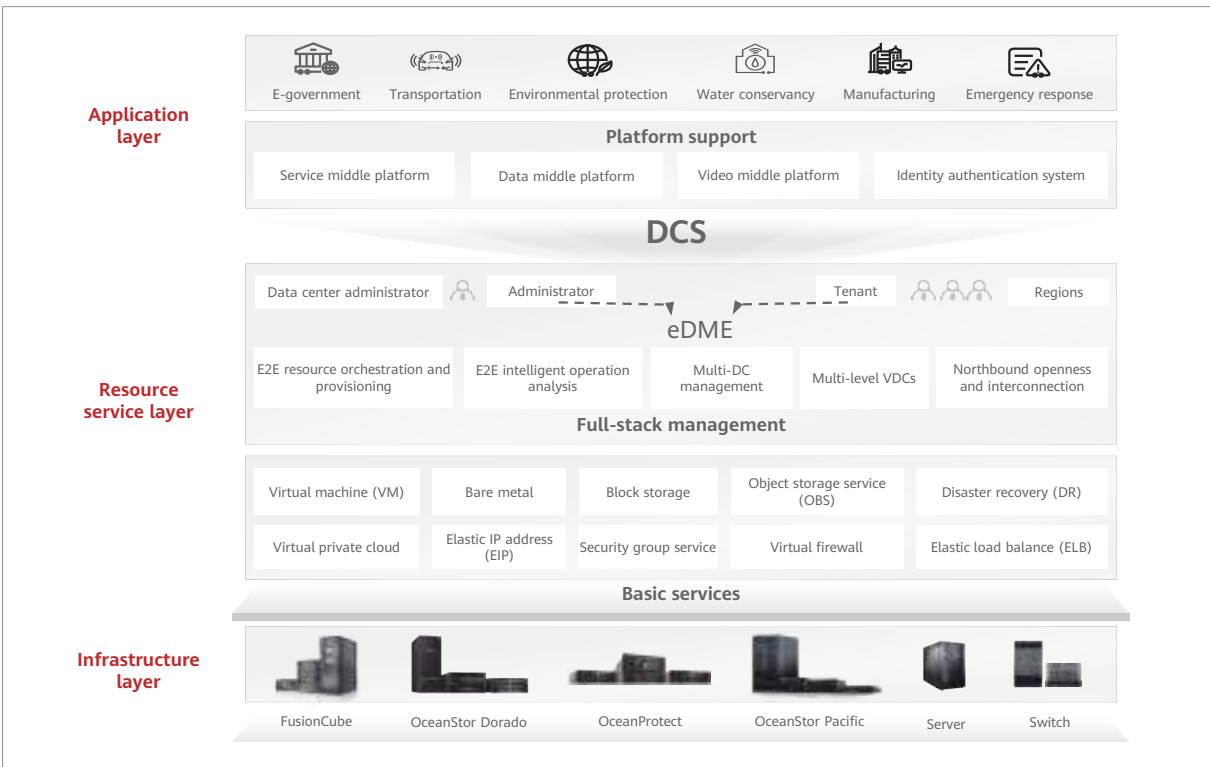
- **Service silos:** Infrastructure lacks overarching design, resulting in scattered and repeated construction.
- **Inconsistent flow of information:** Service networks are not interconnected, making it challenging to perform O&M.

### Pressing service innovation vs. Deficient solutions

- **Service innovation demands:** Sophisticated city governance demands rapid infrastructure response and new technologies.
- **Insufficient key capability innovation:** State and municipal governments cannot innovate services due to the lack of key capabilities, such as containers and big data.

## Solution Introduction

### Huawei's Lightweight Data Center Solution for Regional Government



## Customer Benefits

### Reduced TCO

- The DCS enables a **minimal configuration of two nodes** without independent management nodes, as well as block-like deployment, and slashes the initial investment by 50%.

### Unified management

- The data center manages both software and hardware and implements unified O&M at **30% lower costs**, improving O&M efficiency with less manual workload.

### Situational awareness

- Situation monitoring and visualized analysis of core indicators of states and cities assist managers in refined decision-making and coordinated emergency response, **doubling urban management efficiency**.

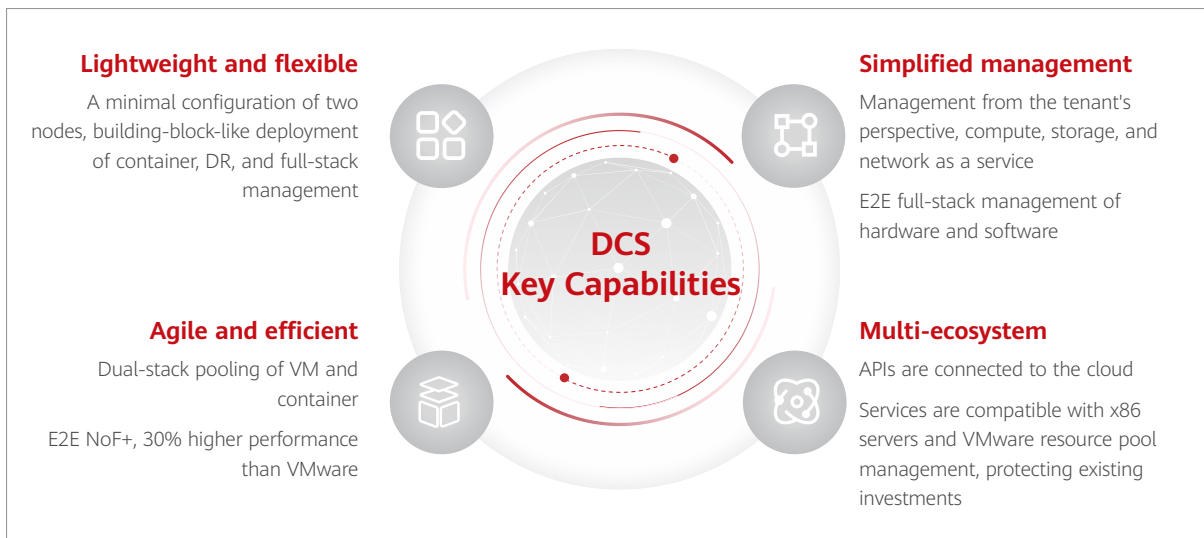
## Typical Configuration

Customer profile	Typical Configurations		
	Computing and Storage Configuration	Network configuration	Software Configurations
Initial configuration, applicable to small-scale virtualization applications without multi-tenant requirements	irtualization server: FusionCube virtualization node x 3 Primary storage: OceanStor 5310 V6 Backup storage: OceanProtect X3000 <i>*Note: Servers and primary storage devices can be replaced with hyper-converged devices as required.</i>	BMC: 5855E-48T4S2Q * 1 Spine: 8850-64CQ-EI * 2 Service Leaf: CE6857E-48S6CQ*2 Storage Leaf: CE6857E-48S6CQ*2	DCS virtualization platinum edition: 6 CPUs
Small Regional Gov with a population of < 200,000, one General public budget revenue < CNY1 billion; XC reconstruction pilot	Virtualization server: FusionCube virtualization node x 10 Xinchuang virtualization server: FusionCube ARM virtualization node x 3 Primary storage: OceanStor 5310 V6 Backup storage: OceanProtect X3000 <i>*Note: Servers and primary storage devices can be replaced with hyper-converged devices as required.</i>	BMC: 5855E-48T4S2Q * 1 Spine: 8850-64CQ-EI * 2 Service Leaf: CE6857E-48S6CQ*2 Storage Leaf: CE6857E-48S6CQ*2	DCS virtualization platinum edition: 26 CPUs eDME Datacenter Management: 30 CPU eDME multi-tenant management: 26 CPUs
Common cRegional Gov , population > 200,000, one General public budget revenue < CNY1 billion; XC reconstruction pilot is started, and there are big data requirements.	Virtualization server: FusionCube virtualization node x 20 Xinchuang virtualization server: FusionCube ARM virtualization node x 6 Big data server: FusionCube virtualization node x 6 Primary storage: OceanStor 5510 V6 Big data storage: OceanStor Pacific 9520 Backup storage: OceanProtect X3000 <i>*Note: Servers and primary storage can be replaced with hyper-converged storage on demand. Storage and compute separation big data can be replaced with hyper-converged big data on demand.</i>	BMC: 5855E-48T4S2Q * 1 Spine: 8850-64CQ-EI * 2 Service Leaf: CE6857E-48S6CQ*4 Storage Leaf: CE6857E-48S6CQ*4 Border Leaf: CE6857E-48S6CQ*2	DCS virtualization platinum edition: 64 CPUs eDME Datacenter Management: 76 CPU eDME multi-tenant management: 64 CPUs Security service software: on-demand eDataInsight: calculated by vCPU of the big data node



Download the App

## Solution Highlights



## Success Stories

### Project Case: South Africa COE Smart City

#### Challenges & requirements

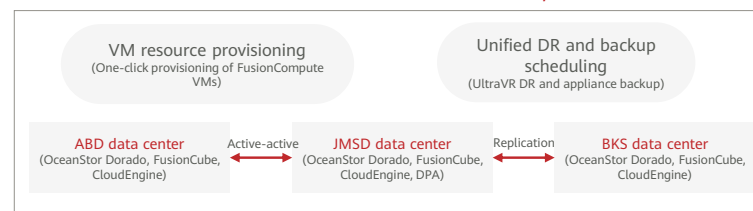
- **Agility:** Slow resource allocation, impacting the launch of new business..
- **Reliability:** Demand for zero data loss and zero service interruption for 30 core applications and database systems
- **Manageability:** No unified O&M to handle faults, requiring automated fault detection and switchover for databases and VMs.

#### Solution and benefits

##### South Africa COE Smart City

Office work   Electricity   Hydraulic engineering   Municipal planning   Investment   ...

##### Geo-Redundant 3DC DR and Backup



#### Service TTM: days to hours:

VM one UI  
1-step simplified rollout

#### O&M efficiency doubled:

Unified management of multiple DCs  
50% lower O&M costs

#### 99.9999% reliability:

Geo-redundant 3DC solution reliability  
24/7 service continuity

Download the App



# High-Quality Small and Midsize Factory Network

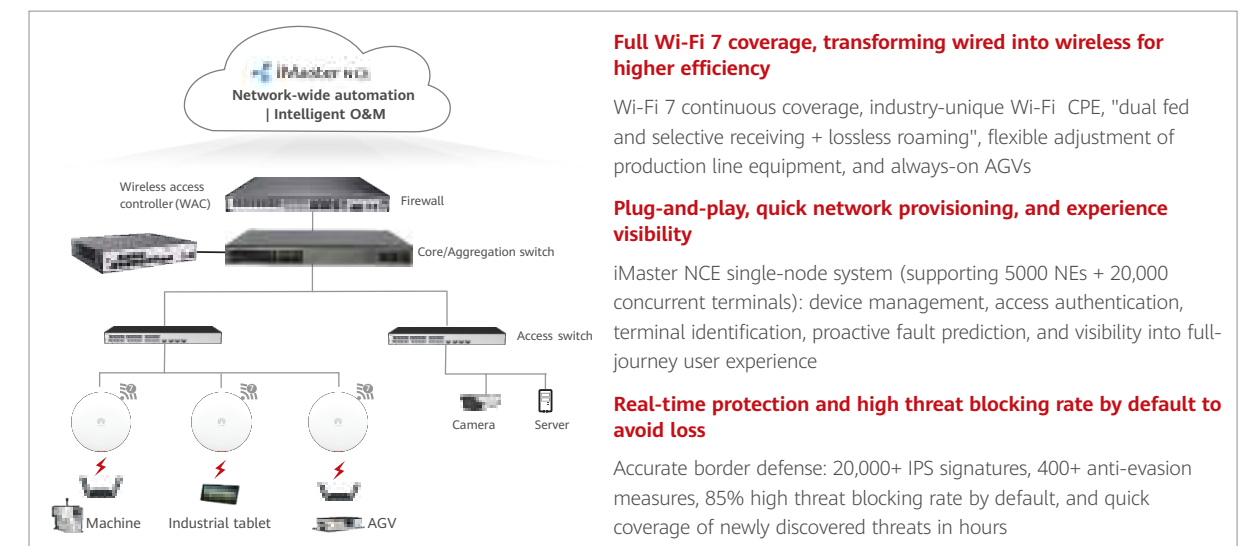
## Background and Challenges

### Three Network Challenges for Digital Factory Construction



## Solution Introduction

### Best Fit for Industrial Environments and Ideal for Future-Proof Smart Factories





Download the App










### Customer Benefits

Quick adjustment of 1 production line in 30 minutes	New factory network provisioned in 1 day	Zero business loss or ransoms
---	--	-------------------------------

### Differentiated Highlights

1. Dual fed and selective receiving technology: wireless replacing wired, uncompromised quality
2. Lossless roaming technology: more stable AGVs for higher logistics efficiency
3. Network Delivery and O&M: iMaster NCE Single-Node System, Health assessment, Problem analysis, User journey, the Best Management and O&M Platform for Small and Midsize Factories

### Product Introduction

An Extensive Range of Featured Products		
<div>Border firewall</div> <div>HiSecEngine USG 6625F High-performance AI firewall</div> <div></div> <div><ul style="list-style-type: none"><li>Fixed ports: 8 x GE combo + 4 x GE (RJ45) + 4 x GE (SFP) + 6 x 10GE (SFP+)</li><li>(Optional) Redundant power supplies</li></ul></div>	<div>10GE switch</div> <div>CloudEngine S6730-H24X6C Standard 10GE switch</div> <div></div> <div><ul style="list-style-type: none"><li>24 x 10GE optical ports, 6 x 100GE optical ports*</li><li>Dual pluggable power supplies, supporting AC or DC</li></ul><div>*Remarks: Uplink ports are 40GE by default and can be upgraded to 100GE by using the RTU license.</div></div>	<div>Gigabit switch</div> <div>CloudEngine S5735-S-V2 Compact gigabit switch</div> <div></div> <div><ul style="list-style-type: none"><li>Various port types for flexible choices</li><li>Dedicated stack ports for high service reliability</li></ul></div>
<div>Wireless access controller</div> <div>AC6508 Wi-Fi 7 access controller</div> <div></div> <div><ul style="list-style-type: none"><li>Maximum number of managed APs: 512</li><li>Maximum number of access users: 4K</li></ul></div>	<div>Indoor settled AP</div> <div>6776-56TP Indoor mid-range high-density AP</div> <div></div> <div><ul style="list-style-type: none"><li>1x5GE electrical port +1xGEletrical port</li><li>USB port for external IoT expansion</li><li>Up to 7.89 Gbps speed</li><li>Spatial stream: 2+2+4</li></ul></div>	<div>Indoor settled AP</div> <div>AirEngine 5776-26 Indoor cost-effective AP</div> <div></div> <div><ul style="list-style-type: none"><li>1 x 2.5GE +1 x GE electrical port</li><li>Up to 6.45 Gbps speed</li><li>Spatial stream: 2+4</li><li>Built-in smart antenna</li></ul></div>
<div>Wi-Fi CPE</div> <div>Unionman Wi-Fi CPE Industrial CPE</div> <div></div> <div><ul style="list-style-type: none"><li>4 x GE electrical ports (vertical/horizontal)</li><li>Up to 2.975 Gbps speed</li><li>Spatial stream: 2+2</li><li>External antenna</li><li>Industrial-grade design</li></ul></div>	<div>Network management platform</div> <div>iMaster NCE Single-node edition</div> <div><ul style="list-style-type: none"><li>Terminal fingerprint database: ≥ 18,000 terminal fingerprints</li><li>Proactive identification of 200+ faults, potential risk prediction</li><li>Real-time visibility into user experience, network-wide experience evaluation and analysis</li><li>Managing up to 5000 NEs and 20,000 terminals</li></ul></div>	

Download the App



Typical Configurations Tailored to Your Network Needs			
No.	Product Category	Function	Recommended Configuration
1	NMS	Network management platform	iMaster NCE single-node system
2	Firewall	Border defense	HiSecEngine USG6625F
3	Switch	Core/Aggregation switch	CloudEngine S6730-H24X6C
4	Switch	Access switch	CloudEngine S5735-S-V2
5	Wireless access controller (WAC)	Wireless controller	AC6508
6	AP	Common AP	AirEngine 5776-26
7	AP	High-density AP	AirEngine 6776-56TP
8	CPE	Wi-Fi CPE	Unionman Wi-Fi CPE

