



# Huawei Enterprise Service Catalogue



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# Preface

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An intelligent world where everything is sensed, connected, and intelligent is around the corner. For the enterprise business, Huawei adheres to the 'platform + AI + ecosystem' strategy. Together with our partners, we are delivering ubiquitous connectivity and pervasive intelligence to our government and enterprise customers. We are building a digital platform integrated with new ICT technologies such as cloud computing, AI, IoT, big data, integrated communications, video, and the geographic information system (GIS), to help our customers successfully go digital.

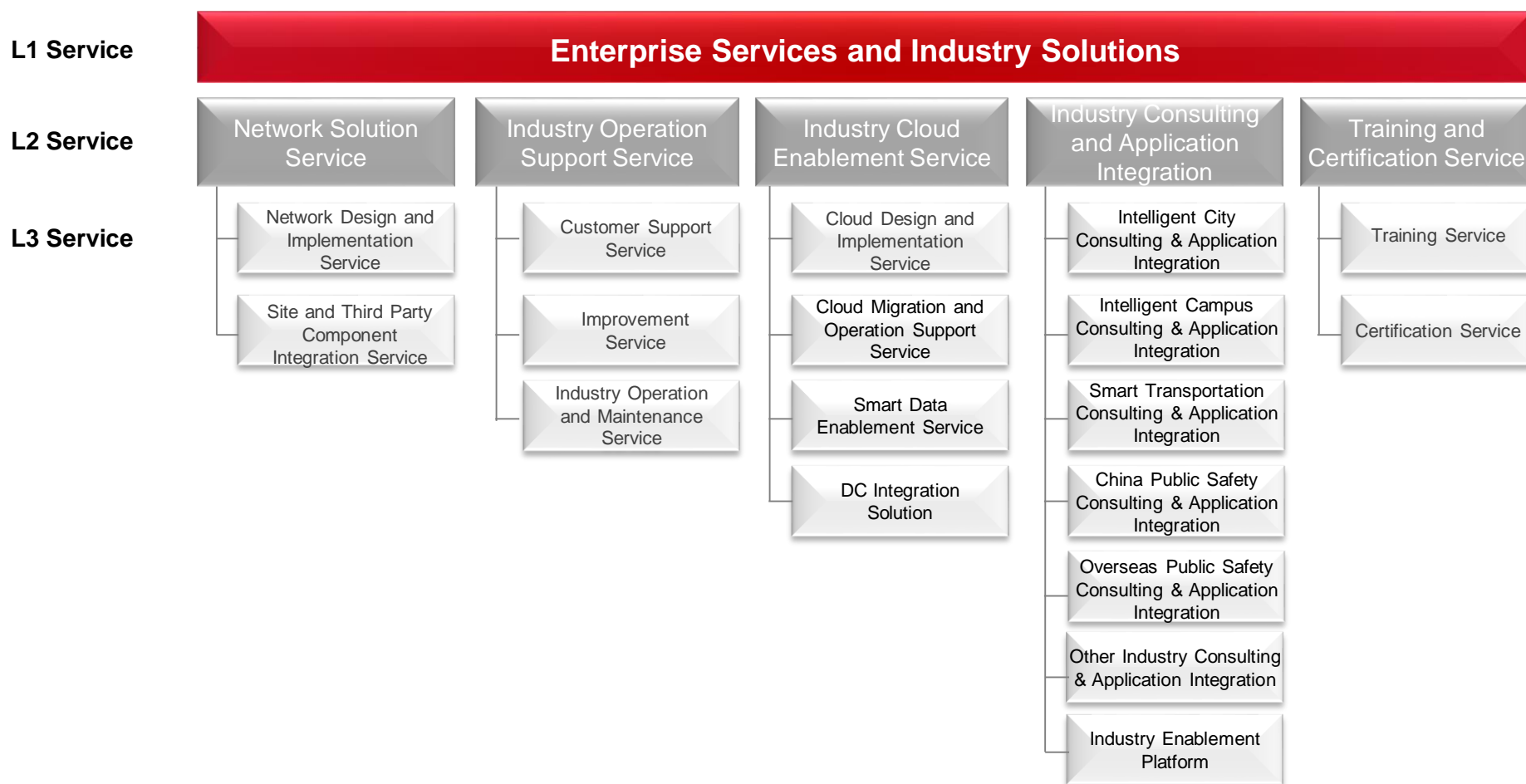
We are committed to providing consistent, high-quality services for our customers. We develop global service capabilities for industry customers, and build intelligent service platforms. Key areas of our investment include professional service solutions (including the industry cloud enablement, industry O&M support, and industry solution services) and a unified cloud-based tool platform. Our annual investment has grown by more than 40%.

In 2019-2020, adhering to the vision of 'Intelligent Services, Experience the Future', we will continue to build open and agile network architectures and fast service deployment capabilities, enrich the full lifecycle service solutions, and improve customer experience. Together with our global service partners, we provide flexible and reliable services that you can depend on. Huawei strives to become your most trusted partner and help you achieve greater business success.

Service Catalogue 2019-2020 introduces Huawei's service portfolio to help you better understand Huawei ICT services.



*Huawei Enterprise Service Catalogue 2019-2020* collects all the enterprise service products and solutions in sales. They are divided into the following five types according to the *2019 Enterprise Service and Industry Solution Portfolio V9R1*: Network Solution Service, Industry Operation Support Service, Industry Cloud Enablement Service, Industry Consulting and Application Integration and Training and Certification Service







# CHAPTER ONE

Network Solution Service

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Home



# Network Solution Service Portfolio

This is an ICT service solution provided for enterprises based on best practices in industries, as well as Huawei's comprehensive product lines and excellent partners. This solution includes the data communications, SDN planning and design, mobile network, transmission and access, and site integration services. It is committed to helping enterprise customers build a robust and efficient ICT architecture and facilitate their business transformation and success.

L2 Service

## Network Solution Service

### Network Design and Implementation Service

WAN/Campus Data Communication  
Planning and Design Service \*

Mobile Network Planning and Design  
Service \*

Enterprise Transmission & Access  
Network Planning and Design Service

SDN Network Planning and Design  
Service \*

Powered Implementation Service

WAN/Campus Data Communication  
Implementation Service \*

Mobile Network Implementation  
Service

Enterprise Transmission & Access  
Network Implementation Service

SDN Network Implementation  
Service \*

### Site and Third Party Component Integration Service

Site Integration Service

Industry Facility Service

Third-Party Component Service

\* Additional information is  
included in this catalogue.



# 1.1 Network Design and Implementation Service

## Introduction

Huawei provides professional and comprehensive planning, design, and implementation services to help customers implement the construction, upgrade, and expansion of ICT architecture in a fast, smooth, and cost-effective way. Huawei helps customers quickly install devices, and design and deploy solutions relying on the comprehensive technical advantages, rich project management experience, and best practices.

## Network Design and Implementation Service

### WAN/Campus Data Communication Planning, Design, and Implementation Service\*

- IP network
- WLAN

### Mobile Network Planning, Design, and Implementation Service\*

- GSM-R
- eLTE

### Enterprise Transmission & Access Network Planning, Design, and Implementation Service

- WDM
- MSTP

### SDN Network Planning, Design, and Implementation Service\*

- SDN

### Powered Implementation Service

- IP network
- eLTE
- WDM
- SDN

\* Additional information is included in this catalogue.

## Features

Standardized implementation process, which helps control project implementation risks and implements quick commercial rollout

Verifiable implementation solutions, which ensure secure and stable service development, migration, and expansion

Seamless integration of the maintenance requirements during the solution implementation, which enhances later O&M efficiency and quality

## Customer Benefits

Optimal customer experience: The rigorous solution test and verification processes ensure smooth business transition and stable operation, delivering optimal user experience.

Minimized risks and rapid commercial rollout: Dedicated methods and tools are used in project implementation and management, enabling fast commercial rollout and minimizing implementation risks.

Reduced TCO and business success assurance: The optimized deployment solution greatly reduces the deployment time and cost, helping customers achieve financial business success.



# 1.1.1 WAN/Campus Data Communication Planning and Design Service

## Introduction

The WAN/Campus Data Communication Planning and Design Service can meet the requirements of enterprise customers for constructing networks of different layers. Based on the theoretical models of the TOGAF ADM methodology and industry best practices, this service helps customers develop their businesses, optimize processes, and reduce costs.

### WAN/Campus Data Communication Planning and Design Service



## Features

**The Huawei WAN/Campus Data Communication Planning and Design Service provides methodologies, tools, and capabilities for enterprises, helping enterprises achieve their business or IT strategies and goals. The service content includes:**

- Develop a target network architecture scheme that meets business requirements.
- Develop an evolvable target network design scheme.
- Develop a plan for migrating the current network to the target network.
- Ensure smooth network migration without impacting service operation.