### Success Stories

A new energy located in Shenzhen has R&D centers and sales offices in Shanghai and Chengdu.	
<div>Customer requirements:</div> <div>Improving the campus network's bearing capability: The rapid development of core services brings a sharp increase in backbone network traffic.</div> <div>Reconstructing the factory production network: The production workshop environment is complex, network interference is frequent, and the number of deployed devices is insufficient.</div> <div>Unified planning of the production network: Separate private networks make O&amp;M difficult and fault locating difficult.</div>	
<div>Solution and customer benefits:</div> <div>Huawei High-Quality Small- and Medium-Sized Factory Network Solution Builds High-Quality Smart Factory Networks for Customers</div> <div>Flexible network evolution: The access network uses 10GE uplinks, which can evolve to 40GE uplinks in the future. The network capacity meets the service development requirements in the next 5 to 10 years.</div> <div>Connectivity of everything and efficiency improvement: The workshop network provides full wireless coverage, supports secure access of various terminals, provides high-speed wireless bandwidth, high-density access, and supports mobile office.</div> <div>Carefree O&amp;M: iMaster NCE Makes Networks Automated and Services Visible, Controllable, and Manageable</div>	



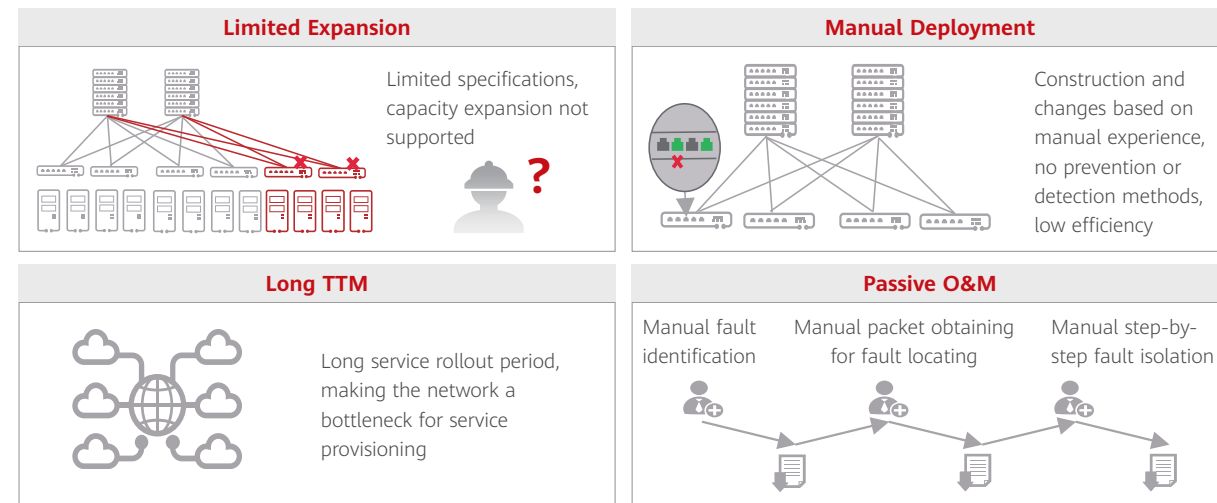


Download the App

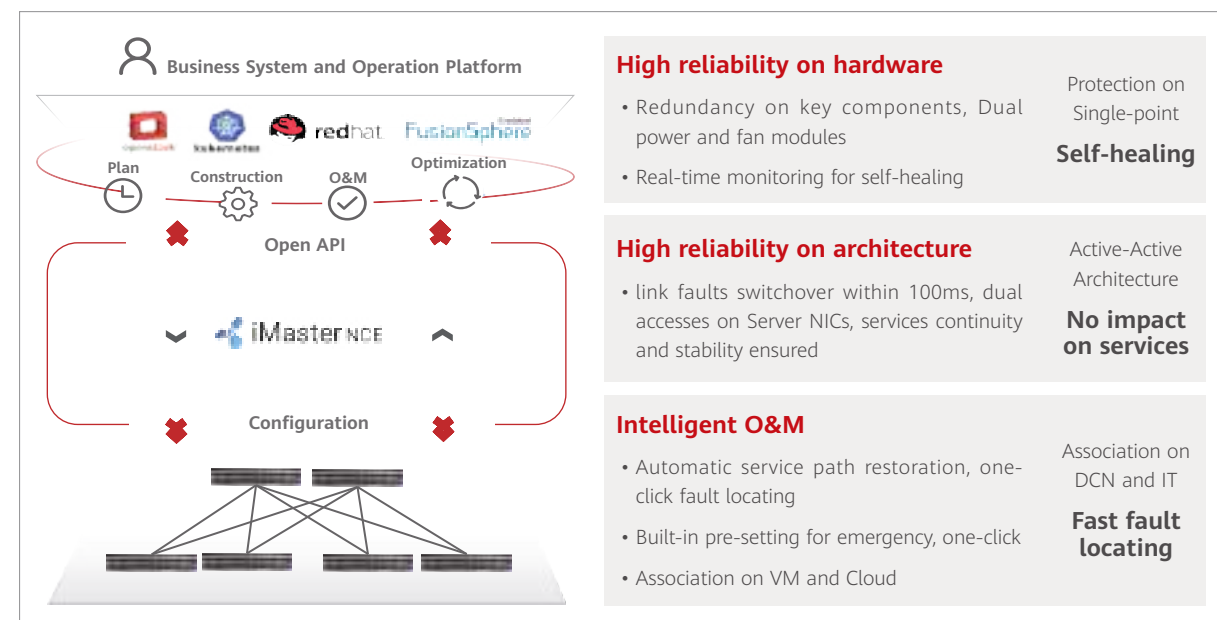
# High-Quality Simplified Data Center Network Solution

## Background and Challenges

Powered by the increasingly mature Software-Defined Networking (SDN) technology, network automation has become the best choice for large data centers. However, many DCs of small- and medium-sized enterprises, such as small banks, supermarkets, and retail stores, with small equipment room, insufficient manpower and limited budget are facing the difficulties in SDN evolution.



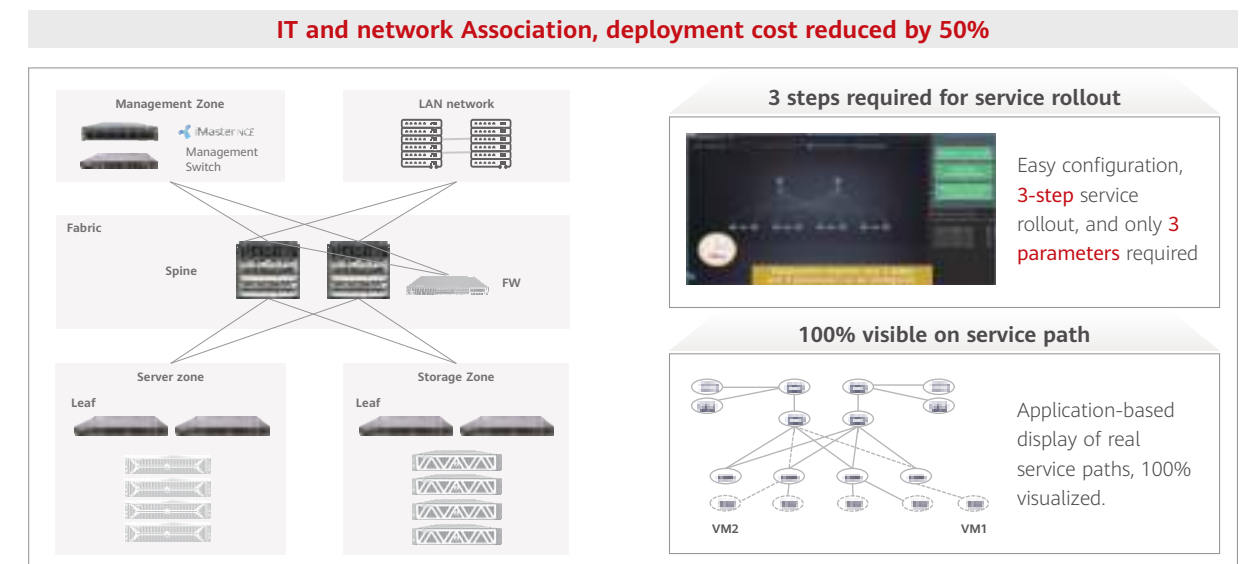
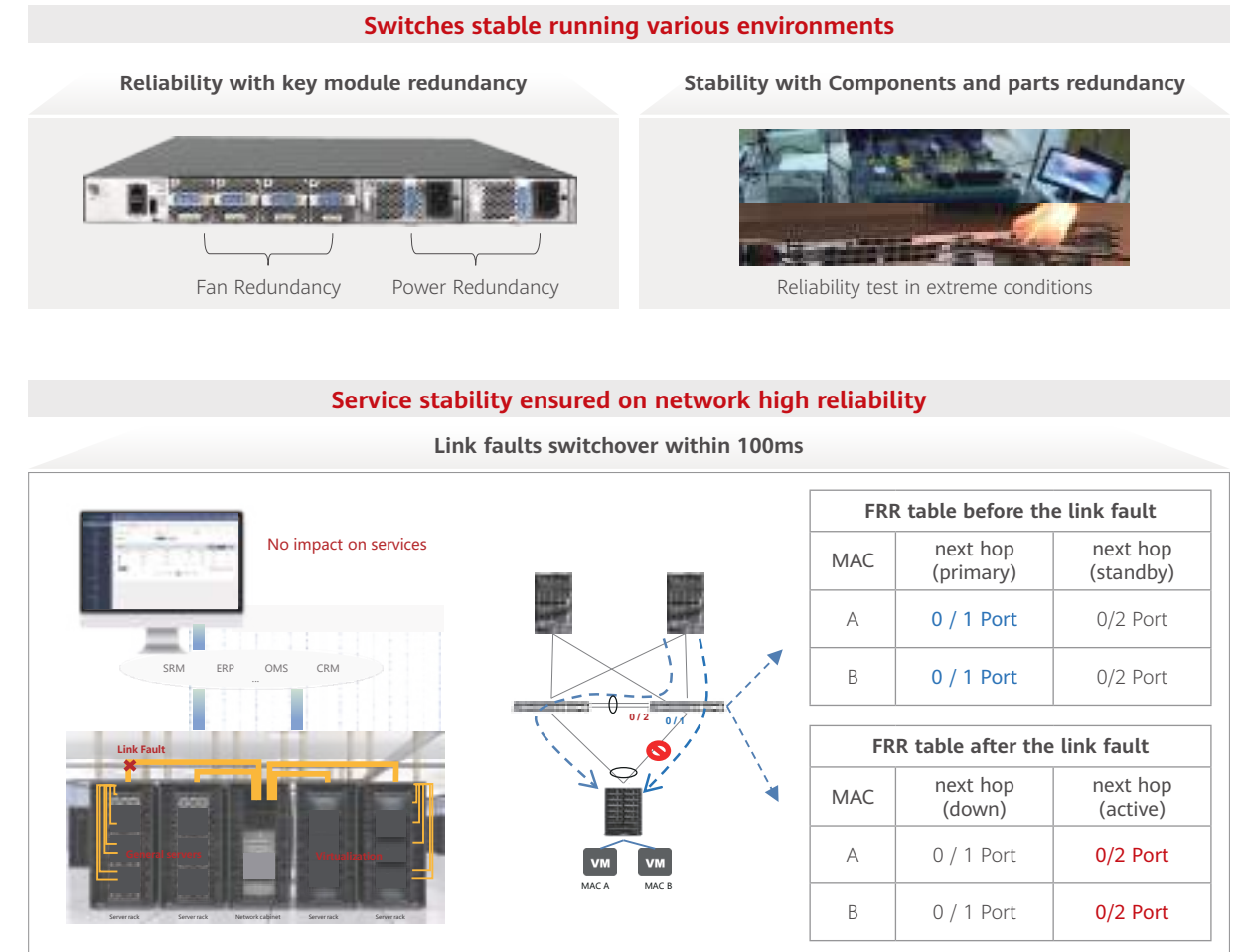
## Solution Introduction



Download the App



## Solution Highlights

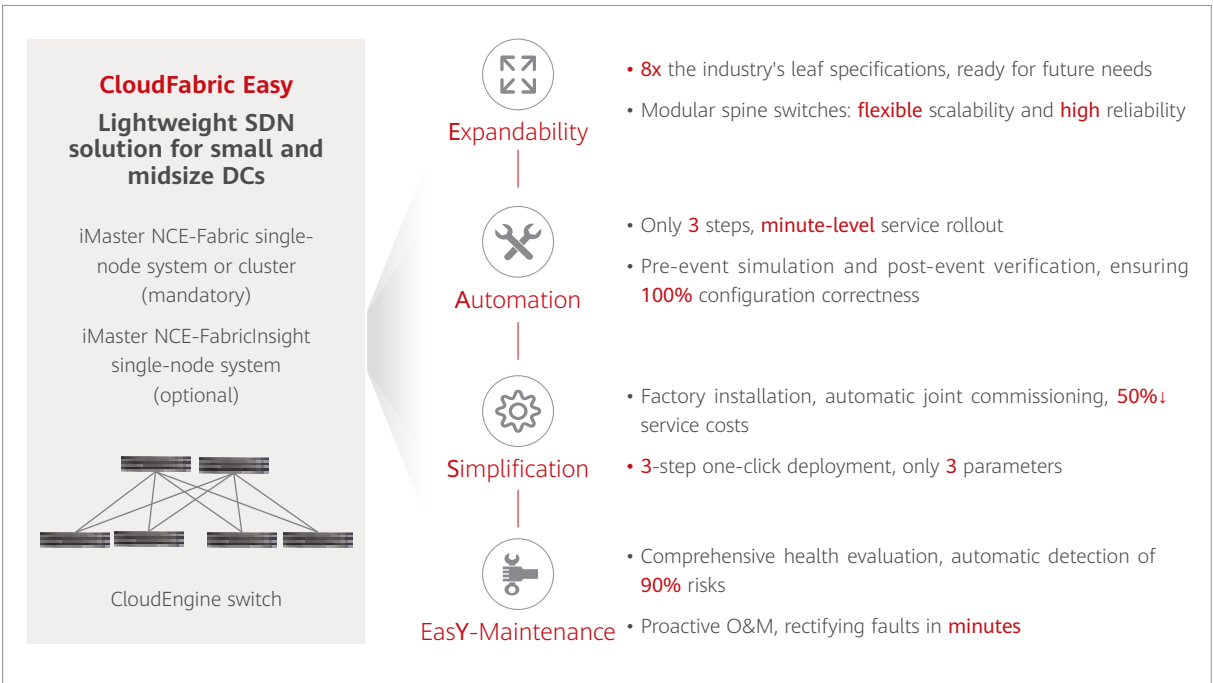




## Typical Configuration

No.	Product	Function Orientation	Recommended Configuration
1	Controller	Network O&M Platform	iMaster NCE-Fabric (single-node )
2	Switch	Core switch	CloudEngine 16804
3	Switch	Core/aggregation switch	CloudEngine 8850E/FutureMatrix 8861
4	Switch	Service access switch	CloudEngine 6857F/CloudEngine 6820H
5	Switch	Access switch with electrical ports	CloudEngine 5855F/CloudEngine 5882

## Customer Benefits



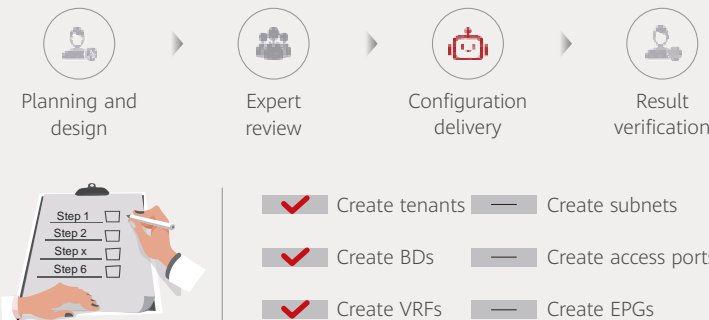
## Success Stories

### Full-lifecycle Automation and 100% Service Configuration Correctness

- Central Bank of L Country, covering services such as settlement, securities trading, and currency and foreign exchange supervision.
- 4 core switches and 40 access switches reach their EOS and need to be replaced. The devices have been running on the live network for 10 years, posing high risks. As such, the customer requires **manageable**, **controllable**, and **visualized** device migration to implement **end-to-end automation**.

### Industry

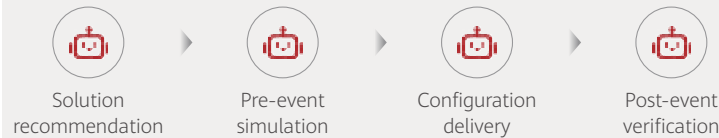
- Semi-automatic network deployment
- Devices have been running on the live network for 10 years.
- Manual service planning takes 3+ months.
- Service deployment involves 130+ parameters in 6 steps.
- Manual review is error-prone.
- No verification for service rollout



Huawei

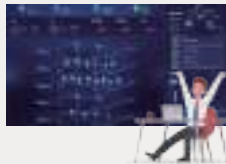
### Full-lifecycle automation

Full-lifecycle automation, pre-event simulation and post-event verification, ensuring 100% configuration correctness



### Only 3 steps required for service rollout

Easy configuration, 3-step service rollout, and only 3 parameters required





# Ransomware Protection Storage Solution

## Background and Challenges

Ransom virus has become a major cyber threat around the world, which has seriously affected the development of the digital economy. In recent years, many financial institutions around the world have been affected and damaged by the ransom virus, resulting in huge losses.