## Customer Benefits

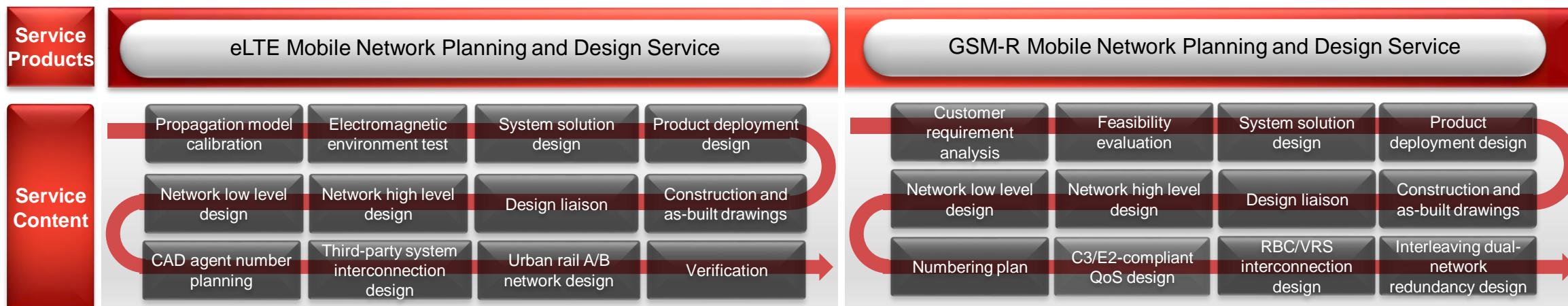
- Improves the scalability, flexibility, and reliability of the target network architecture through planning and design to satisfy the evolving needs of the business/application.
- Reduces the O&M difficulties and risks of the customer's target network, and improves the availability, scalability, security, and manageability of the target network.
- Reduces network operation costs through the effective network management service.
- Provides a medium- or long-term evolution roadmap for customers' networks to ensure successful implementation.



## 1.1.2 Mobile Network Planning and Design Service

### Introduction

Featuring high security, reliability, low cost, and easy maintenance, the Mobile Network Planning and Design Service designs networking schemes, resource allocation schemes, and interface transmission capabilities for base station controllers, base stations, and mobile network management systems (NMSs), meeting customers' requirements on voice, data, and signaling QoS and security.



### Features

- ❑ High-security and high-reliability design: provide co-site and interweaving dual-network redundancy backup, meeting the requirements based on C3/E2 standards.
- ❑ Third-party system interconnection design: Dispatcher/VRS/RBC/PBX/IPBX system interconnection design.
- ❑ Professional tools/Expert support: RND design and U-NET planning to ensure precise network planning and 100+ experts specialized in railway industry network characteristics to ensure network planning reasonability.

### Customer Benefits

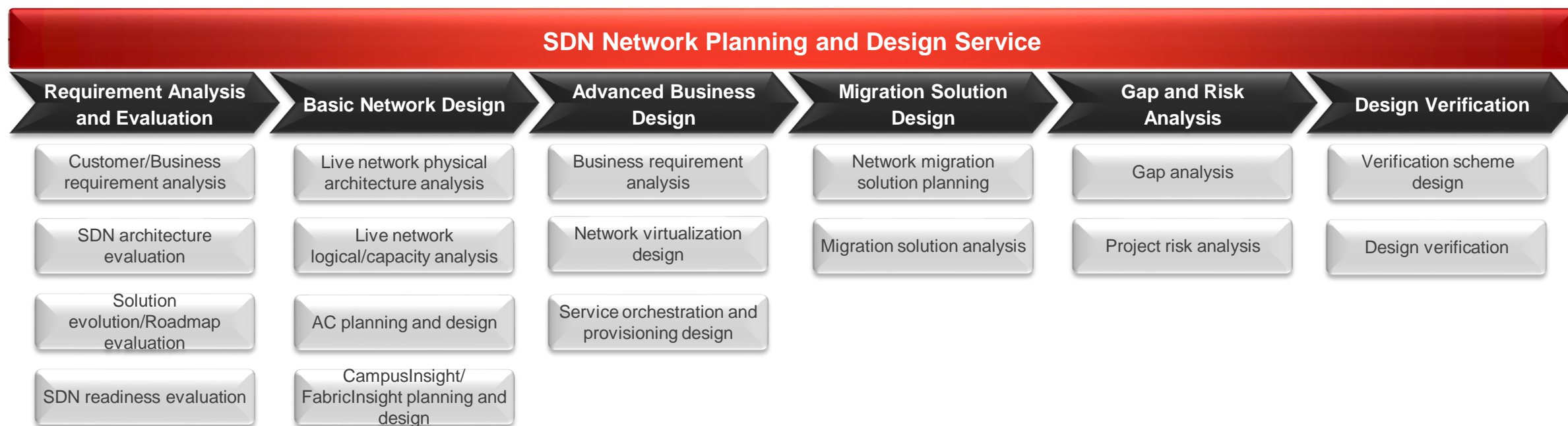
- ❑ Reasonable networking solutions and comprehensive data planning to improve system reliability
- ❑ Improves the utilization of transmission resources through rational interfaces design.
- ❑ Fully considers the needs of disaster recovery and backup to ensure the mobile network device security.



## 1.1.3 SDN Network Planning and Design Service

### Introduction

The SDN Network Planning and Design Service is designed for data centers (DCs), WANs, and campus networks. It provides an underlay network applicable to all business scenarios, ensuring excellent performance of the overlay network and business.



### Features

- Optimized backbone network architecture, DCs decoupled from WANs, and on-demand network construction
- WAN virtualization, enabling one physical network to carry multiple services

### Customer Benefits

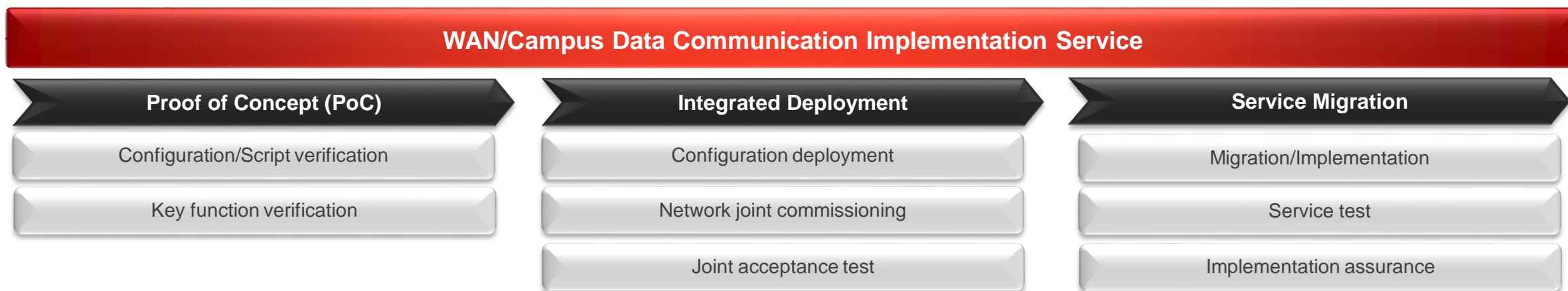
- Automatic service provisioning, higher efficiency, and quick service deployment
- Simplified O&M management and on-demand automatic service provisioning



## 1.1.4 WAN/Campus Data Communication Implementation Service

### Introduction

The WAN/Campus Data Communication Implementation Service aims to ensure high-quality project delivery and quick service rollout during network deployment for enterprises.



### Features

- Implementation design: Analyze capacity, security protection, and QoS requirements, and prepare a tailored implementation plan.
- Review and verification: The expert team reviews and verifies the implementation plan to ensure the plan validity and feasibility.
- Hardware and software installation: Install the hardware and software and load the basic device configurations.

### Customer Benefits

- Customized tools and expert support, ensuring smooth and secure service migration
- Comprehensive multi-product remote labs, providing verification test services to minimize implementation risks



# 1.1.5 SDN Network Implementation Service

## Introduction

Relying on extensive project management experience, excellent expert teams, and cutting-edge tools and processes, Huawei provides the SDN Network Implementation Service to ensure the compatibility with customers' legacy platforms and devices and meet customers' business requirements.

### SDN Network Implementation Service

#### SDN Service Integration Implementation

Basic DC network implementation solution design

Advanced SDN service implementation solution design

Advanced SDN service implementation solution deployment

#### SDN Service Integration Verification

Advanced SDN service test solution design

Advanced SDN service solution integration verification

Advanced SDN service provisioning verification

#### Service Migration

SDN solution evolution and service migration solution design

SDN solution service migration implementation

SDN solution service migration assurance

SDN solution verification and handover

## Features

- Abundant successful experience: industry association leader, participating in and leading standards formulation, Internet and finance joint innovation, and industry best practice replication
- Reduced TTM: standard delivery process and powerful integration verification labs
- Smooth service migration: multi-dimensional service migration assurance and support platform

## Customer Benefits

- Implements rapid service rollout and automatic service and network deployment.
- Implements E2E service and network management and control.



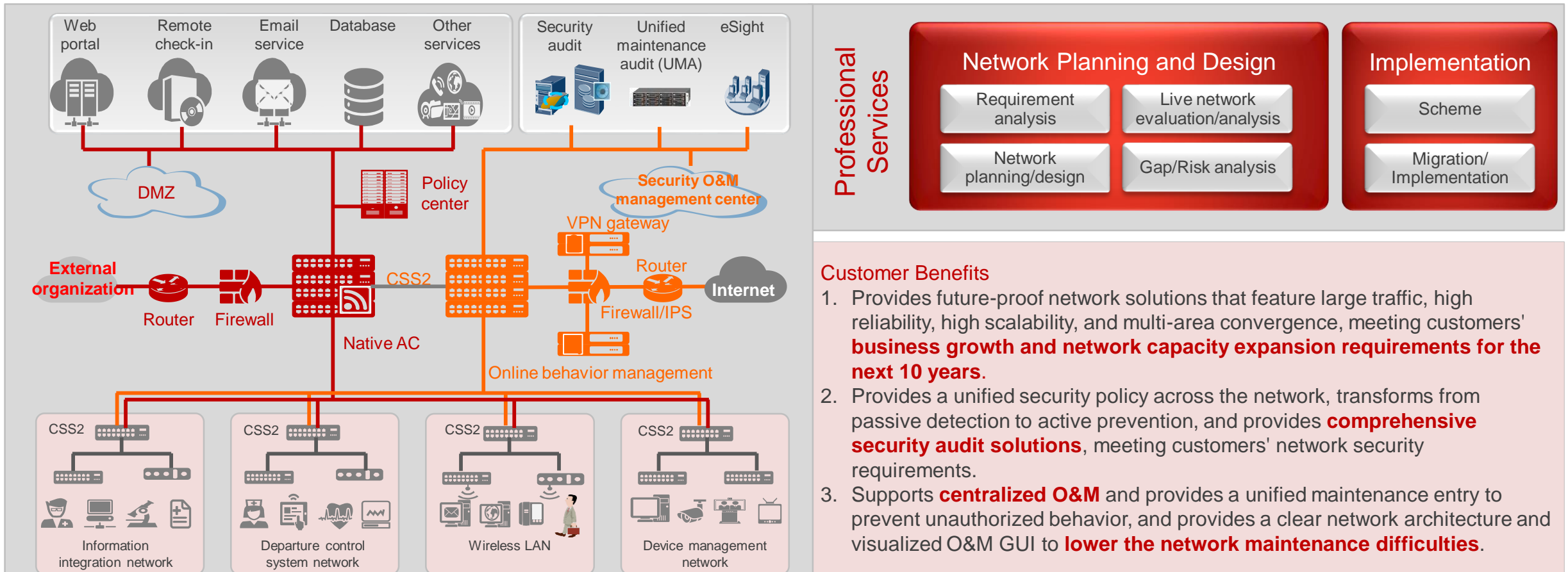
# Success Story 1: XZ Airport Campus Network

## Challenges

The new airport network features multi-service-area convergence. For a long time, the civil aviation design institute is not equipped with the large-scale converged network design capability. (The institute focuses on the design of airport operation systems.)

The new airport network must meet the throughput requirements of 30 million passengers per year in the future, posing higher requirements on the network capacity, reliability, and security.

The growing network scale and multi-product convergence pose severe challenges to the O&M department.





# Success Story 2: Mobile Network for the Winter Olympics in Country R

## Challenges

- **High security requirements:** Requirements of ETCS L2 standards must be met. The network must support trains running at high speeds up to 400 km/h.
- **Short construction period:** The rail line must open before the Winter Olympics.

## Huawei Planning and Design Service

- **Interleaving dual-network redundancy design:** Based on the ETCS L2 standard and train control service bearing requirements, the MSC dual-homing and BSC geographical disaster redundancy solution was designed in detail to improve the network reliability and service continuity.
- **Integration design verification:** Before the on-site delivery, the interoperability and on-site deployment of the GSM-R network, vehicle-mounted terminals, dispatching system, and other dedicated systems were fully verified beforehand. This can reduce the technical risks of on-site implementation, shorten the duration of on-site joint network commissioning and testing, and meet fast delivery requirements.

## Customer Benefits

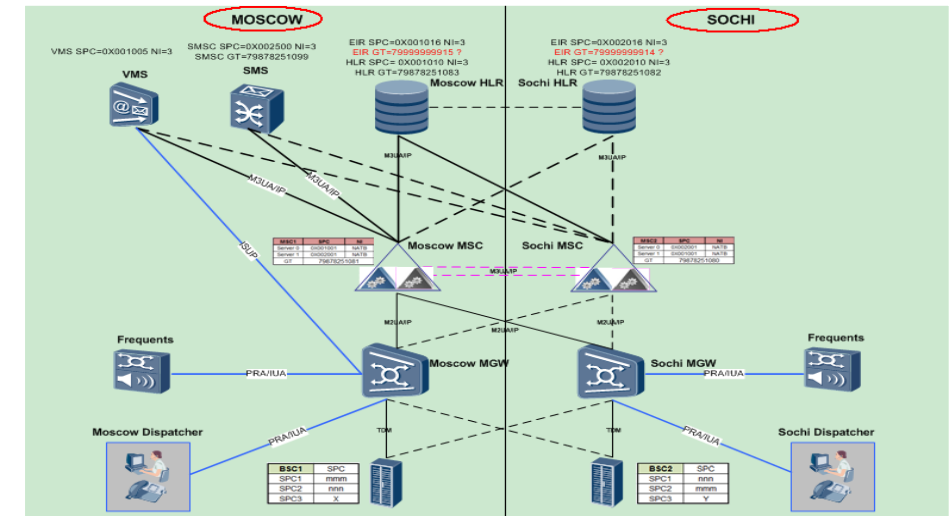
- High-standard design verification service greatly shortens the delivery period. The rail line can serve the Winter Olympics as scheduled.
- Full-NE redundancy design ensures better wireless network quality and higher reliability in complex environments.



Assurance for the Winter Olympics



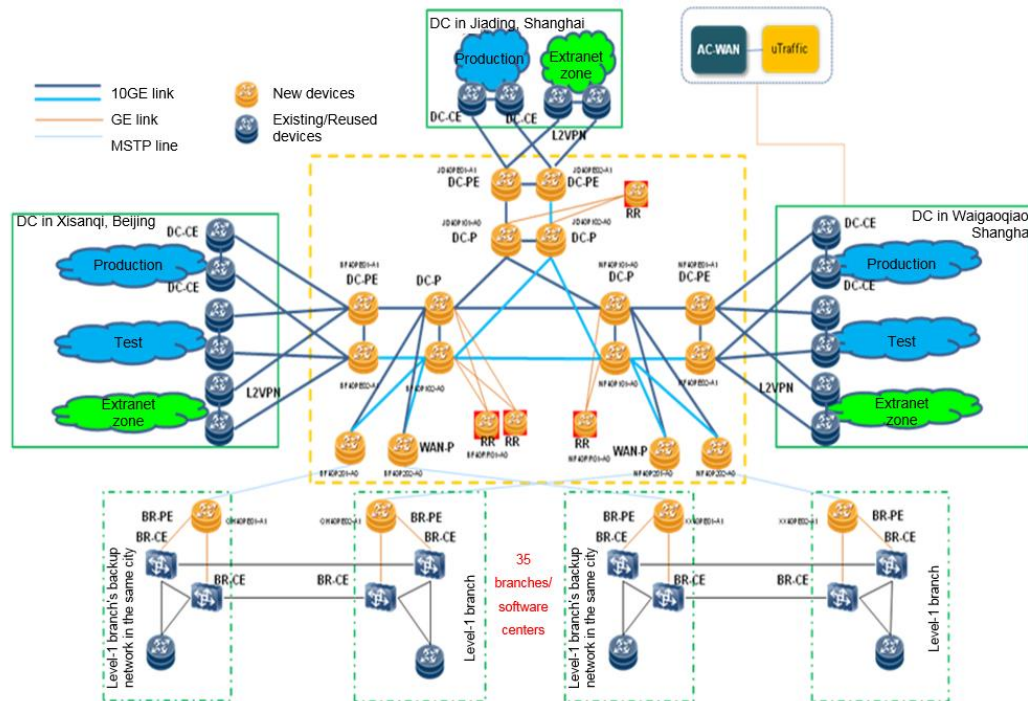
A maximum train speed of 400 km/h





# Success Story 3: WAN SDN for Bank GS

Bank GS is a super-large state-owned bank in China. It operates in more than 50 countries across six continents. It owns more than 21,000 institutions in China and more than 100 institutions outside China. Against the backdrop of globalization, the traditional WAN architecture cannot meet the bank's rapid development requirements. Uneven resource utilization and slow deployment of new services severely restrict the expansion of its global business.



## Challenges

1. IT hosting cannot quickly integrate or carry related services in the context of comprehensive business development and internationalization.
2. Traffic management and scheduling policies based on traditional routing are not flexible enough to implement dynamic network optimization.
3. WAN links cannot be detected, and refined traffic monitoring methods are unavailable.