**Frequent ransomware attacks, great threats, and difficult defense**

- An enterprise is attacked every 11 seconds, and phishing attacks are difficult to defend against zero-day vulnerability attacks.

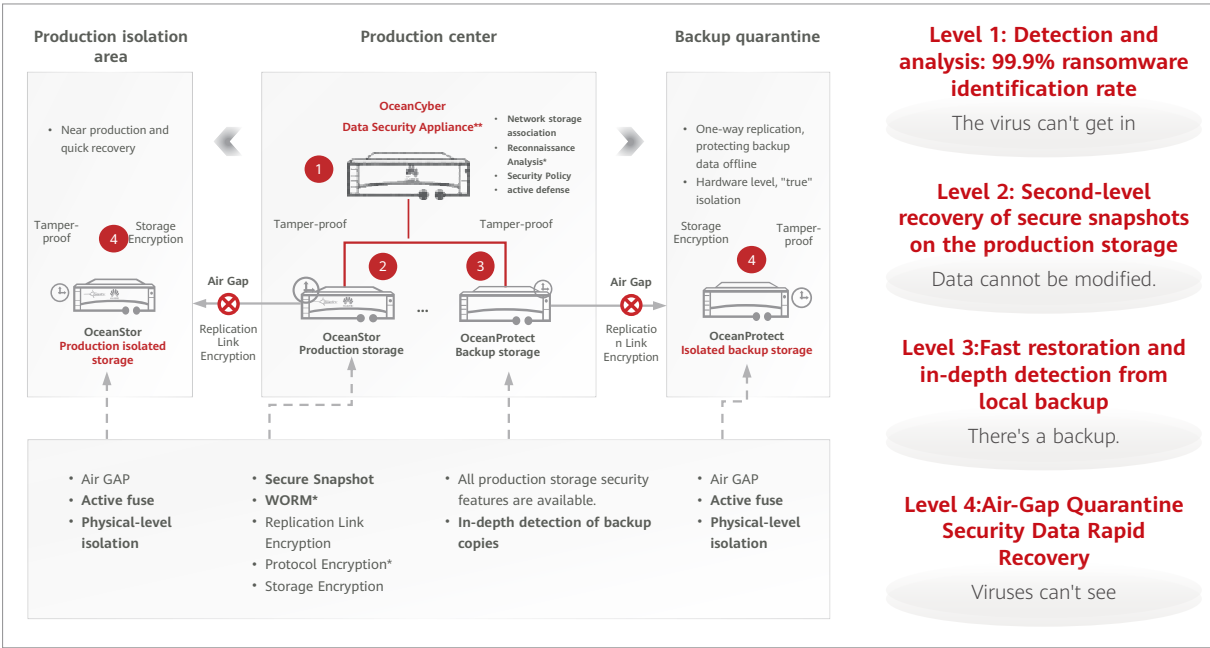
**Huge losses after blackmail**

- The ransom amount for a single ransom is as high as US\$70 million, and the associated losses such as brand and goodwill loss are 23 times greater than the ransom amount.

**Long service interruption and slow service recovery**

- The average service interruption time is 16 days. Even if the ransom is paid, the recovery speed is extremely slow due to server performance.

## Solution Introduction



## Customer Benefits

- Early identification:** Prevents ransomware attacks and detects them in a timely manner to ensure data copy security. In addition, 99.9% ransomware attacks are detected as soon as possible.
- Last line of defense:** Anti-tampering for production storage, anti-tampering for backup storage, offline protection for isolated storage, and comprehensive protection ensure that data copies are always available.
- Reduced loss:** Quick recovery reduces loss caused by service downtime.



## Typical Configuration

Scenario	Anti-Role Extortion Sales Scenario	Offering	Core competence
1	The primary storage in the production center is Huawei storage.	OceanCyber Data Security Appliance	<b>Accurate identification:</b> exclusive network-storage association, proactive air gap circuit breaker, triggering security snapshots in advance, and security policy deployment management
2	The primary storage in the production center is a competitor's storage.	OceanProtect dedicated backup storage	<b>Fast recovery:</b> Daily, weekly, monthly, and yearly recovery, snapshot, and WORM, preventing backup data from being damaged.
3	Creating a Production Isolation Zone	OceanStor Dorado all-flash	<b>Comprehensive protection:</b> Offline protection for production data reduces data loss and provides daily and weekly data recovery capabilities.
4	New Backup Quarantine	OceanProtect dedicated backup storage	<b>Comprehensive protection:</b> Prevents the incubation period of ransomware, retains data copies for a long time, and provides daily, weekly, monthly, and yearly data recovery.

## Solution Highlights

Ability	Huawei	Industry
Ransom detection	99.9% identification rate, pre-, mid-, and post-event detection	The recognition rate is average. Pre-, mid-, post-detection capability
Network-side association	Network-side threat notification, security policy delivery, proactive air gap circuit breaker, and security snapshot acceleration	No such capability
Recovery Speed - Backup Storage	172TB/hr	<=34TB/hr
Air gap isolation	Physical isolation	Logical isolation (protocol blocking)

## Success Stories

**Data storage is the last line of defense against ransomware**

**Integrated Network Security Defense In-depth Model**

Logos of partner banks:

- OCBC Bank
- BDO
- 中信銀行 (China CITIC Bank)
- AKBANK
- GRUP FINANCIERO BANORTE
- Ecobank (The Pan African Bank)



# Backup Storage Solution

## Background and Challenges

Data is very important to the finance industry. Database backup is an important scenario in the finance industry. With the explosive growth of data volume, traditional backup media has performance bottlenecks. The backup system is facing the following three major pressures:

### High costs

- The data volume increases by more than 50% annually, and the backup storage cost increases sharply.

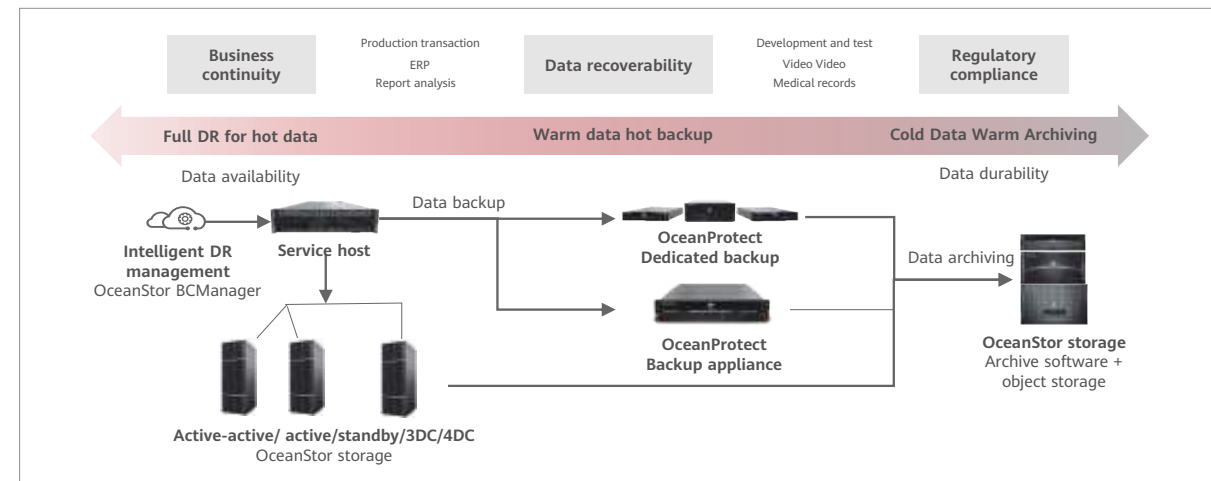
### Slow backup & restoration speed

- If the database capacity exceeds 30 TB, the backup task cannot be completed within the backup time window. HDD storage media is used on the live network, and the maximum restoration performance is only 40% of the backup performance.

### High data security risks

- The device lacks a redundant architecture, causing a single point of failure. Extinguishing incidents occur frequently. The financial industry has become one of the top 10 industries that are most frequently attacked by ransomware due to its high data value.

## Solution Introduction



## Customer Benefits



### Simple and easy to use

Power-on and ready-to-use  
DME IQ Mobile O M

- Integrated delivery
- Automatic configuration + thin-scale recovery
- A-A architecture, reliable and worry-free



### Ultimate TCO

Optimal TCO for main storage, backup, and archiving  
Industry's highest data reduction ratio of 72:1

- Multi-stream concurrency
- Permanent incremental backup
- Source end + replication link deduplication



### Eco-rich

Traditional + new core ecosystem:  
1 set of solutions  
Compatible with 100+ ecosystem applications

- Bare metal, virtualization, cloud platform, container, file, database, data warehouse, big data, and containerized applications



## Typical Configuration

	Sales Scenarios	Offerings	Core Competence
1	Core service system		Fast backup and recovery: E2E optimization based on flash memory improves system performance. The backup bandwidth is three times and the recovery bandwidth is five times better than that of competitors. It takes only 20 seconds to restore 1 TB data.
2	Data exchange platform/ bill image/operation analysis and decision- making	OceanProtect X3000 OceanProtect X6000 OceanProtect X8000 OceanProtect X9000	Low data usage: A maximum data reduction ratio of 72:1 is supported, and 20% more data is backed up. Replication link deduplication reduces network bandwidth by up to 98%.  More secure: AA-based architecture, copy consistency check, and 99.999% system reliability; Key anti-ransomistic technologies, such as WORM, secure snapshot, intelligent ransomware detection, and Air Gap, ensure copy security and availability.

Note:

OceanProtect X8000/X9000 supports built-in ransomware detection.

OceanProtect X3000/X6000 supports interconnection with the Data Security Appliance to detect ransomware.

## Solution Highlights

Feature	Huawei	Industry
High performance	Backup bandwidth: 155 TB/H Recovery bandwidth: 172 TB/H	Industry-leading backup bandwidth: less than 100 TB/H Industry-leading recovery bandwidth: less than 50 TB/H
High reduction rate	Data reduction ratio: 72:1	The data reduction ratio in the industry is less than 50:1.
Secure and reliable	A-A architecture, 99.9999% reliability Ransomware detection*	A-P architecture or single-node architecture is used in the industry. No Ransomware Detectionx

## Success Stories

The diagram illustrates the Success Story architecture and data flow. It shows the following components and processes:

- Management network:** Production server DB, Production server VMware, NetBackup media server, NetBackup management server.
- Production storage:** VTL6900, Kunteng PTL, OceanProtect X8000.
- LAN:** NAS.
- SAN:** Production storage, VTL6900, Kunteng PTL, OceanProtect X8000.

**Customer Requirements:**

1. The existing backup system takes a long time to back up data and has poor system reliability.
2. Switchover from the existing backup system to the new backup system has little impact.

**Customer Benefits:**

- Smooth takeover of backup services, with little impact on the existing backup system
- The backup performance exceeds 30 TB/H, meeting the requirements for fast backup and shortening the backup window.
- Dual-controller active-active architecture, second-level switchover, and insensitive backup services

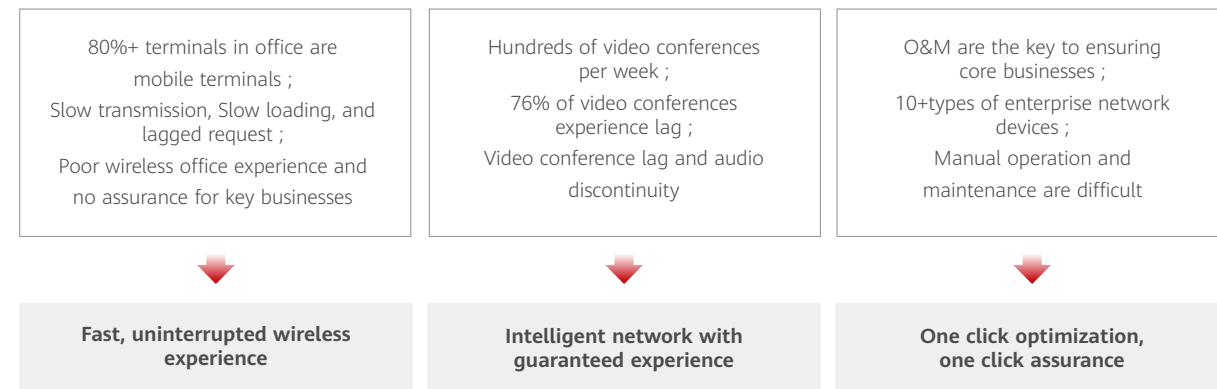




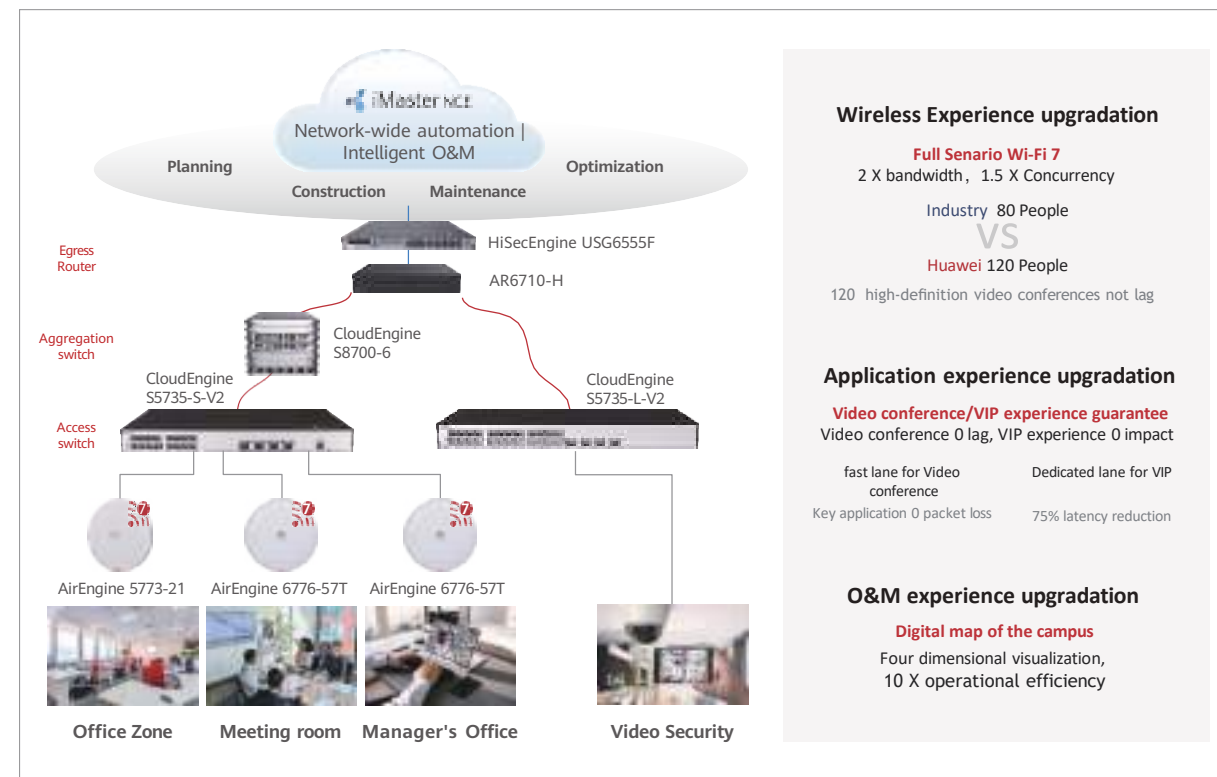
Download the App

# High-Quality SME Office Network Solution

## Background and Challenges



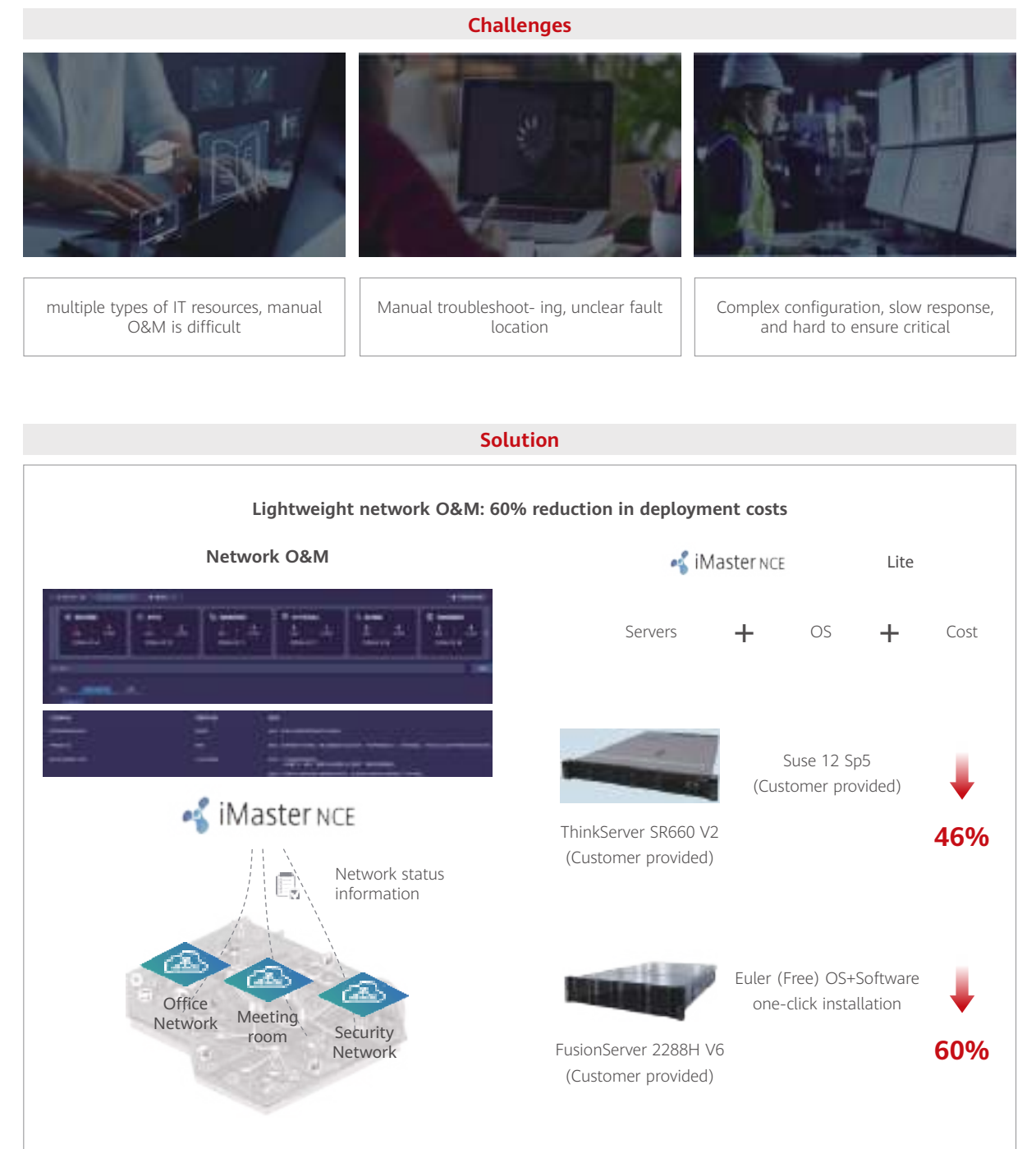
## Solution Introduction



Download the App



## O&M Experience Upgradation





Download the App

### Benefits

O&M experience upgradation: Building a multi-dimensional digital space for enterprises and creating the ultimate O&M experience



iMaster NCE  
NCE-Campus/NEC-Campus/NEC

#### 1 Diagram to manage the network

Four dimensional visualization of networks, terminals, users, and applications, with proactive fault warning

#### 1 Second to locate network fault

Quickly locate user/application network experience issues, audio and video lag second localization 200+ automatic fault identification and fixing

#### 1 click to optimize the network

VIP one click settings, wireless priority access Application three-step guarantee, highest priority scheduling Second level optimization of critical business experience

## Wi-Fi office network

### Challenges



Discontinuous and weak wireless network

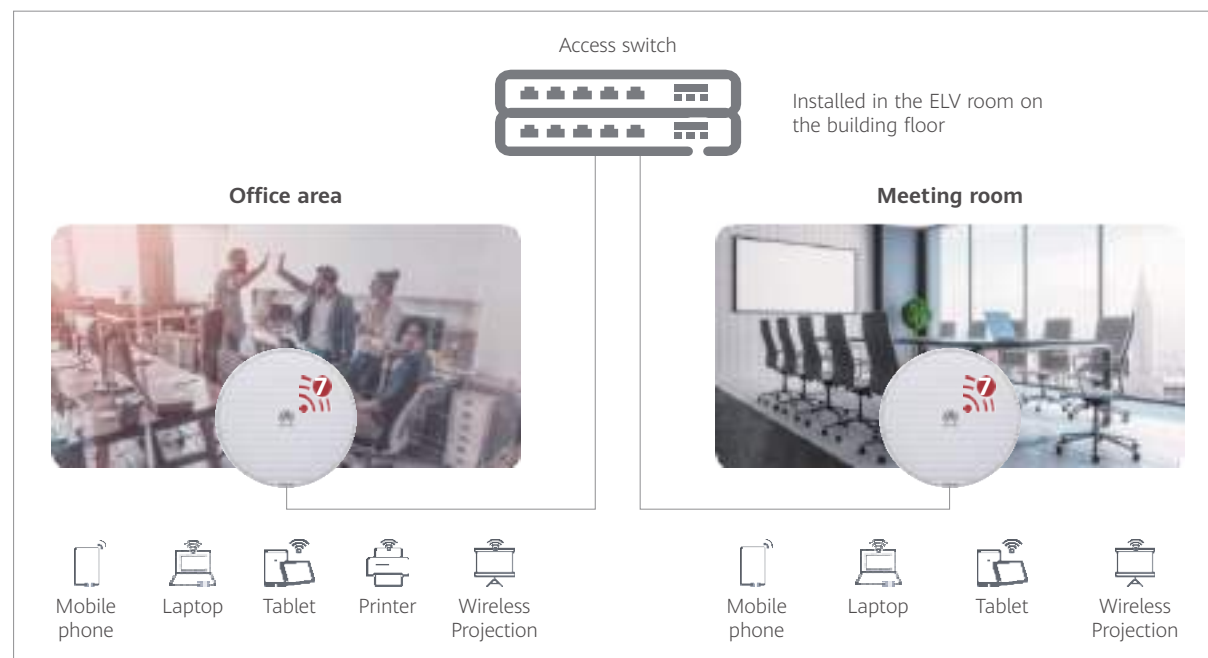


Sufficient bandwidth for conference terminals



Mobile online service frame freezing

### Solution



Download the App

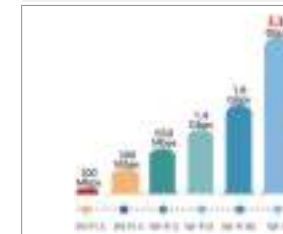


### Benefits

Upgrade to WiFi 7 to meet wireless office needs for the next five years



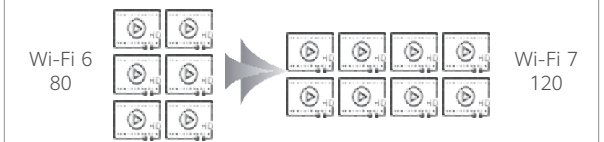
2 X Bandwidth



3.3Gbps per user



1.5 X Concurrency



120 1080P HD video conference access/AP

## Video Conferences assurance

### Challenges



High proportion of heavy-traffic greedy services

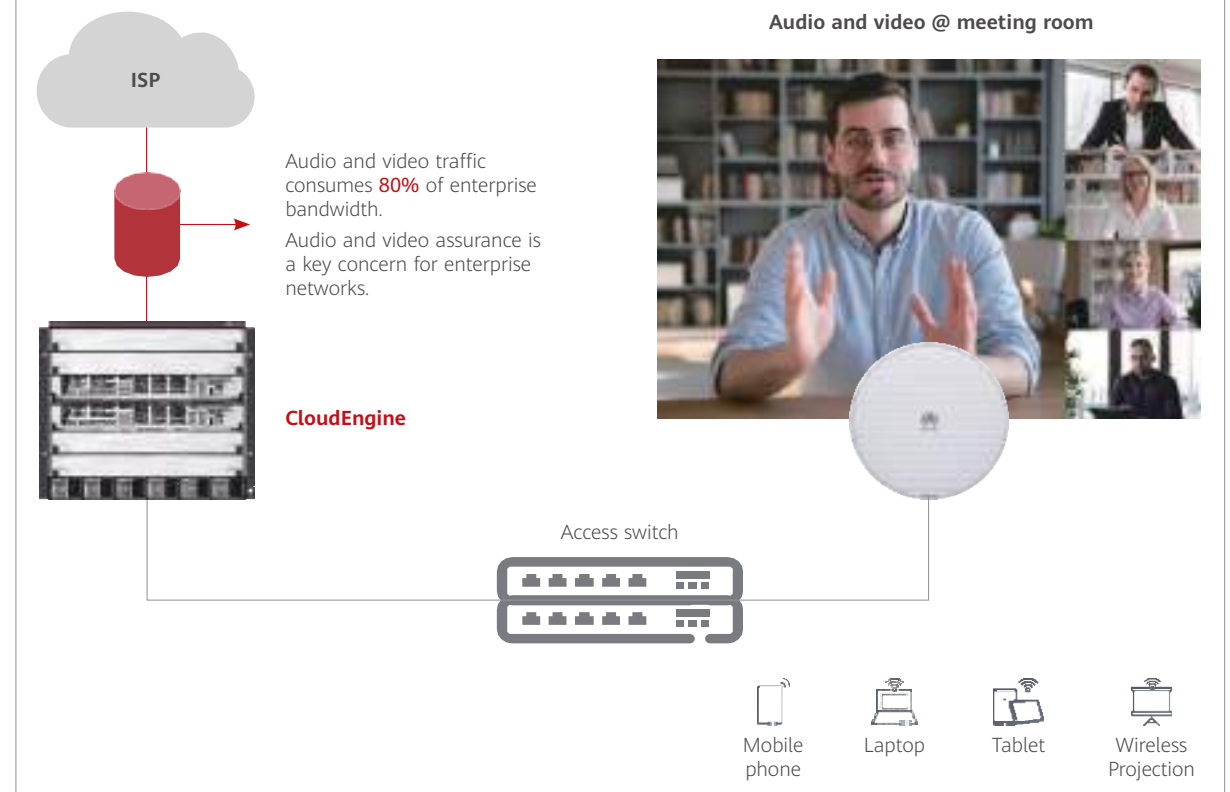


Insufficient bandwidth for conference terminals



Bandwidth preemption for different services

### Solution

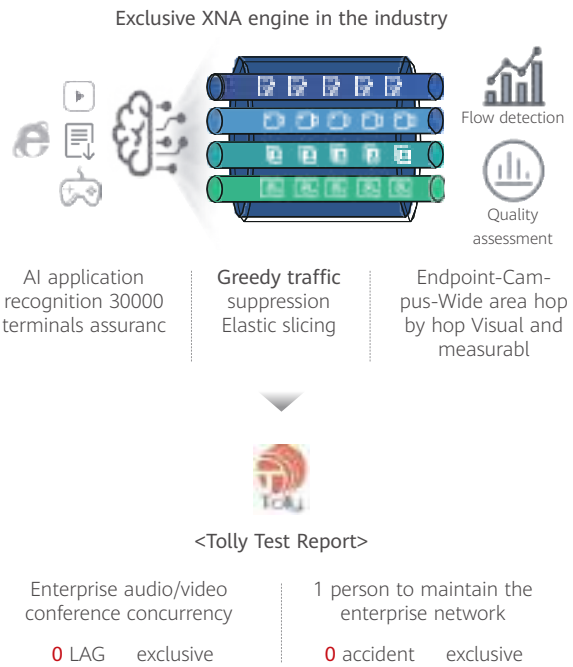




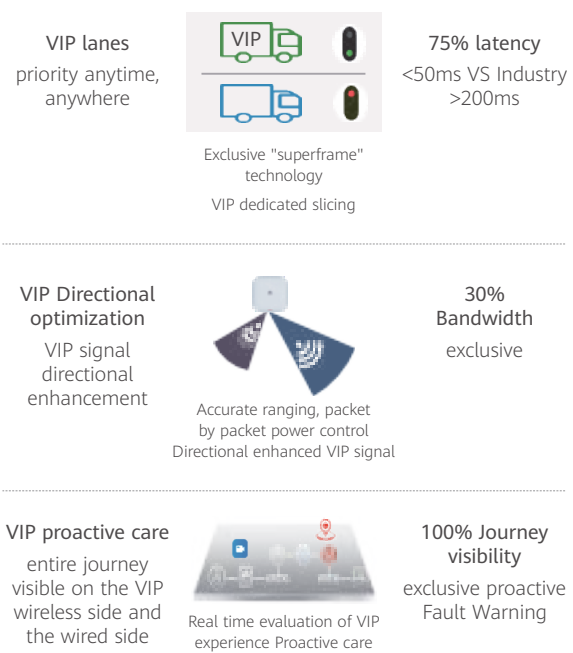
Download the App

### Benefits

#### Application intelligent recognition, dedicated slicing guarantee for key applications



#### VIP lanes, priority anytime, anywhere



### Product Introduction

#### CloudEngine S8700 Modular Switch with the Highest Density



- Experience assurance: 6000+ application identification, high-priority forwarding of key applications
- Ultra-high reliability: Innovative active-active main control boards, fast failover < 5 ms

#### CloudEngine S5735-S-V2 Standard 2.5GE Access Switch



- 24/48 x 2.5GE downlinks, 4 x 10GE SFP+ uplinks
- 3 pluggable power modules, supporting N+1 redundancy, enhancing power supply reliability

#### CloudEngine S3710-H Series ELV-tailored cost-effective switch



- More secure in video security scenarios
- Efficient power supply for always-on terminal connections

#### NetEngine AR6710-H(1U)



- Up to 13 Gbps forwarding performance
- 2 x 25GE SFP28, 4 x 10GE SFP+, 4 x GE (Single SRU)
- 2 x XSIC, 4 x WSIC, 6 x SIC+1 x WSIC

#### HiSecEngine 6525F Gigabit firewall



- Ports: 2 x GE (RJ45) + 8 x GE combo + 2 x 10GE (SFP+)
- Free-of-charge support for 100 concurrent SSL VPN users
- Application protocol identification; antivirus, IPS, and URL filtering

#### iMaster NCE-Lite Lightweight NMS



- 60% lower deployment costs
- 300 NEs + 1000 terminals
- Unified wired and wireless management, access authentication, and terminal identification

Download the App



#### AirEngine 5773-21 Compact High-Performance Wi-Fi 7 AP



- 4x4 MU-MIMO, 3.57 Gbps data rate
- Smart antennas, 100% signal enhancement
- Built-in BLE 5.4 and NearLink SLE1.0, USB port for IoT expansion (RFID, ZigBee, etc.)

#### AirEngine 6776-57T Triple-Radio High-Performance Wi-Fi 7 AP



- 8x8 MU-MIMO, 2.4+5+6 GHz triple-radio Wi-Fi 7, 13.66 Gbps data rate
- 1 x 5GE electrical port + 1 x GE electrical port
- Smart antennas, 100% signal enhancement
- Built-in BLE 5.2, USB port for IoT expansion (RFID, ZigBee, etc.)

#### AirEngine 9700-M1



- 2 x 40GE optical + 12 x 10GE optical + 12 x GE electrical
- Forwarding performance: 120 Gbps
- Maximum number of manageable APs: 3K
- Maximum number of access STAs: 36K

### Success Stories

#### Everbright Securities: Efficient Enterprise Network Helps Everbright Securities Build a Network with Ultimate Conference Experience

- "Fortune" China 500, has been the "Secure Company of the Year" for three consecutive years.
- 14 branches, 244 securities business departments, distributed in 122 cities.

#### Traditional: Video conference frame freezing, difficult fault locating and demarcation

Problem 1: Video conferencing is not guaranteed, and the experience of senior executives is poor.



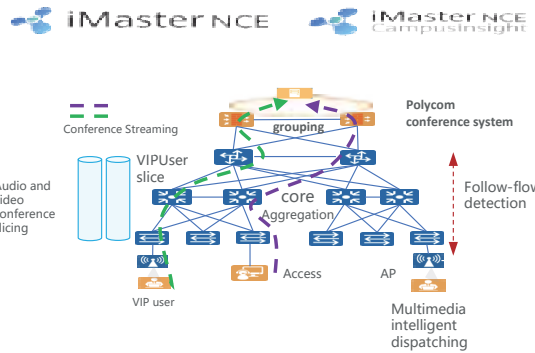
Problem 2: Old devices make fault demarcation difficult.