## Planning and Design Service

1. Two-phase evolution solution: phase-1 underlay reconstruction solution, and phase-2 overlay deployment solution
2. Design of a service orchestration model based on the deep understanding of the customer's business
3. Evolution solution verification, ensuring smooth network evolution
4. Solution deployment implementation service

## Customer Benefits

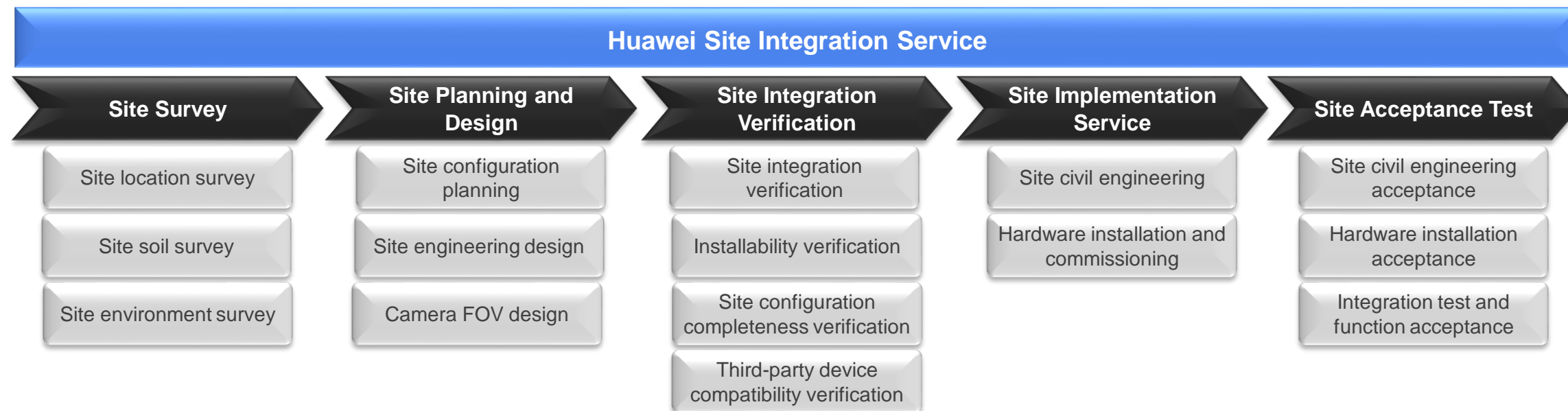
1. WAN virtualization, enabling one physical network to carry multiple services
2. Optimized backbone network architecture, DCs decoupled from WANs, and on-demand network construction
3. Transformation from WANs to SDNs, implementing intelligent scheduling of application traffic on WANs



## 1.2 Site and Third Party Component Integration Service: Site Service

### Introduction

The Site Service is oriented to the IVS video sites, ITS road sites, and wireless site infrastructure of the Safe City integration solution. It provides E2E services from design to verification, civil engineering implementation, device installation and commissioning, and site acceptance test.



### Features

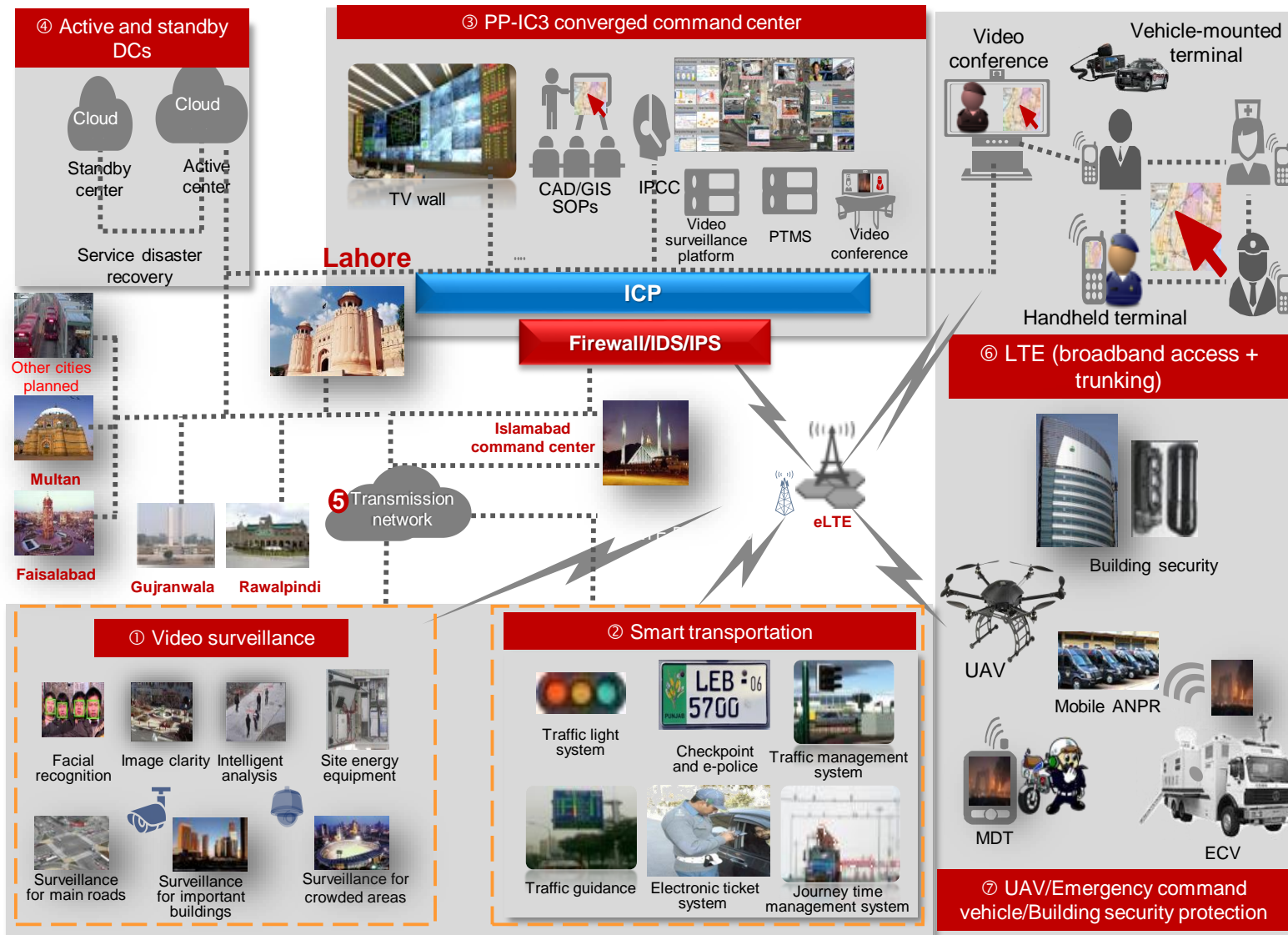
- **Professionalism:** standardized site design and integration verification to ensure rapid and smooth deployment of site solutions
- **Efficiency:** efficient and low-cost delivery through standardized implementation and operation procedures
- **Reliability:** site quality ensured by site design and construction in compliance with industry standards

### Customer Benefits

- Standard site design, providing high-quality and low-cost services to help customers accelerate deployment and rollout
- Standard implementation processes and procedures, helping customers achieve easy O&M and reduce OPEX



# Success Story: Site Standardization for Project V in Country P



## Challenges

- Complex solution: 8 subsystems, 25+ applications, and interconnections among 20+ internal and external subsystems/modules
- Large scale: 1700+ IVS sites, 300+ ITS sites, and 1500+ kilometers of optical cables
- Short delivery time: rollout within 12 months

## Huawei's Site Service

- Standardized site configuration
- Standardized pole body and engineering implementation design
- Standardized construction process and standard operating procedure (SOP)
- Intelligent tools

## Customer Benefits

- Rapid site installation, reducing installation time by 50% and lowering the CAPEX
- Standard solution, reducing the fault rate by 90% and effectively lowering the OPEX



# 1.2 Site and Third Party Component Integration Service: Third-Party Component

## Introduction

The devices and services provided by third-party partners for Huawei's overall solutions include hardware, software, services, and integration solutions.

### Third-Party Components

Converged Command	Intelligent Surveillance	Road Safety	Fully-connected Grid	Digital Communications		O&M Platform
<ul style="list-style-type: none"><li>• CAD</li><li>• Video wall</li></ul>	<ul style="list-style-type: none"><li>• Intelligent video analysis</li><li>• Special camera</li></ul>	<ul style="list-style-type: none"><li>• Intelligent transportation system (ITS)</li></ul>	<ul style="list-style-type: none"><li>• Metering cabinet</li><li>• Electricity meter box</li></ul>	<ul style="list-style-type: none"><li>• Railway dispatching system</li><li>• PIS</li><li>• Public announcement</li><li>• Clock</li><li>• Vehicle-mounted terminal (railway)</li></ul>	<ul style="list-style-type: none"><li>• Recording system</li><li>• Handheld terminal (OPS)</li><li>• SIM card</li><li>• Trackside phone</li></ul>	<ul style="list-style-type: none"><li>• CMDB</li><li>• ITSM</li><li>• Video quality analysis</li><li>• Device status monitoring</li><li>• Alarm analysis</li></ul>

## Features

- Integrates multi-vendor products and systems to present overall solutions to customers.
- Achieves multi-product and multi-system integration, as well as reliability and stability between systems after full integration verification.
- The ecosystem is large, covering all aspects of public safety, power IoT, rail transportation, and intelligent O&M.

## Customer Benefits

- Provides professional and comprehensive systems to support rapid service rollout.
- The customer only needs to communicate with one solution provider, reducing communication time and O&M costs.