#### Business Pain Points

- On November 2, 22, 2012, Everbright Group held a major meeting. The senior management of HQ, CIO, and IT director attended the meeting through video conference. The meeting was held for five or six times, and the IT director was ordered to rectify the situation within a time limit.
- Vendor C's legacy network is used. There are two or three major conference freezings every month and more than 10 complaints about poor experience from senior customers. The owner cannot be determined and optimization cannot be performed. Finally, the customer decided to reconstruct the entire network.

#### Huawei: lossless audio and video experience and 4-fold higher experienced rate



#### Solution Value

- Exclusive audio and video experience assurance: Intelligent identification of video conference traffic and wired scheduling, achieving zero packet loss in video conferences on campus.
- Visualized experience and fault locating within 5 minutes: Huawei exclusively supports the IPCA2.0 flow detection technology that is automatically triggered based on application identification. For occasional faults that cannot be reproduced, fault demarcation and locating within 5 minutes are supported.
- Exclusive VIP service assurance: VIP fast lanes are planned to ensure VIP user experience.



Download the App

# Intelligent Office Conference Solution

## Background and Challenges

### Inefficient interaction

- Whiteboard markers are not eco-friendly and content cannot be saved
- Projectors offer low brightness and poor environment adaptability

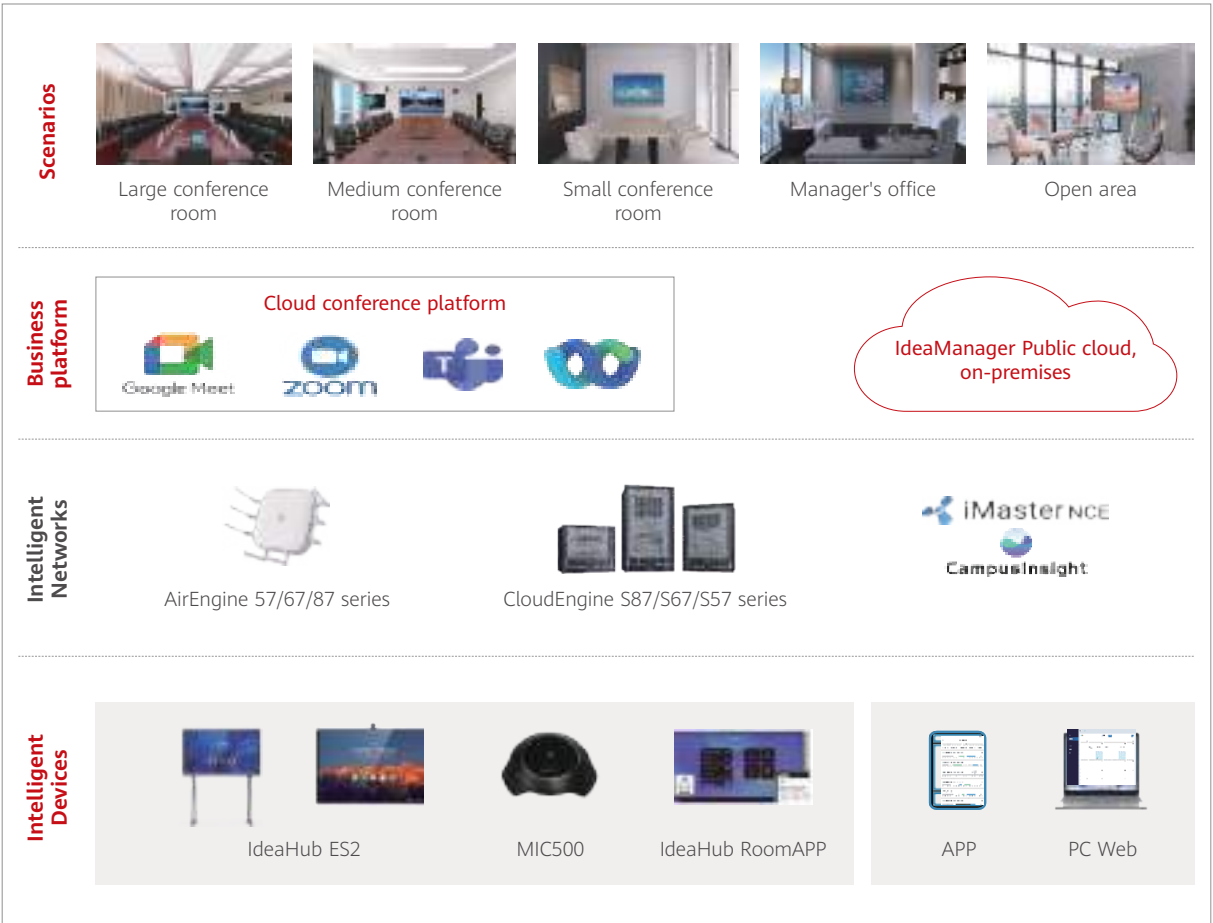
### Poor conferencing experience

- Frame freeze occurs during meetings.
- Poor device compatibility and low image definition

### Complex operations

- Complex cabling with high maintenance costs Siloed
- System: devices cannot interconnect with each other
- Complicated networks require dedicated maintenance

## Solution Introduction



Download the App

## Solution Highlights

### Smart access

- BYOM, Seamless Meeting Transfer IdeaHub Room Multiple Cloud
- Conferences on One Screen
- BYOD, Wireless screen sharing, simple and instant

### Smart experience

- 16 ms ultra-low writing latency, 4K Soft Light Screen
- Enterprise Information Release
- Platform for Precise Targeting Hardware anti-blue light

### Video-network linkage

- IConference quality assurance: Wi-Fi-6 multimedia intelligent scheduling and bandwidth reservation
- Visualized Experience: E2E Conference Quality Awareness and Visualized Conference Experience
- IdeaManager Intelligent O&M

## Customer Benefits

### 30% higher preparation and communication efficiency

- Easy to join conferences, intelligent and user-friendly

### 50% better conference experience

- Video-network linkage, E2E 4K ultra HD, no frame freezing

### 40% higher O&M efficiency

- In-band flow measurement of video and audio, faults demarcated and located in minutes

## Solution Content

NO.	Device	Product Specifications	Large Conference Rooms (60-80 m2)	Medium Conference Rooms (30-60 m2)	Small Conference Rooms (30 m2)	Manager's Offices	Open Areas
1	HUAWEI IdeaHub	HUAWEI IdeaHub ES2 86-inch	1	1	1	1	1
2	IdeaHub Wall Mount Bracket	HUAWEI IdeaHub Wall Mount Bracket	1	1	1	1	1
3	IdeaShare Key	IdeaShare Key	1	1	1	1	1
4	IdeaHub Controller	IdeaHub Controller	1	1	1	1	1
5	OPS	IdeaHub Series OPS I7	1	1	1	1	1
6	Mic 500	HUAWEI Mic 500 Microphone Array	2	1			
7	AP	AirEngine 87/67/57 Series	2	1	1	1	1
8	IdeaHub Room APP	IdeaHub Room software license fee (third-party)	optional				





Download the App

## Success Stories



Jumeirah Hotel Group was founded in 1997 owning Jumeirah Hotels and Resorts, it also has various industries such as residential living, luxury restaurants, spa and fitness clubs, hotel management schools, and water parks, each with over 10000 employees.

**Pain points:**

- The customer used traditional meeting system, Octopus, traditional whiteboards, projectors, and televisions as their conference systems, which is complex and hard to maintain.
- The legacy meeting system cannot support remote collaboration, resulting in extremely low conference efficiency and participation.

**Solution:**

- The All-in-one HUAWEI IdeaHub were deployed in both conference rooms and manager rooms. HUAWEI IdeaHub support ultra-low writing latency and intelligent whiteboard which meets customer whiteboard discussion needs.
- The bidirectional collaboration, Voice Tracking, Auto framing and other AI conferencing functions meet the customer's requirements for high-definition video conferencing experience.

**Customer Value:**

- Huawei IdeaHub performs better than other vendors in sound quality testing.
- Huawei IdeaHub with AI collaboration experience allows attendees to focus on the meeting content itself, greatly improving business communication efficiency.
- The integrated design of IdeaHub is simple and elegant in line with the luxury hotel group's brand.
- Easy to deploy, the only requirement is WIFI and power for a remote meeting system.

Download the App



## Virtualization Storage Solution

### Background and Challenges

**Performance bottleneck**

With the developing of mobile internet and AI , data volume increases explosively. Deduplication and compression are enabled to reduce storage investment costs.

Once deduplication and compression are enabled, the performance of Industry virtualization storage will deteriorate significantly. A high-performance solution is required.

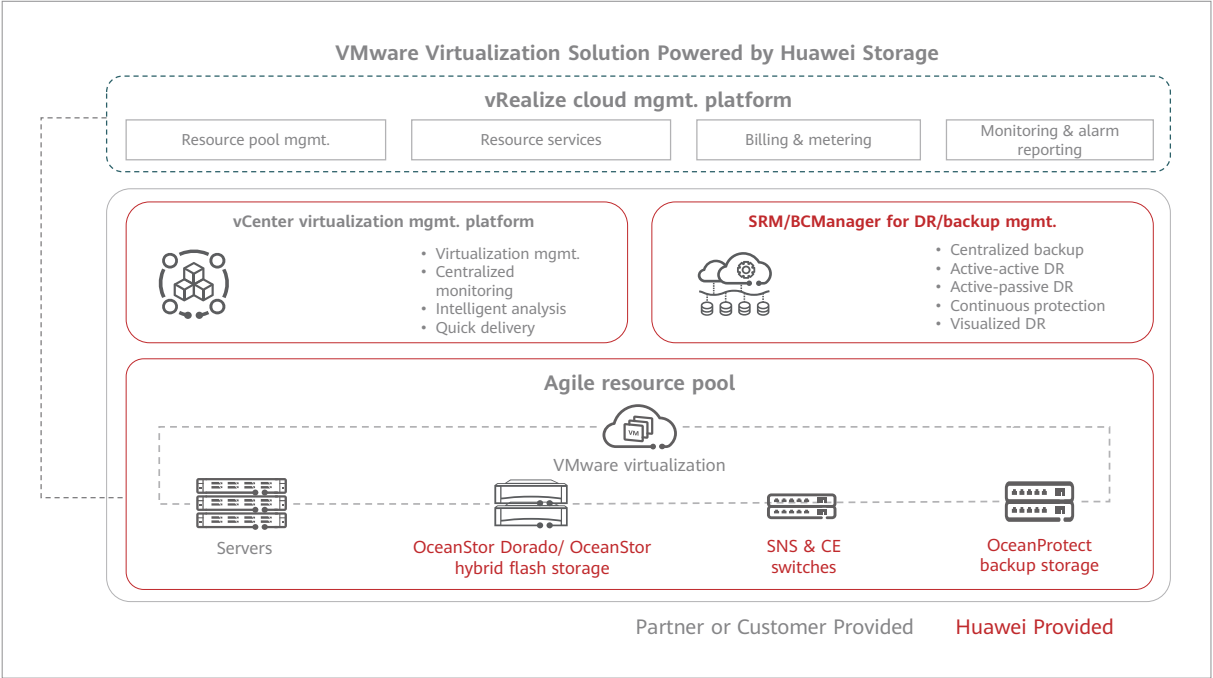
**Reliability challenge**

Mission-critical applications require RPO = 0, RTO ≈0, while industry solution RTO usually is minutes level.

**Complex management**

Once external disk arrays are introduced to improve performance and reliability, the entire system is more difficult to manage.

### Solution Introduction





Customer Benefits

Integration for high efficiency



- The solution implements **SAN and NAS integration** to reduce device investment in storage resource pools.
- The solution supports vVol and VAAI features and offloads snapshot, replication, and clone functions to storage hardware, **improving overall efficiency for higher computing performance.**

Ultimate reliability



- The solution supports VMware vMSC and SRM. These can work alongside Huawei storage's **active-active/replication** features and Huawei Storage Replication Adapter (SRA) plug-in to achieve non-disruptive service migration for fast DR.
- The full-mesh architecture of Huawei centralized storage tolerates the failure of up to seven controllers, ensuring service continuity.

Unified management



- In terms of **management**, the solution supports the NGC feature. The vSphere client can be used to manage and operate Huawei storage devices, **simplifying the storage management process and improving user experience.**
- In terms of **O&M**, the solution supports the vCenter Log Insight feature to facilitate log management across heterogeneous devices from multiple vendors, achieving fault monitoring, alarm reporting, and quick fault detection and diagnosis.
- In terms of **DR and backup**, the solution supports VMware Site Recovery Manager (SRM) to enable DR and backup management in virtualization scenarios. (Huawei BCManager serves the same purpose).

Typical Configuration

Scenario	Storage Solution	Unique Advantage
Replacement or expansion of VM storage resource pool	OceanStor Dorado/OceanStor hybrid flash storage	1. Huawei uses SmartVirtualization to <b>migrate heterogeneous storage devices online and this ensures reliability and service continuity.</b> 2. The customer's <b>service performance is significantly boosted</b> after migration thanks to the FlashLink® intelligent algorithm and industry-leading architecture of Huawei storage solutions.
VM backup resource pool	OceanProtect X3000/X6000/X8000 + OceanStor BCManager (optional)	1. Offers professional backup storage with data passthrough and 2 GB+/s backup performance for a single VM, <b>which slashes the backup time.</b> 2. Provides <b>live mount and instant recovery</b> of copies in native format and <b>minute-level RTO.</b> 3. <b>The Multilayer Ransomware Protection Solution</b> prevents data tampering and helps to quickly restore data in the event of an attack.
Newly added virtual resource pool	OceanStor Dorado/OceanStor hybrid flash storage + OceanProtect + OceanStor BCManager	1. <b>The geo-redundant 3DC HA solution</b> built on active-active storage, remote replication, and BCManager <b>ensures high service reliability</b> and provides <b>unified DR and backup management while reducing TCO.</b> 2. Huawei fully supports NVMe in terms of protocol parsing, I/O forwarding, and hardware acceleration <b>and this reduces the E2E latency to 0.05 ms.</b>



Solution Highlights

High performance	<b>Industry-leading performance and latency</b> 21M IOPS and 0.05 ms latency
High reliability	DR Solution ensures <b>0 data loss</b> SAN&NAS Unified true <b>AA rchitecture</b> Permits 7/8 controller failures without service interruption
Easy migration	<b>Migrate storage</b> online without service interruption. Supports reliable online <b>migration of VMware</b> and other Virtualization platform
Easy Management	Supports VMware plug-ins for easy management.

Success Stories

### An IaaS service provider in Singapore

**Production center**

4 x existing ESXi hosts

New SAN

New backup LAN

ESXi Data storage

File sharing

OceanStor Dorado 3000

OceanProtect X6000

**DR center**

4 x existing ESXi hosts

New SAN

New backup LAN

ESXi Data storage

File sharing

OceanStor Dorado 3000

OceanProtect X6000

**Challenges:**

Storage devices on the customer's live network were outdated and the warranty was about to expire. Services were running on the VMware platform, so the previous solution needed to be replaced urgently.

1. **There was no dedicated backup storage on the live network.** The previous solution took a relatively long time to back up and recover services. In addition, there was no ransomware protection.
2. The storage devices on the live network used low-capacity disks. As a result, **they took up a large amount of space.**
3. The customer needed to replace their storage devices **without affecting services on the live network.**

**Customer benefits:**

1. Huawei's OceanProtect backup storage offers **five-times-faster data backup and recovery.**
2. Huawei primary storage and OceanProtect backup storage only require 12 U rack space at each site, and **take up 50% less cabinet space.**
3. SmartMigration **migrates data online** to Huawei storage **without interrupting services** or affecting performance.



Download the App

# Desktop Cloud VDI Storage Solution

## Background and Challenges

### Security and reliability

When data is stored locally on computers, it is difficult to prevent data loss due to human errors or device faults, which will severely degrade work efficiency.

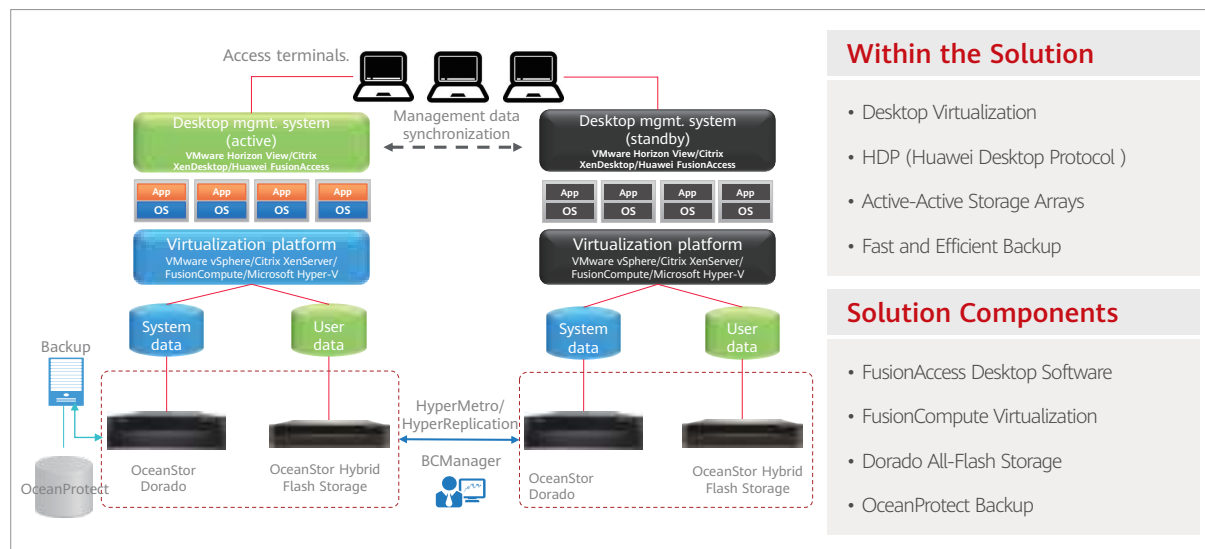
### Lower maintenance pressure

Scattered offices and PCs mean that IT O&M personnel have to spend a long time moving between different buildings, resulting in heavy workloads and slow response.

### High system performance and ease of use

Enterprises want an easy-to-use cloud desktop system that supports collaborative office and has desktops able to be started in batches quickly and run smoothly without lag during daily operations.

## Solution Introduction



## Customer Benefits

### Excellent Performance

Dual controllers support maximum of 8000 desktops.  
15% higher application response.

### Converged & Efficient

Storage-based online migration, improving service roll-out speeds by 25%  
20% lower backup storage costs with variable-length data deduplication

### Stable & Reliable

Multi-layer desktop cloud data protection, rich and comprehensive DR solutions with 99.9999% reliability  
VM-based backup solution for 95% shorter backup/recovery window

Download the App



## Typical Configuration

Scale	Recommended Products and Models	
< 300 users	Hybrid flash storage: OceanStor 5210 All-flash storage: OceanStor Dorado 2000	Backup storage: OceanProtect X3000
300–500 users	Hybrid flash storage: OceanStor 5310 (dual controllers, 256 GB, 15 x 6 TB NL-SAS disks + 11 x 3.84 TB SSDs) All-flash storage: OceanStor Dorado 3000 (dual controllers, 256 GB, 10 x 3.84 TB SSDs)	Backup storage: OceanProtect X3000 (dual controllers, 256 GB, 4 x 3.84 TB SSDs + 8 x 20 TB NL-SAS disks)
501–1,000 users	Hybrid flash storage: OceanStor 5310 (dual controllers, 256 GB, 15 x 10 TB NL-SAS disks + 11 x 7.68 TB SSDs) All-flash storage: OceanStor Dorado 3000 (dual controllers, 256 GB, 15 x 3.84 TB SSDs)	Backup storage: OceanProtect X6000 (dual controllers, 512 GB, 5 x 3.84 TB SSDs + 12 x 20 TB NL-SAS disks)
1,001–2,000 users	Hybrid flash storage: OceanStor 5510 (dual controllers, 256 GB, 27 x 10 TB NL-SAS disks + 16 x 7.68 TB SSDs) All-flash storage: OceanStor Dorado 5000 (dual controllers, 256 GB, 14 x 7.68 TB SSDs)	Backup storage: OceanProtect X8000 (dual controllers, 1 TB, 6 x 3.84 TB SSDs + 20 x 20 TB NL-SAS disks)

## Competitive Advantages

### Superb performance

0.05ms ultra-low latency (Little impact on performance during VDI system garbage collection)

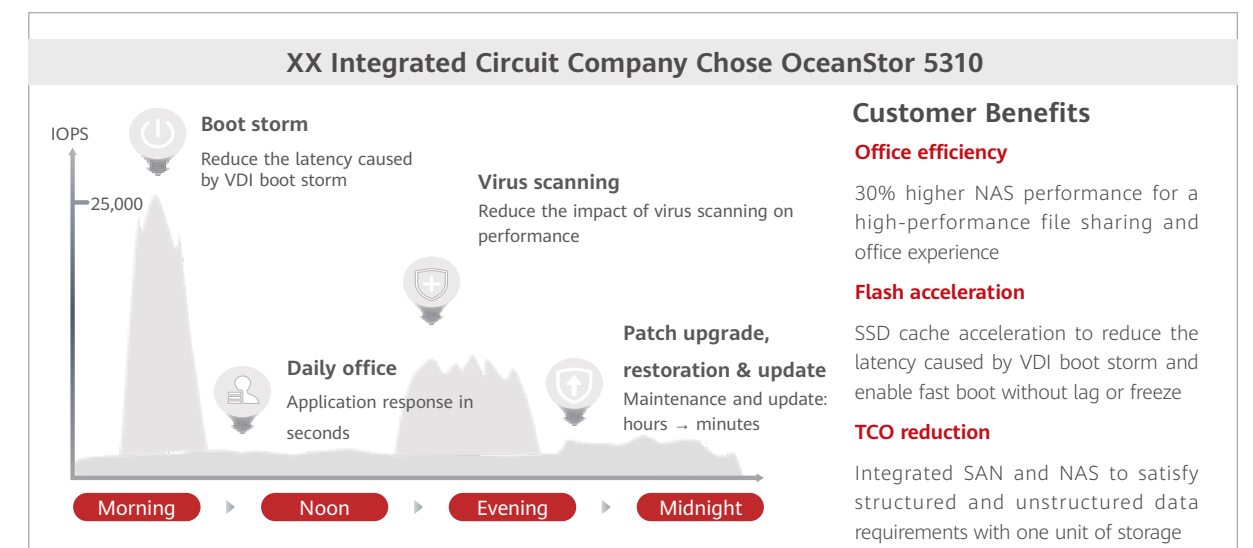
### Reliability

Full-mesh architecture, geo-redundant 4DC disaster recovery solution, and tolerance for failure of 3 disks

### Easy O&M

NDU(non-disruptive upgrade): update that does not interrupt access to data or system services

## Success Stories









Download the App

## Solution Highlights



### One Room One Fiber

Multi-network convergence, operation efficiency 60% ↑

### Full-service bearing

POTS, CATV, Wi-Fi, and room Control system

### Three wavelengths

IP and CATV services and are transmitted over one optical fiber

### One terminal

Unified access of guest room services through a convergent terminal



### Best Experience

Wi-Fi "0" Interruption & Ultra-large bandwidth

### Wide coverage

Cellular coverage, beam forming  
Coverage radius: 20% ↑

### Roaming

Dedicated roaming handover latency < 50 ms

### Group optimization

Unified scheduling of dual-band resources  
Throughput of the entire network: 40% ↑



### Best TCO

Simplified cabling  
TCO 30% ↓

### Copper lines replaced with fibers

Material and deployment costs 90% ↓

### P2MP architecture

Zero cable tray  
cabling space 80% ↓

### Active devices replaced with passive devices

No ELV equipment room

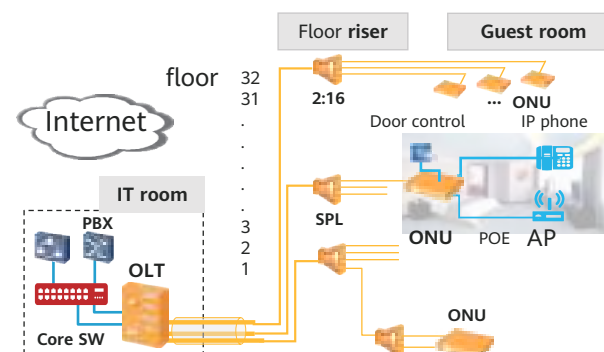
## Success Stories

### Singapore OUE hotel apartment: Huawei FTTO Offers a Smart Experience

#### Challenges & requirements

- Fiber to the room for user services and **simple cabling**;
- Power over Ethernet function is needed for AP and IP phone;
- Full scenario Wi-Fi roaming, requires flexible cabling and green energy;

#### Solution and benefits



Simplify indoor cabling and terminal power supply, beautiful and **green energy**;



All-optical network deployment meets the hotel aesthetics requirements;



Network once deployed for the future **smooth evolution**

Download the App



# High-Quality Hotel Network Solution

## Background and Challenges

### Poor wireless quality and frequent complaints from guests

- 70% recommend hotels with good experience, 65% choose hotels with high ratings, and 90% consider Wi-Fi essential



### Lack of professional maintenance staff in the hotel

- After the network deployment work is finished, most hotels lack professional network maintenance personnel.

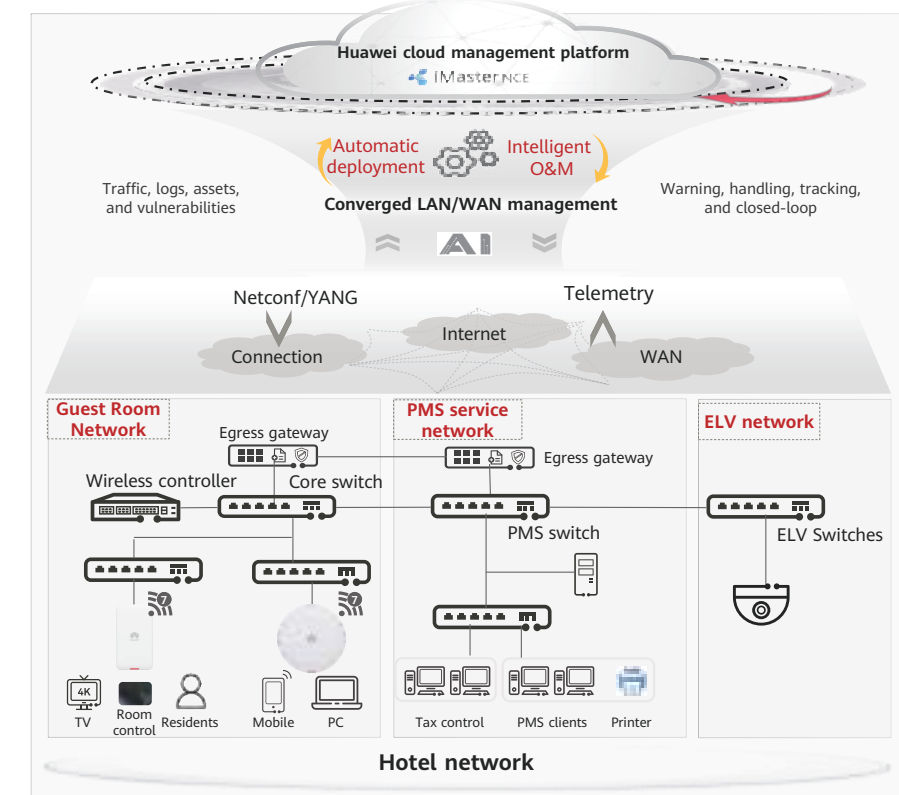


### Hotel egress bandwidth is limited, and user experience assurance is difficult.

- More than 90% of hotels have very limited upstream bandwidth, which cannot ensure the video and conference experience of guests.



## Solution Introduction





Download the App

- **Egress gateway:** AR series routers are used to provide egress convergence features. (including SD-WAN access, FW, DHCP, NAT and so on)
- **Core switch:** High-performance switch. Service systems are virtualized and isolated by VLANs or VPN instances, ensuring that the hotel office network, guest room network, and weak-current security network are independent of each other.
- **Access switch:** Different service systems use different access switches to provide high-speed, secure, and stable forwarding capabilities for hotel services.
- **Wireless controller:** It is recommended that core switches be connected in bypass mode to meet the requirements for centralized AP management and user roaming.
- **Hotel rooms Wi-Fi:** Panel APs are used to provide Wi-Fi signal coverage without blind spots and provide wired network ports to access various terminals.
- **Public areas Wi-Fi:** such as lobby and corridor dining room: Settled APs are used in public areas to meet high-density access requirements of users in these scenarios.
- **Network management system:** Huawei iMaster NCE Campus is used to centrally deploy egress gateways, switches, and wireless devices in hotels, providing centralized management, version upgrade, service planning and deployment, network-wide quality visualization, and automatic fault analysis. In addition, it can also function as an authentication server to perform unified user access authentication and management. In addition to the locally deployed NCE platform, Huawei public cloud based O&M platform can also be used for management, reducing the one-off deployment cost of the management platform.

### Customer Benefits

Seamless Coverage

**Better Wi-Fi signal**  
Larger area Coverage and better endpoint signal strength focus

O&M with Zero site visits

**Remote intelligent O&M**  
AI-based user, network, and application experience assurance and fault self-healing

Excellent experience

**High-quality audio and video experience assurance**  
Centralized application identification and application-level QoS scheduling

Download the App



### Typical Configuration

No.	Product	Function Description	High performance	Cost-effective
1	Managed	Network management platform	iMaster NCE Campus	iMaster NCE Campus (On premise OR public cloud based)
2	Access Router	Branch gateway	NetEngine AR6710-L	NetEngine AR5710-S
3	Switch	Core switch	CloudEngine S8700-6	CloudEngine S5735-S-V2
4	Switch	Guest Room Access switch	CloudEngine S5735-L-V2	CloudEngine S5735-L-V2
5	Switch	Security/PMS access switch	CloudEngine S5735-L-V2	CloudEngine S3710-H
6	WAC	Wireless Access Controller	AirEngine 9700-M1	AC6508
7	AP	Settled AP in the lobby and conference room.	AirEngine 6776-56TP	AirEngine 5762-10
8	AP	Guest Room Panel AP	AirEngine 5762-17W	AirEngine 5761-11W

### Competitive highlights

**Better Wi-Fi signal coverage, seamless access experience**

- High 3G speed, 20% farther coverage, no blind spots in the room
- Signals are more focused with stronger strength.

**Accurate identification of short video applications and high-priority VIP assurance**

- No rate limit on the air interface, no lagging for key services in high-density areas of the lobby and conference hall
- Multi-AP coordination and automatic suppression of background traffic reduce delay by 56% to 66%.

**SD-Branch (LAN/WAN convergence)**

- Automatic device deployment with plug-and-play, 10 minutes/site
- Remote intelligent O&M, reducing the number of site visits by 80%



Download the App

## Success Stories

### Huawei Helps Macao Treasure Hotel Build a Seamless Wi-Fi Network to Improve Guest Experience



- Located opposite the Macao International Airport, the Treasure Hotel is ideally located and is a 1-minute walk from Macao Airport
- As a medieval retro-style hotel with 654 rooms, the 23-storey hotel has been committed to providing guests with a comfortable and convenient stay.

#### Traditional: Aging Wi-Fi device, difficult to locate faults, and poor user experience

##### Problem 1: Unstable Wi-Fi network connection



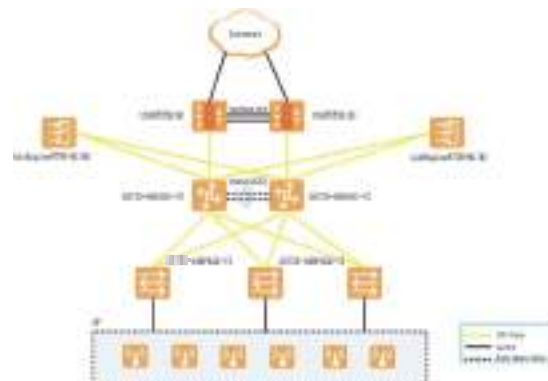
##### Problem 2: Only 60% of the network fault closure rate is reported.



#### Business Pain Points

- **Poor wireless signal planning:** The original APs are deployed in the corridor. The wireless signal attenuation is severe, and the access experience of guest is poor.
- **Old Wi-Fi equipment:** The hotel uses Wi-Fi 4/5 standard APs, which are relatively low in throughput performance and concurrent capacity.
- **Difficult fault locating:** The hotel network management system is outdated and cannot be monitored in real time, resulting in low fault locating efficiency.

#### Huawei: Hotel chain network, increasing the speed by four times



#### Solution Value

- **Professional network planning:** 3D simulation, simulated obstacle materials, and accurate planning of wireless signals
- **High-speed wireless:** High-performance AirEngine APs, built-in smart antennas, enabling signals to move with users and increasing concurrent bandwidth by 20%
- **Intelligent O&M:** iMaster NCE-Campus & CampusInsight, unified campus network management, control, and analysis, and real-time monitoring

Download the App



## High-Quality Retail Network Solution

### Background and Challenges

#### Rapid expansion of new stores

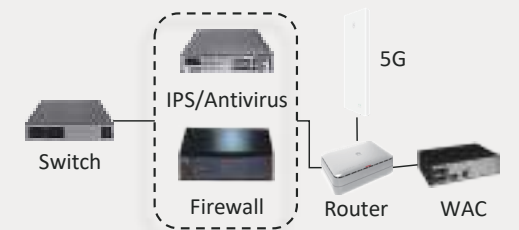
- To stay ahead in the market, new stores are opened in an average of 17 hours and also need to go online quickly.