# CHAPTER TWO

Industry Operation Support Service

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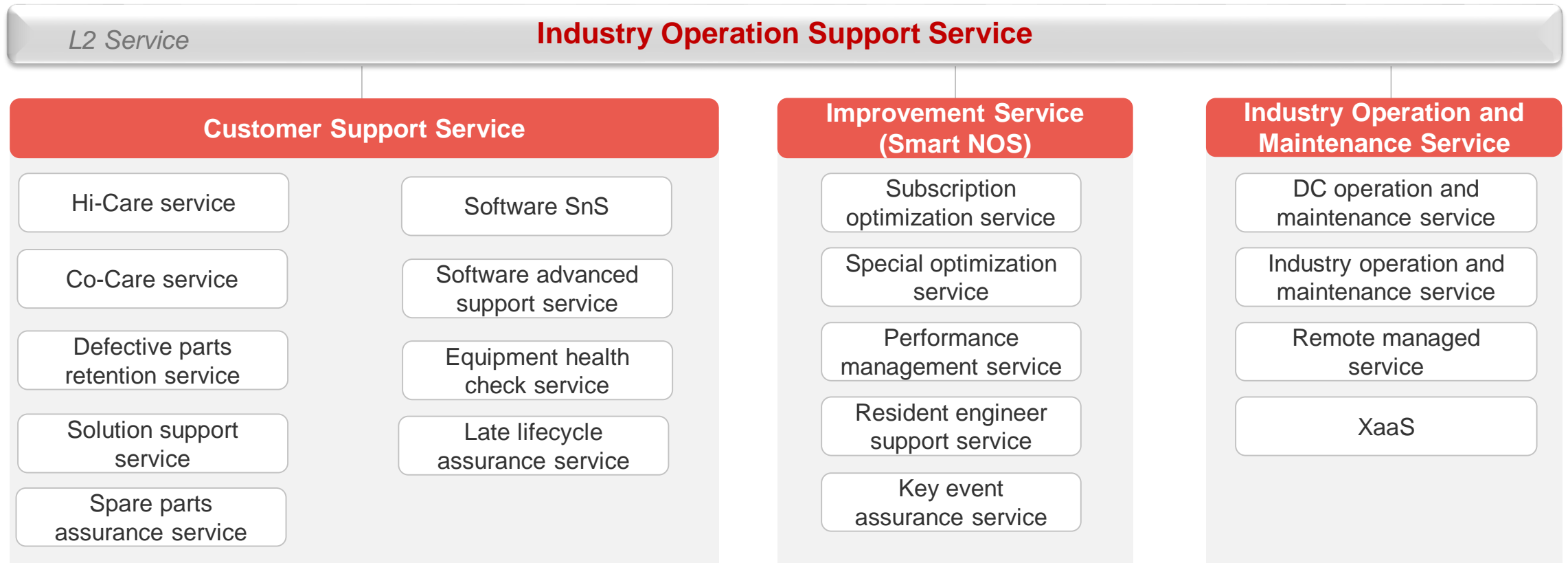


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# Industry Operation Support Service Portfolio

Relying on Huawei's over 20 years' experience in ICT O&M, the Industry Operation Support Service provides a full range of professional O&M services for customers' ICT infrastructure, including product and solution technical support, network optimization and performance management, and E2E O&M management, meeting customers' O&M requirements in different phases of the ICT infrastructure lifecycle. This can ensure that customers' ICT systems are in the best state, and facilitate customers' business innovation and digital transformation.



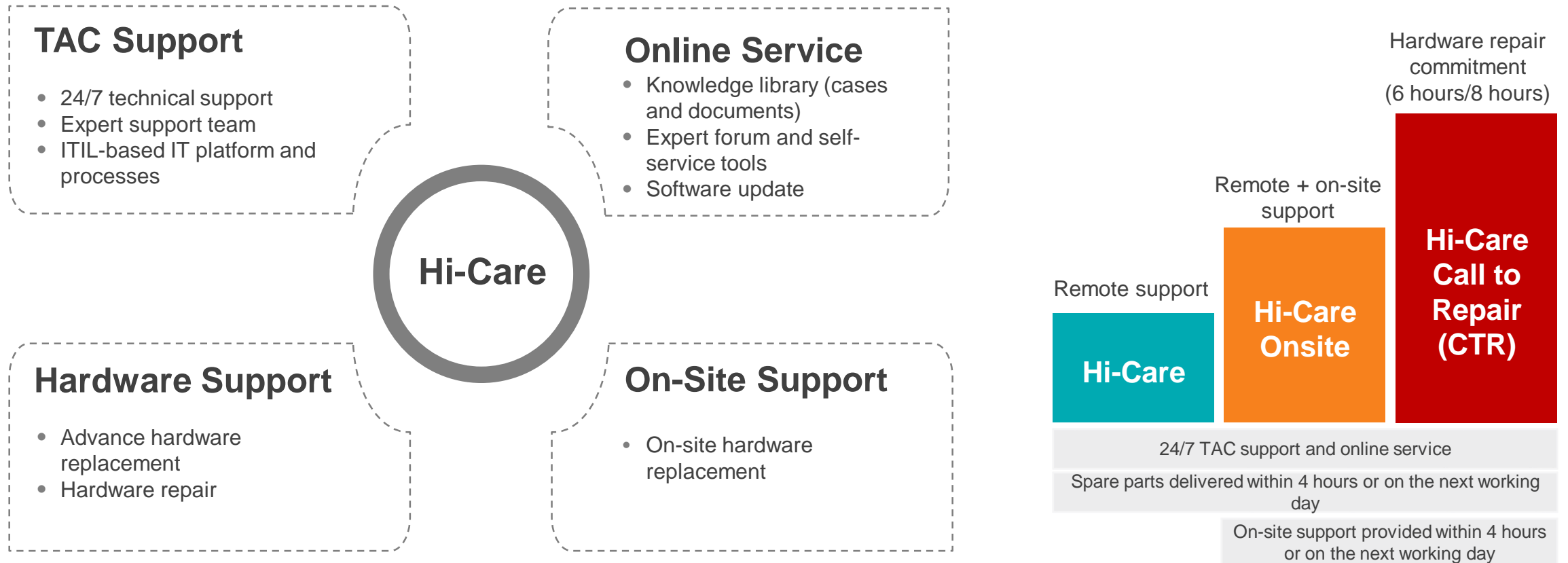


## 2.1 Customer Support Service

Service Levels	Service Products			Service Scenarios
 Special services	Health check service	Spare parts assurance service	Late lifecycle assurance service	<b>Assurance:</b> assurance during service rollout, major holidays, sport events, and so on
 Solution	Solution support service			<b>Unified technical support for multi-product and multi-vendor scenarios:</b> Safe City, electric power, transportation...
 Software	Software subscription and support (SnS)	Software advanced support service		<b>Technical support for independent software:</b> cloud computing, big data, SDN...
 Device	Hi-Care	Co-Care		<b>Technical support for a single device:</b> storage device, server, router, switch...
Provide flexible service portfolios based on customer requirements, helping customers achieve business success.				



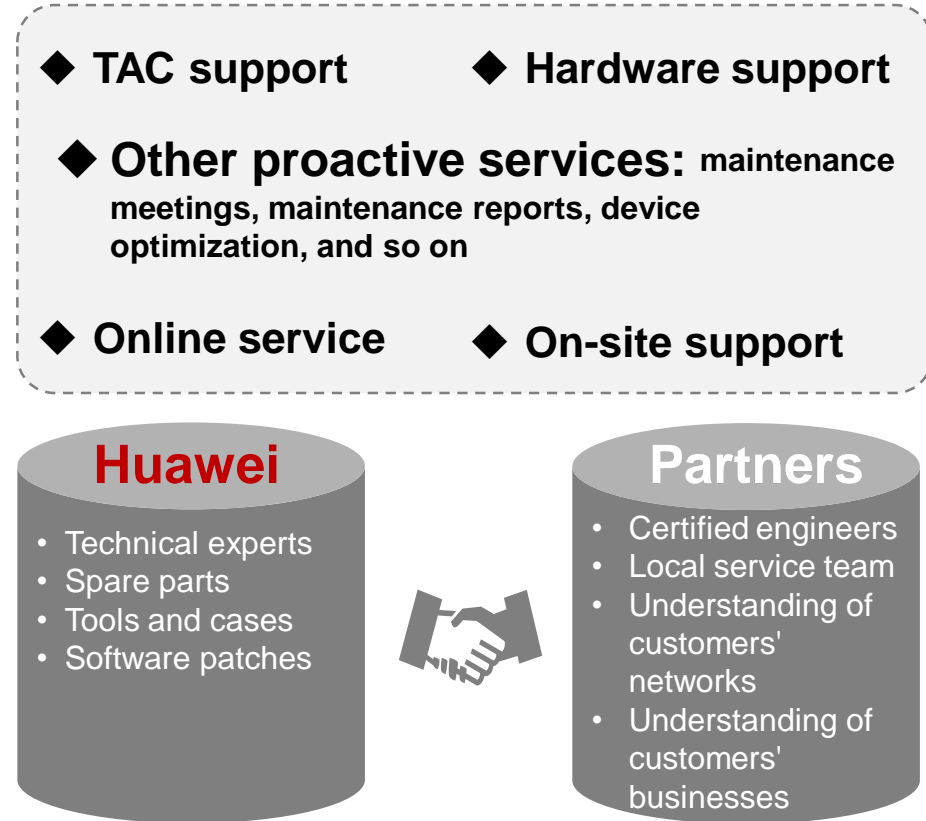
## 2.1.1 Hi-Care Service



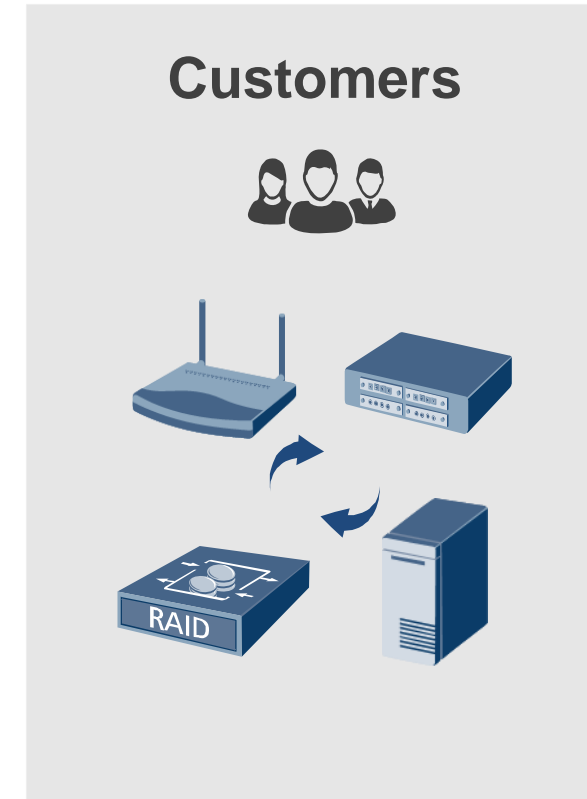
**Standard Huawei-branded support service, satisfying your diversified requirements**