300+ configurations,  
typically taking 2-3 days

#### Need to open stores at scale with lower network construction costs

- A new store network requires six types of devices: switch, IPS, firewall, 5G, router, and WAC.



Huge investments on  
diversified devices

#### More use of IoT for higher work efficiency

- Traditionally, paper price tags are replaced manually, which is time-consuming (each time: 4-8 hours) and error-prone, so electronic shelf label is urgently needed.



Separate deployment of  
multiple IoT networks

#### Quick stocktaking & transportation of commodities

- PDAs and AGVs become must-haves, urgently requiring better Wi-Fi support.

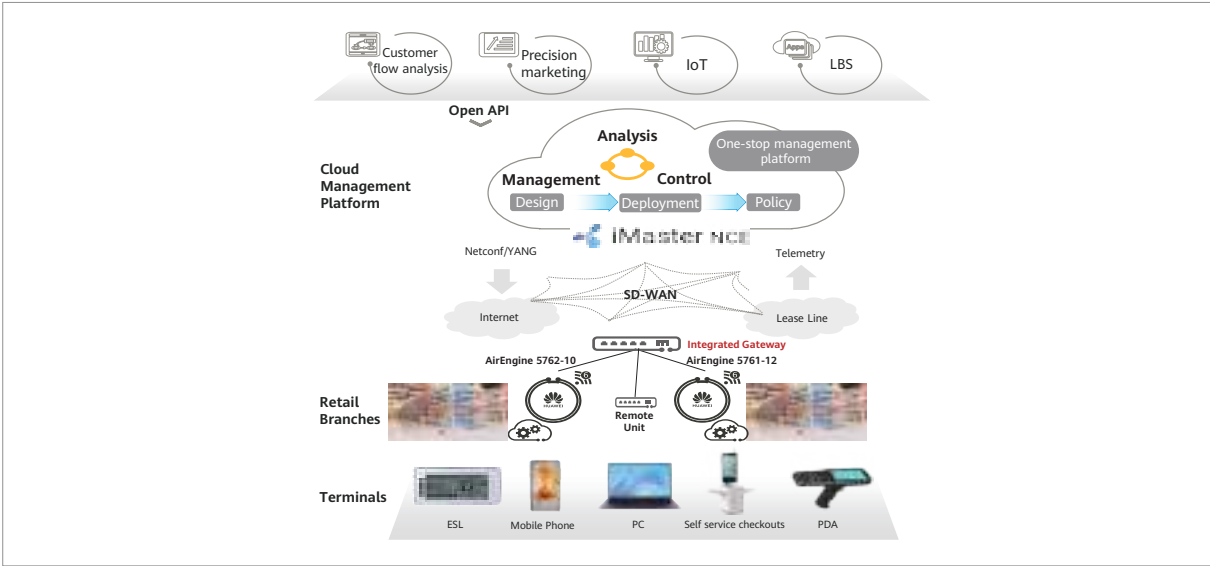


Frequent disconnection  
of AGVs/PDAs



Download the App

Solution Introduction



Customer Benefits

Rapid retail store expansion

- Template-based batch configuration by iMaster NCE
- Zero-touch provisioning (ZTP) for plug-and-play simplicity

1000 sites  
configured perday

6-in-1 simplified networking

- One device = Switch + IPS + Firewall + 5G + Router + WAC
- Reducing costs by 30%

1 device with 6 key  
capabilities

IoT for higher operational efficiency

- APs support RFID, Bluetooth, and ZigBee.
- AP containers facilitate open ecosystems and on-demand application loading.

Real-time price  
update with ESLs

Fast commodity stocktaking & transportation

- Lossless roaming, 40% ↑ higher efficiency of AGVs/PDAs
- Smart antenna, 20% ↑ signal coverage range in shelf and warehousing areas

Always-on AGVs/  
PDAs

Download the App



Typical Configuration

No.	Product	Functions	Models
1	NMS	Network management and control platform	iMaster NCE Campus (On premise OR public cloud based)
2	Integrated Gateway	Egress router with security function	NetEngine AR5710-S8P2X(POE) NetEngine AR5710-S8P2X-LTE4EA(4G) AR5710-S8T2X (Non POE) AR611-LTE4EA (small scale)
3	Switch	Access switch	CloudEngine S5735-L-V2
4		Remote access unit	CloudEngine S5731-L-RUA(8/16 ports)
5	WAC	Wi-Fi AP access controller	AC6508
6	AP	Standard Settled Wi-Fi AP	AirEngine 5762-10
7		IoT Wi-Fi AP	AirEngine 5761-12
8	Products from Huawei partners	Products from Huawei partners	USB/PCI-E based IOT expansion modules, terminals, and management software from 3rd party.

Competitive Advantages

- Wizard-based GUI, remote service provisioning in batches in multiple stores, and high efficiency
- 6-in-1 devices for simplified networking, reducing procurement costs by 30%.
- Good wireless signal coverage, easy IOT function expansion, supporting quick inventory and transportation of goods.

Success Stories

Retail Company Müller Deployed Wi-Fi in 900 stores

Inefficient Manual Price Label Management



- Paper labels need to be maintained periodically
- Manual price adjustment is slow and OPEX increases

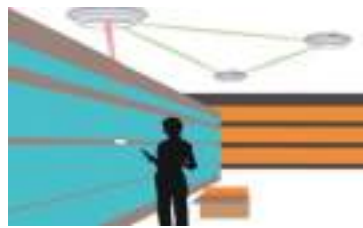
Müller Holding GmbH & Co. KG is represented in seven countries throughout Europe with more than 900 branches.





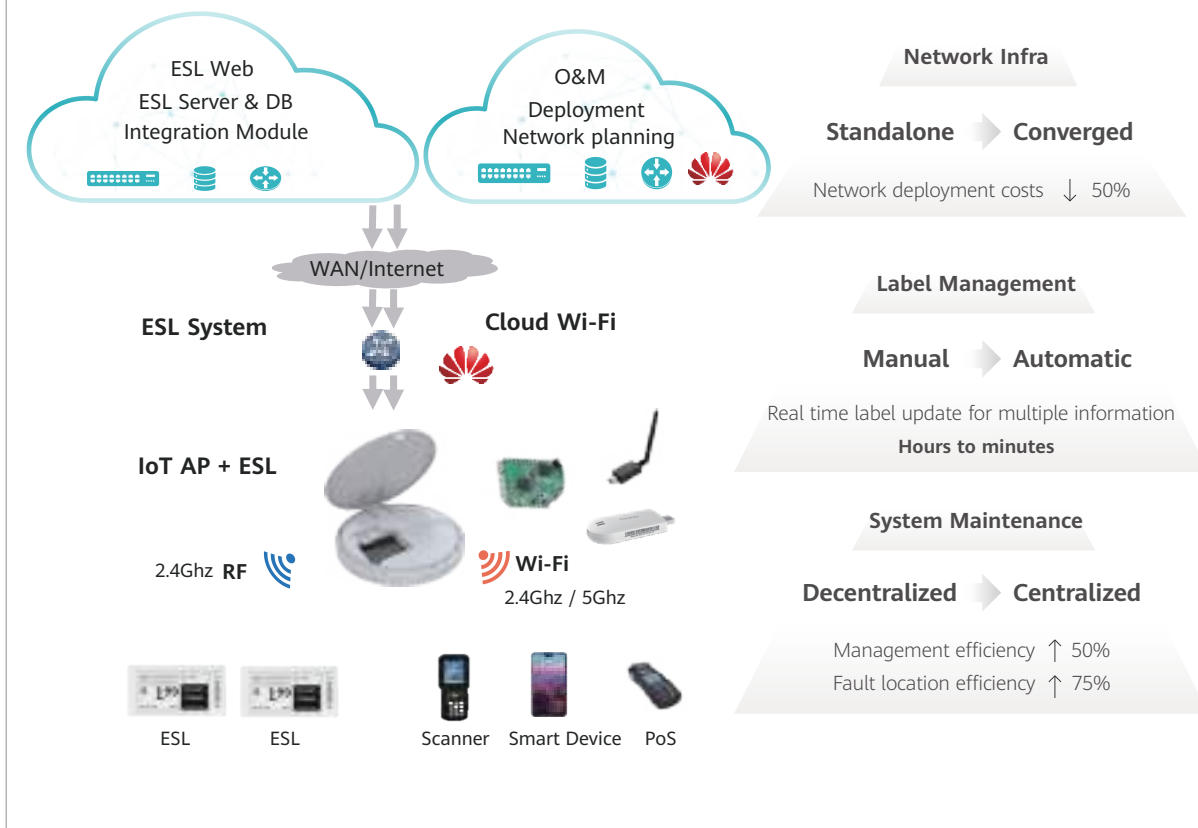
Download the App

### ESL dedicated network costs more CAPEX



As an IT manager in a retailer, it's a huge investment and workload to deploy and maintain both ESL and Wi-Fi network.

### Huawei Electrical Shelf Label Solution

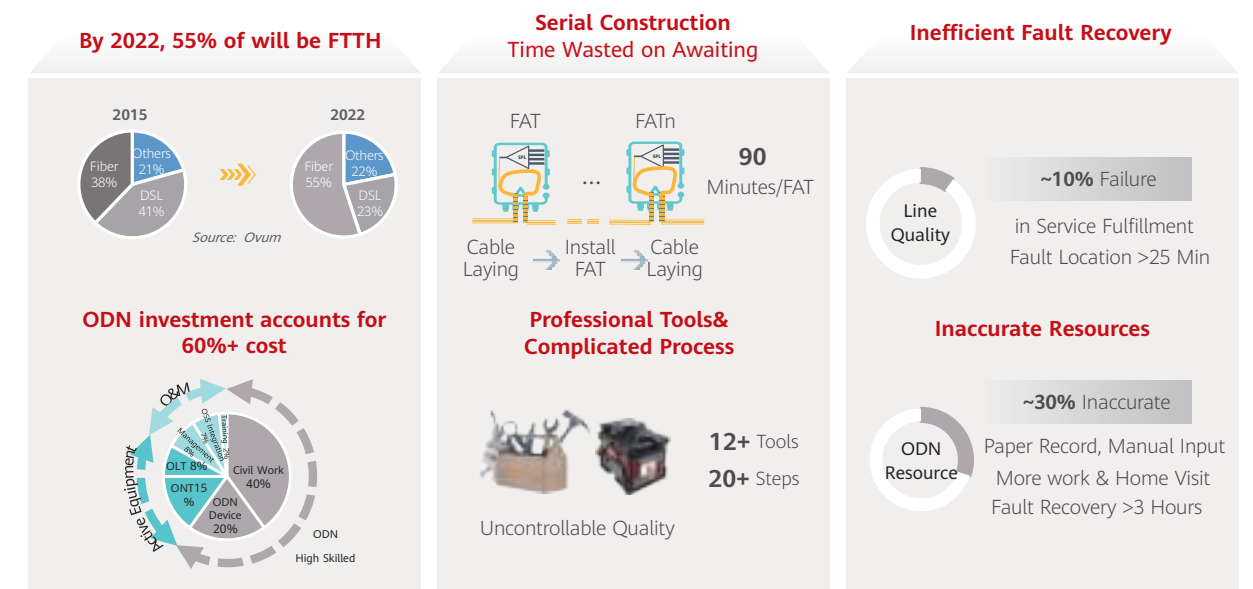


Download the App

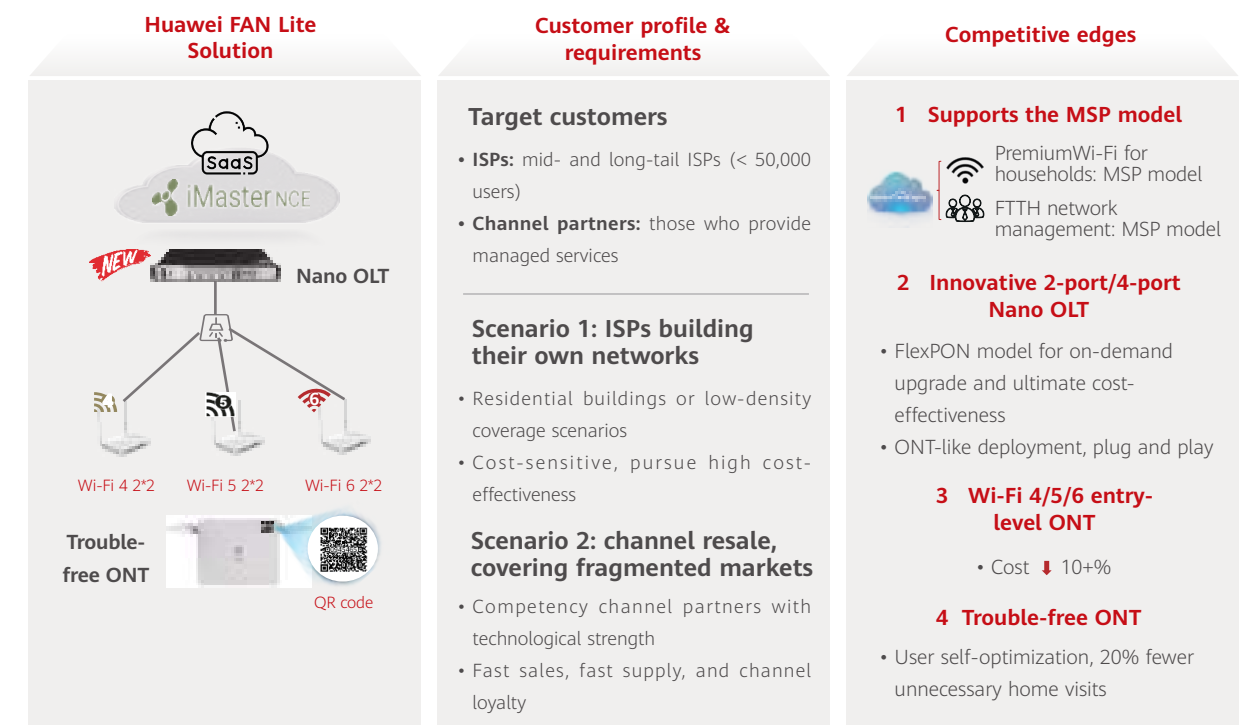


## FTTH Solution for SME

### Background and Challenges



### Solution Introduction





Customer Benefits

High performance and cost-effectiveness

Multi Capacity OLTs: 32 ports (X2), 16 ports, and 8 ports  
Huawei's first 2- or 4-port nano OLT, delivering ultimate cost-effectiveness

Easy to install

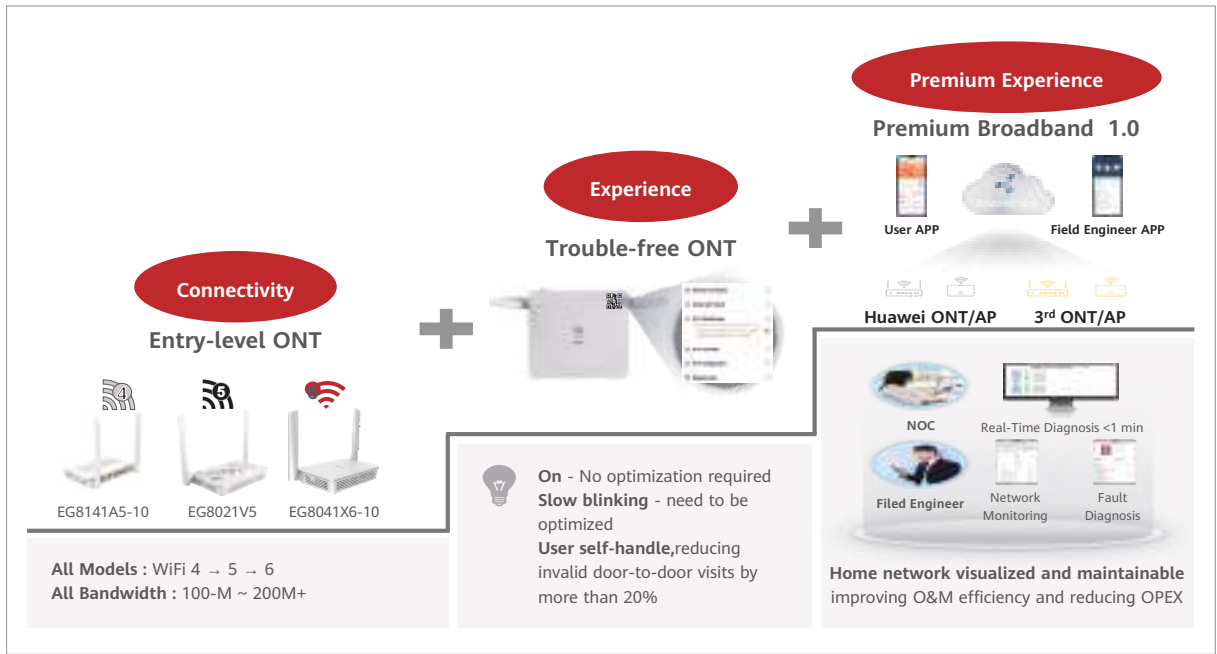
Nano OLT-like ONT deployment, plug-and-play  
The cloud management platform supports the ACS, fast service provisioning, and ONT plug-and-play.