## 2.1.2 Co-Care Service



**Personalized  
support  
service**



**Huawei collaborates with industry-leading partners to provide customized support services.**



## 2.1.3 Software SnS and Advanced Support Service

### Customer Benefits

- On-demand procurement, enabling a **simpler** transaction model
- Upgrade at any time, enabling **faster** service rollout
- Expert support, enabling **more stable** software running

### Software advanced support (optional)

Software on-site emergency support

Software version upgrade support

Root cause analysis report

### Software SnS (Basic Service)



#### TAC Support

- 24/7 services
- E2E technical support
- Security assurance



#### Online Support

- Case sharing
- Technical forum
- Multimedia training



#### Software Update and Upgrade

- New functions and technologies
- Enhanced stability and running efficiency

Enhancing software running efficiency and stability



## 2.1.4 Solution Support Service



### Unified interface and management

Unified interface: Huawei works with third-party vendors to resolve issues and meet customers' SLA requirements.



### Quick response

Customer issues are directly escalated to the dedicated solution support team for handling, shortening the response time in the SLA to 15 minutes.



### One-stop quick demarcating

The solution-level maintenance expert team, maintenance process, and platform tools help quickly demarcate cross-product issues in a one-stop manner.



### Third-party spare parts service

Align capabilities of the third-party spare parts service with customers' high SLA requirements for spare parts.

## Customer Benefits

### Focus on core businesses

Huawei's solution support teams handle customer's issues so that core businesses can continue without interruptions.

### Reduce costs

Huawei works with the involved vendors to handle issues, simplifying communication and reducing customers' service management costs.

### Improve business continuity

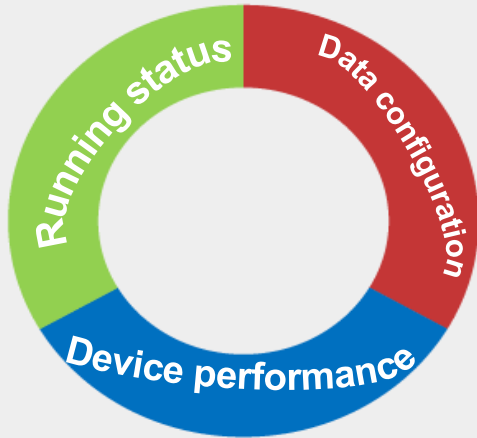
With years of experience in ICT maintenance and multiple partners, Huawei can quickly handle various issues, improving business continuity of customers' networks.



## 2.1.5 Special Assurance Service

### Equipment Health Check Service

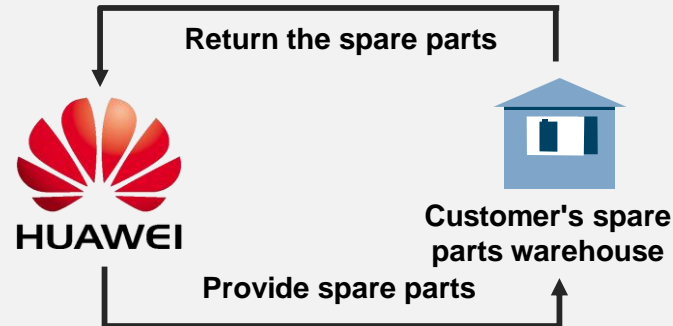
Check and analyze devices to identify potential issues and risks.



- Reduce fault risks.
- Ensure investment benefits.

### Spare Parts Assurance Service

Huawei provides spare parts during the assurance period in case of emergencies. After the assurance period ends, the spare parts must be returned to Huawei.



- Ensure quick response to spare parts requirements and efficient service recovery.
- Customers can invest less into spare parts inventory.

### Late Lifecycle Assurance Service

Provide the trade-in service for old/EOS devices to reduce the OPEX.



- Eliminate potential risks of old devices and reduce maintenance pressure.
- Directly negotiate the bidding and quickly complete replacement and upgrade.

**Provide special assurance based on customer requirements.**



# Success Story: Special Assurance for the Double 11 Shopping Festival

November 11 is a carnival for e-Commerce in China. Large-scale promotion activities are held on this day every year, making the Double 11 Shopping Festival an annual event in China's e-Commerce industry.

## Challenges

- Huge volume of concurrent online transactions
- Serious impact of downtime to businesses

## Huawei's Service Solution

- Device inspection and optimization
- Emergency recovery drills
- 24/7 expert-on-duty assurance
- Reserved spare parts for emergency assurance

## Customer Benefits

- 325,000 transaction applications within 1s
- Transaction volume reached CNY168 billion
- Zero downtime



"Dear friends from Huawei: during the past Double 11 Shopping Festival, our transaction amount reached a record high. When celebrating our success, we think of Huawei's expert team and Huawei's stable and reliable products. Without your support and cooperation, we cannot achieve such success. Thank you!"

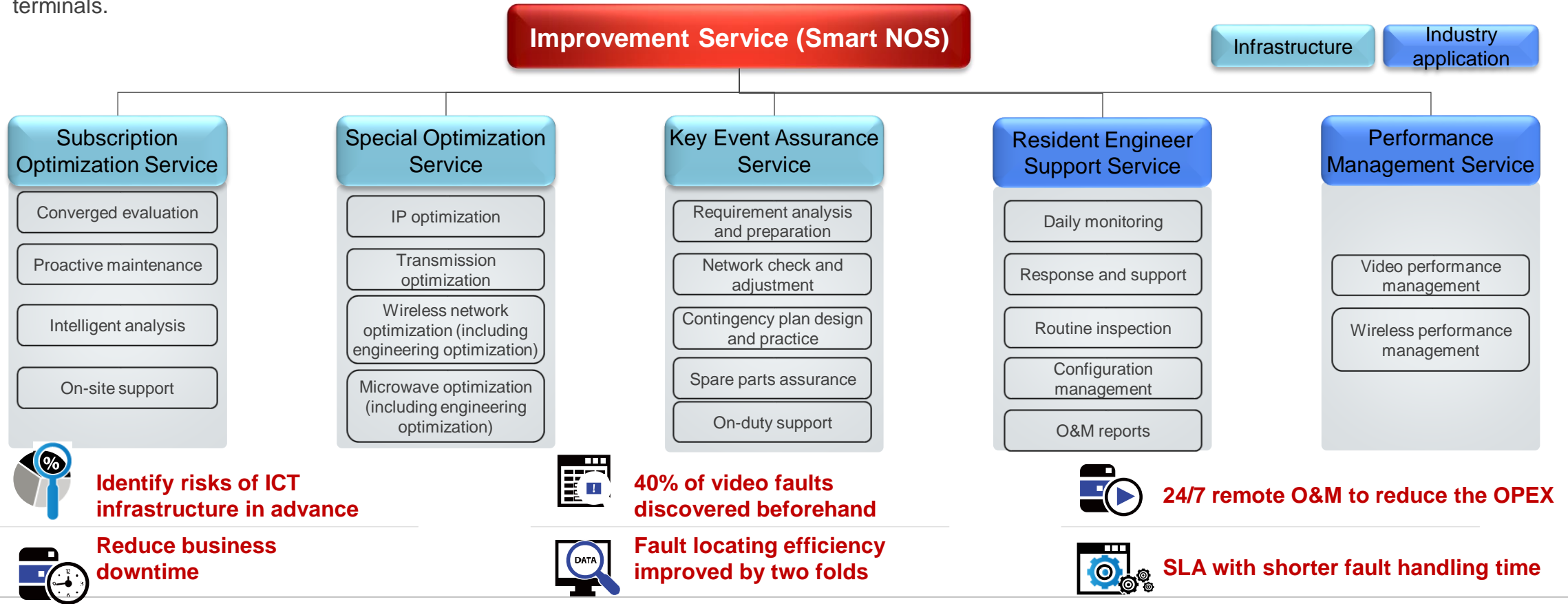
— Procurement dept of company A



## 2.2 Improvement Service

### Introduction

Huawei's Improvement Service (with the brand name Smart NOS) provides advanced O&M support for customers' ICT infrastructure and industry applications. It provides a series of maid-like, expert-level, preventive, and intelligent services, to accelerate proactive, efficient, and intelligent O&M for customers, improving the ICT infrastructure availability, production efficiency, and business quality. In the infrastructure domain, the Smart NOS service provides advanced O&M support solutions for all products, including IP networks, transport networks, wireless networks, and IT products. In the service performance management domain, the Smart NOS service provides performance monitoring and optimization solutions for services such as video performance monitoring of a large number of cameras, power distribution and precision control of power terminals, and voice and video services of portable terminals.

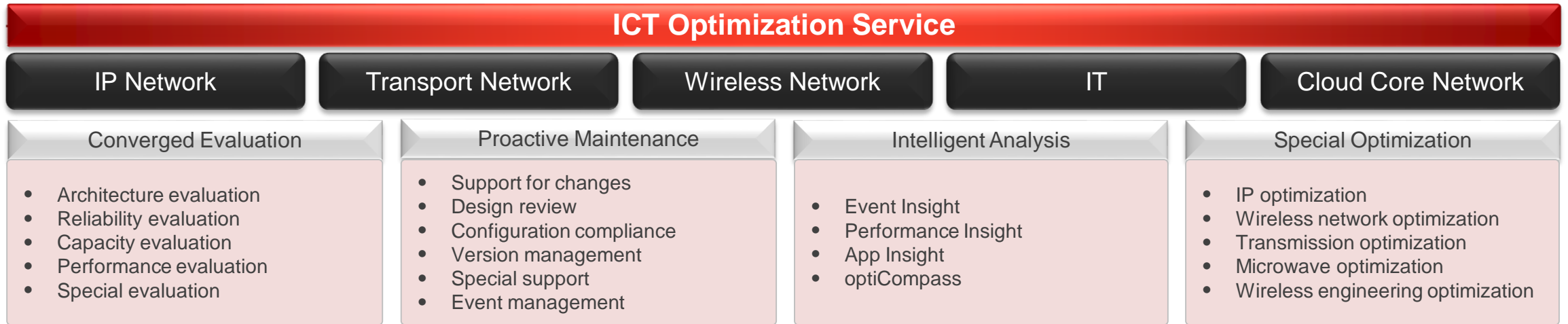




## 2.2.1 Optimization Service, Building the Most Robust and Optimal ICT Infrastructure

### Introduction

Focusing on ICT systems, the ICT Optimization Service provides proactive, preventive, predictive, and continuous advanced O&M support. It is a service available for sustainable subscription. Relying on the deep understanding of customers' business environments, the dedicated technical team continuously provides O&M support, including proactive support for routine O&M to quickly respond to the ever-changing O&M requirements. The team periodically reports, evaluates, and provides guidance to proactively identify potential risks in ICT systems and improve the system availability. An intelligent analysis platform is used to analyze logs, alarms, configurations, and performance data generated on devices in real time, helping to quickly locate faults and performance exceptions, and improve intelligent O&M.



### Features

- **Proactive O&M:** This service proactively evaluates and optimizes ICT systems rather than passively handling faults.
- **Subscription + customization:** This service customizes long-term service plans or optimization schemes based on customers' business characteristics to continuously optimize ICT systems.
- **Professional support:** Technical experts are ready to provide support and quickly respond to customer needs.
- **Intelligent analysis tool:** This service intelligently analyzes logs and performance issues to accelerate identification and locating.

### Customer Benefits

- Early identification and elimination of ICT risks
- Better reliability, availability, and maintainability of ICT systems
- Assured business continuity and reduced business downtime
- Faster fault handling, reduced fault rate, and less loss
- Focus on core business development and innovation with lower O&M pressure



## 2.2.1 Optimization Service: Intelligent Analysis Service

### Introduction

A real-time analysis tool is deployed on-site to analyze logs, alarms, configurations, and performance data generated on devices. This tool helps customers quickly locate faults and performance exceptions that occur during device running, ensuring stable network running. This service includes Event Insight (applicable to the IP, transmission, and storage domains), Performance Insight (applicable to the wireless domain), and optiCompass (applicable to the transmission domain).

#### Event Insight



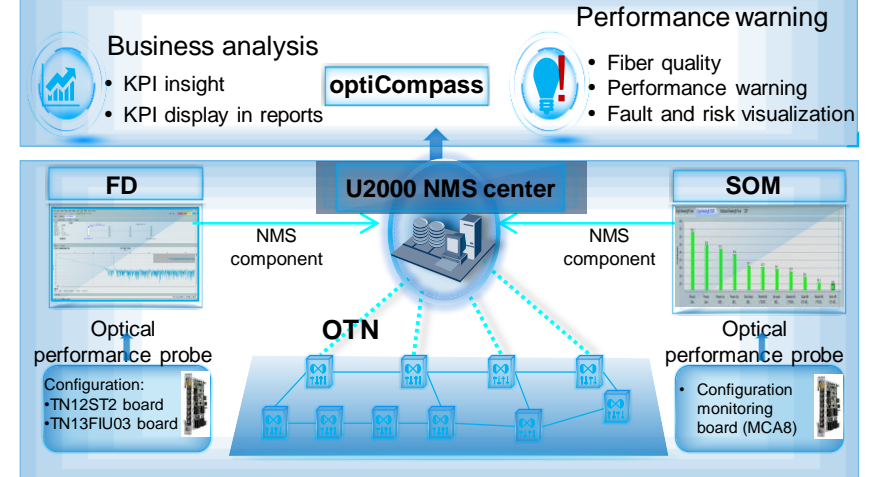
- Monitors logs generated by network devices in real time online to detect faults in time.
- Helps customers quickly locate issues and find root causes based on association analysis and expert suggestions.
- Supports multi-dimensional statistics and analysis of top issues/devices and historical data, as well as multi-dimensional restoration of network running status.

#### Performance Insight



- Focuses on real-time monitoring and visualized display of key services (voice and data).
- Provides comprehensive indicator analysis, identifies network performance weaknesses, and associatively analyzes trends/top N issues/failure causes, quickly demarcating and locating performance issues.
- Collects data online and generates daily, weekly, or monthly performance management reports as required.

#### optiCompass



- Detects and locates optical cable faults within minutes.
- Analyzes the signal-to-noise ratio trend, compares the ratios with historical data, and identifies risks.
- Provides online monitoring and analysis of 19 indicators related to network resources and business performance.



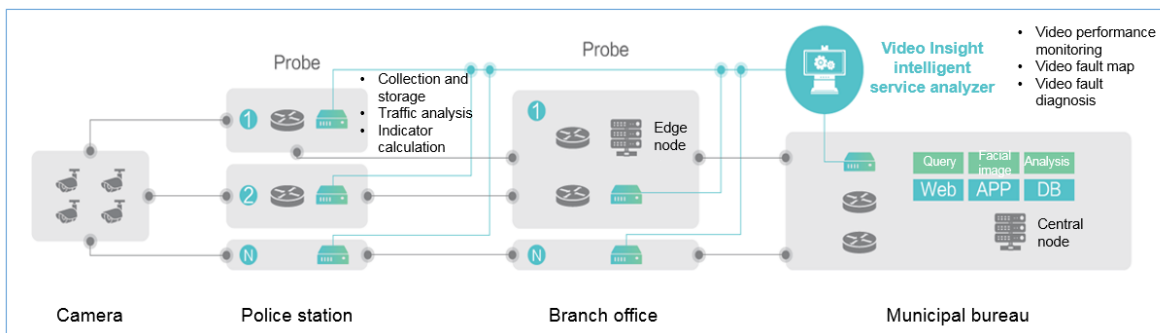
## 2.2.2 Performance Management Service, Improving Video Performance Quality

### Introduction

Based on a video performance management platform, the Performance Management Service performs in-depth analysis of video traffic to quickly detect video quality issues, such as video loss, black screen, artifacts, and pixelation. The professional service helps customers monitor, evaluate, and ensure video performance, identify risks that may affect video quality, and continuously optimize video quality.



### Video Insight platform technical solution



### Features

- Proactive and systematic service: transition from passive fault response to active O&M, implementing real-time monitoring of video performance to identify and handle issues promptly
- Powerful performance analysis system: various KPI types, achieving multi-dimensional health status monitoring and early warning of video services
- Long-term service: continuous improvement, quickly matching customers' short-term and long-term O&M goals

### Customer Benefits

- Diagnosis efficiency increased by 30%, improving video O&M efficiency
- Lower video O&M pressure and higher fault identification rate
- Continuous improvement of the video quality based on quantitative indicators and standard processes



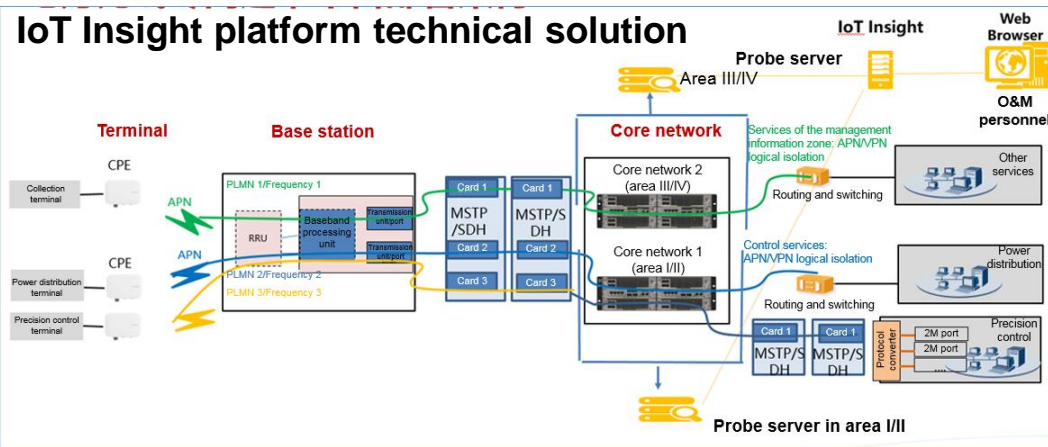
## 2.2.2 Performance Management Service, Improving the O&M Quality of the Power Wireless Dedicated Network

### Introduction

This service monitors and analyzes the performance indicators of a large number of power terminals in real time based on a wireless performance management platform. It helps to detect the numbers of offline terminals, terminals with service interruption, overclocking terminals, and terminals with abnormal traffic in a timely manner. The professional service helps customers implement refined monitoring, fault association analysis, and indicator system building for the wireless dedicated network, improving the network O&M quality.