Easy to use

First Trouble-Free ONT: User Self-Optimization

Solution Highlights

Home Network Proposal for different subscriber development phases



Product Introduction

	ONT Series			Edge ONT Series
Bridge	 EG8010Hv6-10: 1GE	 EG8040H6: 4GE	 EG8140H5: 4GE+1POTS	
Wi-Fi 5	 EG8021V5 2GE 11ac 2*2 + 11n 2*2	 EG8041V5 2GE+2FE 11ac 2*2 + 11n 2*2	 EG8145V5 1POTS+4GE 11ac 2*2 + 11n 2*2	 WA8021V5 3GE(WAN or LAN) 2x2 11n & 2x2 11ac
Wi-Fi 6	 EG8041X6-10 4GE11ax 2+2 dual band AX3000	 EG8145X6-10 1POTS+4GE+USB 11ax 2+2 dual band	 K562 3GE(WAN or LAN) 2x2 11ax & 2x2 11ac	 K562e-10 4GE(WAN or LAN) 2x2 11ax & 2x2 11ac

Success Stories

Operator A in Latam: DQ ODN Brings High Efficiency, Fast TTM & Cost Saving

**Target of Operator A**

350K lines HP coverage plan by the end of 2019

**Challenges**

- Huge Competitive Pressure** | Competitors quickly occupy the market by pre-connected solution
- Poor Construction Quality** | Limited skilled manpower lead to large link loss in previous project
- Low Efficiency for HC** | Long distance for drop segment (110m avg.)

**Solutions& Benefits**

**E2E plug and play by Huawei DQ ODN uneven solution**

- Splicing free
- 1 fiber for distribution
- Concurrent deployment

**2x construction efficiency**  
Low skilled, deploy increase to 40k /month

**Optimize the network design, shorten home connection distance**

110 m → ~50 m

**4x home entry efficiency**  
1 → 4 Home/Day/Person

**TTM** Before Now **30%**

**TCO** Before Now **25%**

By Dec. 2019, operator A has finished 350K ports' deployment, achieving full coverage in key areas, take up rate > 15%



# High-Quality MSP Cloud Managed Network Solution

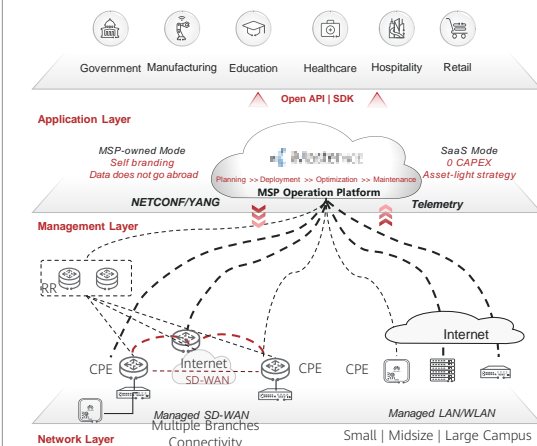
## Background and Challenges

Powered by the increasingly mature Software-Defined Networking (SDN) technology, network automation has become the best choice for large data centers. However, mand DCs of small- and medium-sized enterprises, such as small banks, supermarkets, and retail stores, with small equipment room, insufficient manpower and limited budget are facing the difficulties in SDN evolution. Huawei have launched the lightweight DCN solution, which features expandability, automation, simplification, and easy-maintenance.



## Solution Introduction

Huawei innovatively launched the cloud management platform of iMaster NCE-Campus, which provides "last-mile" guarantee and a feasible choice for MSPs to transform their business model and expand into the enterprise market. Huawei CloudCampus solution, which consists of three layers: multi-tenant network, cloud management platform, and value-added SaaS platform.



### Easy to sell

- MSP-owned Mode:** Protecting customer's data, self-branding and Self-pricing
- Public cloud mode:** on-demand subscription and quick service rollout
- Point License:** adapt to different devices, capital turnover rate increased by 12 times



### Easy to deliver

- Easy-branch:** Quick Configure small branches in batches, 5 minutes per site for simple networking
- MSP level/ Tenant level Template:** Batch replication and import reduces the time required for creating hierarchical templates and improves the efficiency by 80%



### Easy to grow

- Rich Offerings:** Managed Wi-Fi -> Wi-Fi + LAN+ WAN, Increase profit margin by 35% for new services
- Energy-saving:** 19% lower network-wide energy consumption

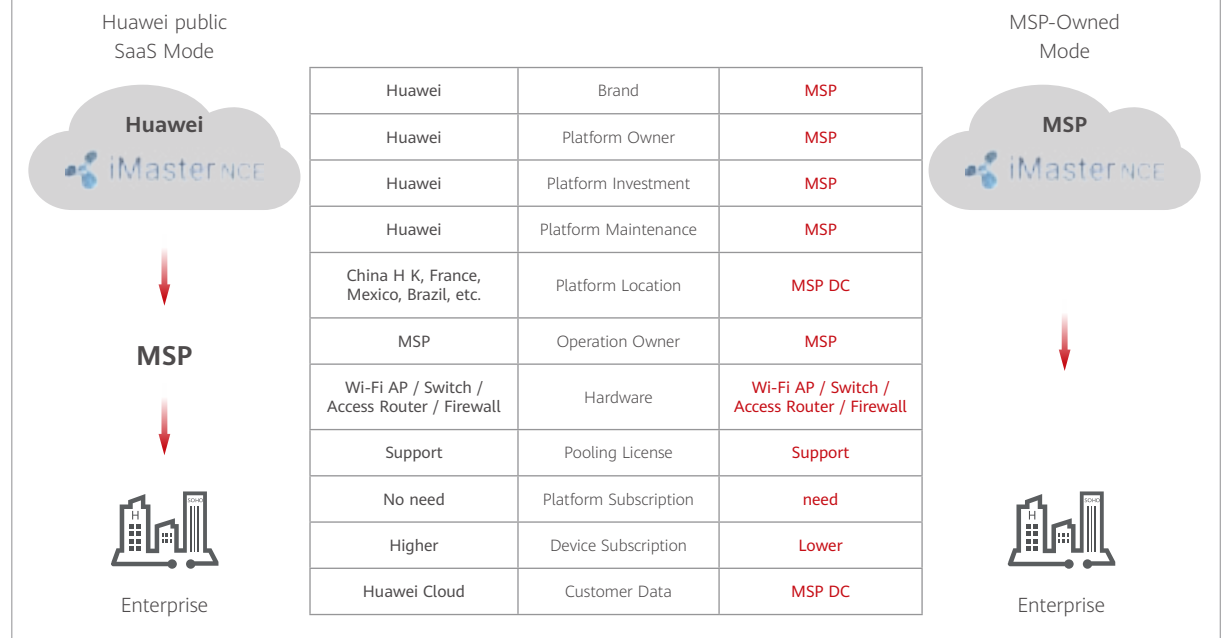


### Easy to maintain

- Digital map:** Network, services, and users information are visible in one map. Fault locating within minutes and proactive identification of 250+ faults
- MSP Dashboard:** View tenant and device information on one page, improving O&M efficiency by 10 times



Huawei Cloud Managed Network Solution supports Huawei public cloud management platform and MSP-built cloud management platform.



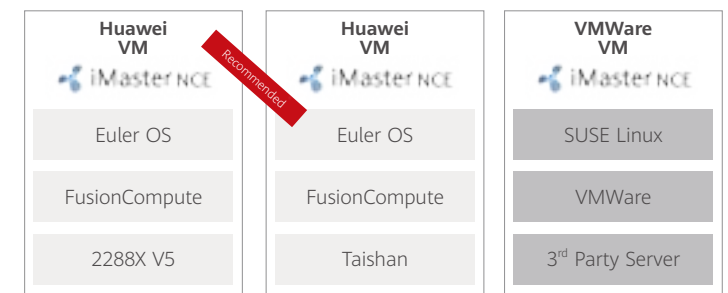
## Platform Components in the MSP-built Mode

Deployment Mode	Maximum number of managed NEs	initial investment	Advantages	Capacity Expansion
Minimum cluster (3 servers)	30, 000	3 servers	Low initial investment	Data can be migrated to 9 nodes. (Reinstall is required.)
Distributed cluster (6 nodes)	30, 000	3 servers Virtualization software	Moderate initial investment	Supports expansion to 9. (No Reinstall required)
Distributed cluster (9 nodes)	60, 000	5 servers Virtualization software	High initial investment	Data can be migrated to 17 nodes. (Reinstall required)
Distributed cluster (17 nodes)	200, 000	9 servers Virtualization software	Very high initial investment	The highest specification.

### Physical server deployment



### VM deployment





Customer Benefits

**Flexible investment portfolio**

The platform supports the SaaS asset-light operations and MSP-owned clouds mode, fully protecting investment.

**Logo**

MSPs themselves engage with customers and customize their brand logos to improve brand image for professional services

**Flexible license purchase**

License pooling, on-demand license subscription and allocation, providing greater

**Sale model transformation**

MSPs build and manage networks for their enterprise customers. As such, MSPs change from selling hardware devices to selling services, improving profit margin by 30%.

**Reduced O&M costs**

Intelligent O&M transforms passive response to proactive network optimization, intelligently identifying 85% of network risks.

**MSP Self-branding**

- MSPs can customize devices and platform logos. They can also customize the scope and price of service packages to gain more revenue.
- MSPs can deploy the platform in their own data centers to ensure enterprise data security.

**Point License Mode**

- The point license mode simplifies purchase and reduces initial capital investment.
- Easy management, reducing licenses from hundreds to just one
- On-demand license subscription and allocation to tenants, with licenses recyclable and having a grace period

**Network Digital Map**

- One-map display of application, terminal, and user information of tenants.
- One-second demarcation of network exceptions.
- One-click optimization for VIP users and audio & video services.

**Green Network**

- Multi-dimensional visibility into energy consumption
- Dynamic energy-saving window policy for Aps
- Automatic wakeup from hibernation for APs



Multiple Services' Support for MSPs

Diagram showing various services supported for MSPs: Toolkit & Resources, Professional Services, Lifecycle Management, Technical Assistance Center, Process Integration, Partner Training, Commercial Models, Go-To Market, and Partner Ecosystems.

<b>Toolkit &amp; resources:</b> guides, specifications, marketing materials, and partner programs	<b>TAC:</b> 24/7 assistance, expert advice, and issue resolution	<b>Commercial models:</b> business and price modeling, and SLA design services
<b>Professional services:</b> initial platform building and complex customer design	<b>Process integration:</b> API integration into leading CRM and NMC IT systems	<b>GTM:</b> Market Development Funding, templated propositions and consultancy
<b>Lifecycle management:</b> software maintenance, product roadmaps, upgrades, and patches	<b>Partner training:</b> sales and technical certification of employees	<b>Partner ecosystems:</b> over 1000 global and regional partners to support value-added services and vertical markets

MSP S Deliver Smart Network Services with CloudCampus

**Highlights**

**Managed service base** on the Huawei CloudCampus platform installed in MSP's NOC

**Managed service packages:** give customers a pick and mix proposition and tailoring propositions to their target vertical segments

**Operating cost:** is reduced by leveraging Huawei CloudCampus attributes while increasing SLA commitments

**Benefits**

Modern smart network

**Managed service packages**

	WiFi Access Point	Switch	Access Router	Firewall	Value-Added Service
Managed WiFi	✓	✓			option
Managed LAN		✓			option
Managed Router			✓		option
Managed Network	✓	✓	✓	✓	option

**Vertical Propositions**

5+%, 30+%, 4 months, 5, 30+%





Download the App

# FTTM Solution for Mining Network

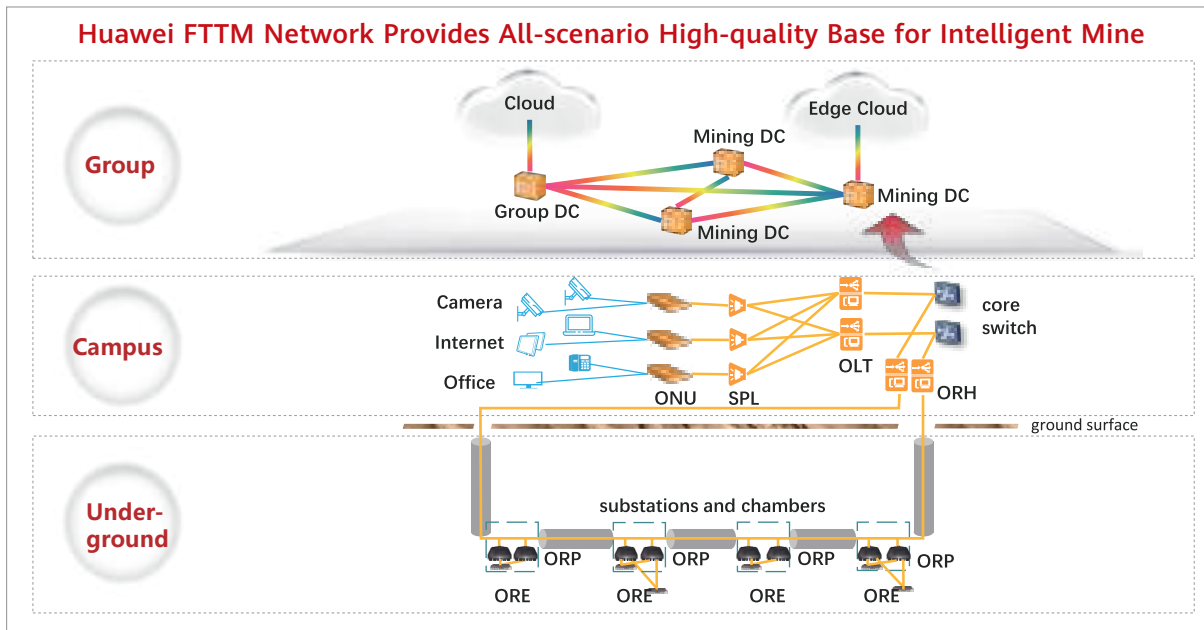
## Background and Challenges

Fewer and fewer workers

The workplace safety is not guaranteed

Low management efficiency

## Solution Introduction



## Customer Benefits

**Ultra-high Security Underground**

Intrinsic safety type ORE

"0" Explosion-proof box

**Ultra-high Service Reliability**

End to End Protection

**Ultra-high O&M Portability**

Fault demarcation in 2 seconds

Download the App



## Product Introduction

### Underground Scenario : ORH + ORP + ORE

ORH: EA5800 Series

ORP: SSC28 series

ORE: T863E-DE

### Campus Scenario : OLT + ODN + ONU

OLT: EA5800 Series

ODN

ONU

### Group Interconnection Scenario : E96 +E66

E9600 Series

E6600 Series

## Solution Highlights

**Group: OTN network**

- Multi-level hard pipe and ultra-large bandwidth
- Physical service isolation and 1+1 protection

**Campus: Campus network**

- Simplified architecture
- Easy Evolution: Smooth Capacity Expansion and Smooth Upgrade
- Intelligent O&M

**Underground: FTTM Network**

- Full safety equipment, 0 Explosion-proof box
- Visualized and manageable optical fibers
- Hard pipe isolation

## Success Stories

**Yongmei Chensilou Coal Mine Underground FTTM Industrial Optical Network**

**Challenges & requirements**

- High device failure rate:** difficult to meet the requirements of coal mine safety production.
- Difficult reconstruction :** Fiber splicing in the well brings security risks.
- Difficult O&M.**

**Solution and benefits**

- The fault rate decreases by 50%:** The passive ORP replaces the active aggregation switch, saving 40% of faulty nodes.
- The Pre-coupled fiber is easy to install and disassemble, reducing the skill requirements for underground workers, and changing maintenance from multiple persons to independent maintenance.
- The network maintenance efficiency is improved by 10 times.