### Wireless Performance Management Service

Basic Platform Building	Indicator Monitoring System Building	Video Performance Assurance	Performance Evaluation and Optimization	Performance O&M Management
<ul style="list-style-type: none"><li>• Solution design for basic platform deployment</li><li>• Probe/Server installation</li><li>• System/Software installation</li><li>• Basic functional parameter setting</li><li>• Joint commissioning and rollout of basic functions</li></ul>	<ul style="list-style-type: none"><li>• Monitoring requirement survey</li><li>• Terminal information creation and management</li><li>• Indicator selection and modeling</li><li>• Indicator system implementation</li><li>• Real-time IoT performance insight</li></ul>	<ul style="list-style-type: none"><li>• Training on the performance monitoring solution</li><li>• Training on the platform functions</li><li>• Case simulation and practice</li></ul>	<ul style="list-style-type: none"><li>• Terminal performance evaluation</li><li>• Wireless performance evaluation</li><li>• Poor-quality terminal analysis</li><li>• Indicator system implementation</li><li>• Terminal and cell association analysis</li></ul>	<ul style="list-style-type: none"><li>• IoT platform key event support</li><li>• Wireless network key event support</li><li>• IoT platform periodic reports</li><li>• Wireless network periodic reports</li></ul>



### Features

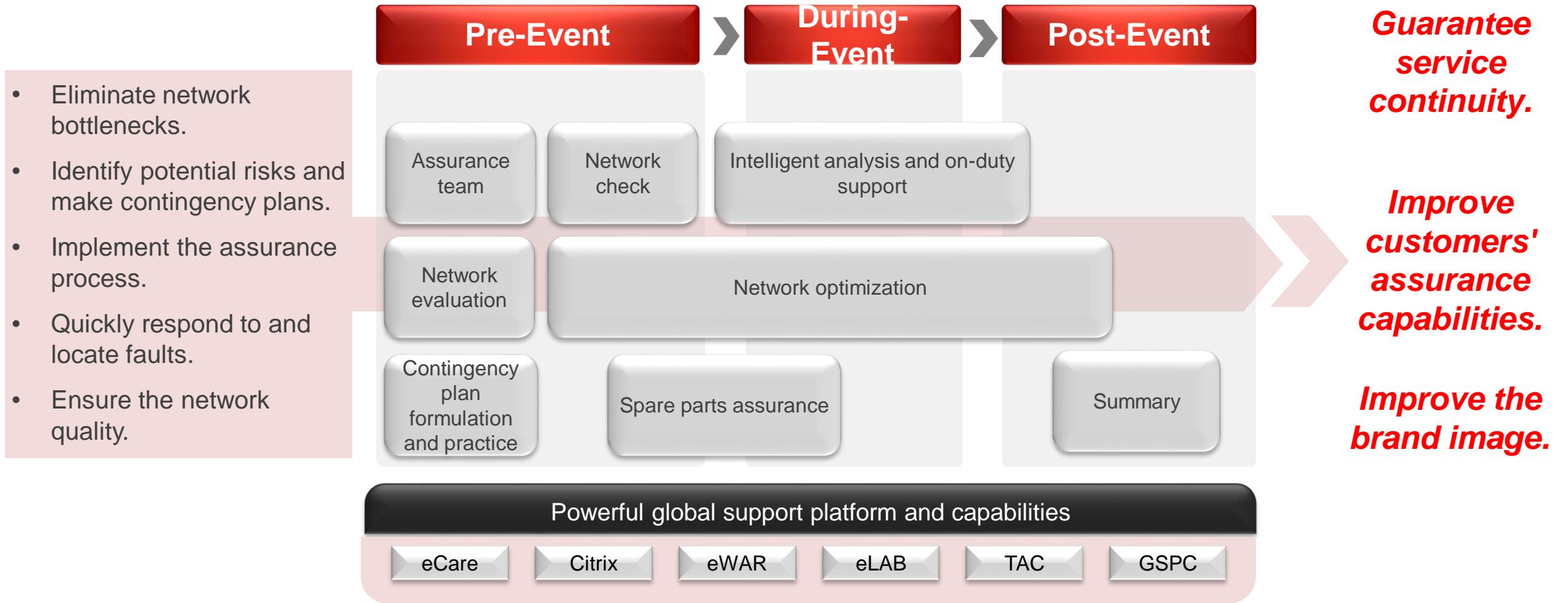
- Terminal monitoring: monitors numerous terminals of different business types, enabling centralized management of terminals from different vendors and providing a powerful performance analysis system.
- Enhanced demarcating capability: implements E2E fault analysis and demarcating for IoT services based on the user plane and signaling plane.
- Differentiated indicator system: comprehensively monitors network access KPIs, pipe quality KPIs, and service KQIs.

### Customer Benefits

- Identifies service types and displays running indicators of different services.
- Identifies terminals with severe faults and fault types based on fault levels.
- Builds a hierarchical quality evaluation system to evaluate key services.



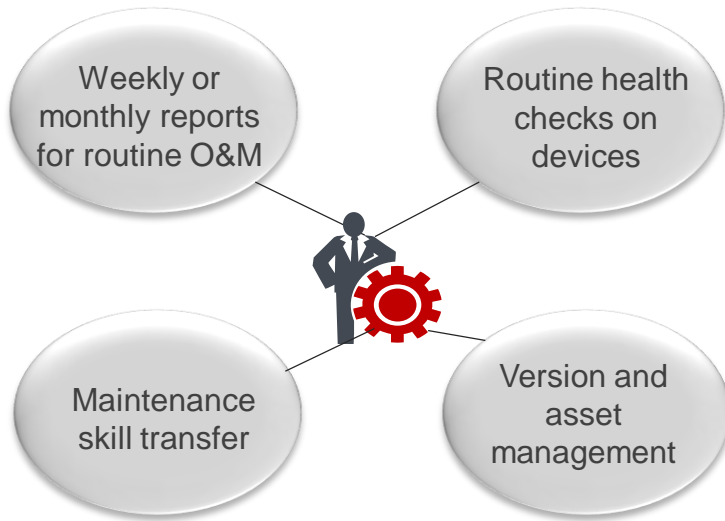
## 2.2.3 Key Event Assurance Service Solution





## 2.2.4 Resident Engineer Support Service, Enhancing the Routine O&M Quality Through Tools and On-Site Engineers

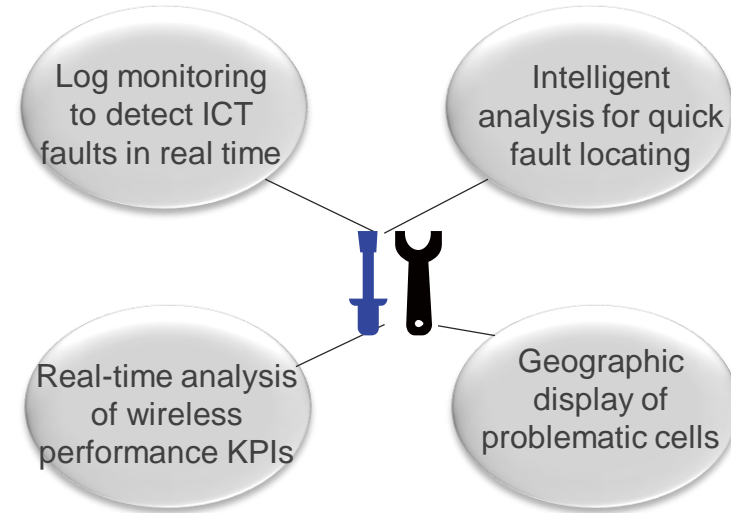
### Traditional O&M



✓ Assistance to customers' O&M capabilities

✓ Higher O&M efficiency

### Tool Capabilities



✓ Fewer running risks

✓ Quick on-site response and service recovery



# Optimization Service Ensures Network Stability for the DC of Bank NJ

## Challenges

The financial customer's DC consisted of 11 modules with over 500 network devices. A variety of problems and risks existed on the live network, affecting service operations.

1. Unreasonable network routing protocol, sub-optimal flow path, and low network utilization
2. Customers were faced with frequent network changes and risks. Faults could not be handled in time, seriously affecting services.
3. Due to the lack of protection mechanisms for the physical network architecture and routing design, the network was unreliable with single point of failure risks.

## Huawei's Service Solution

1. Designs an annual delivery plan tailored for the customer's requirements, estimates and optimizes the network, and provides technical support on a regular basis.
2. Provides the network evaluation and optimization service to help the customer comprehensively evaluate the network in multiple dimensions (including network architecture, security, capacity, and installed base), and designs a standard network optimization scheme.
3. Provides support for network changes, helping to review and verify the network change plan and eliminate risks caused by the changes.

## Customer Benefits

1. Based on best configuration practices, the customer has improved the configurations, routing protocols, and service flow path.
2. The customer has reviewed a large-scale plan for three instances of service migration, ensuring 100% feasibility.
3. Relying on our support for changes, the customer has successfully performed service migration three times with no service interruption.
4. The customer has handled 10+ security risks and 10+ redundancy risks, ensuring network security and reliability.





# Optimization Service Ensures Reliable and Safe Operations of Railway GSM-R Networks

## Challenges

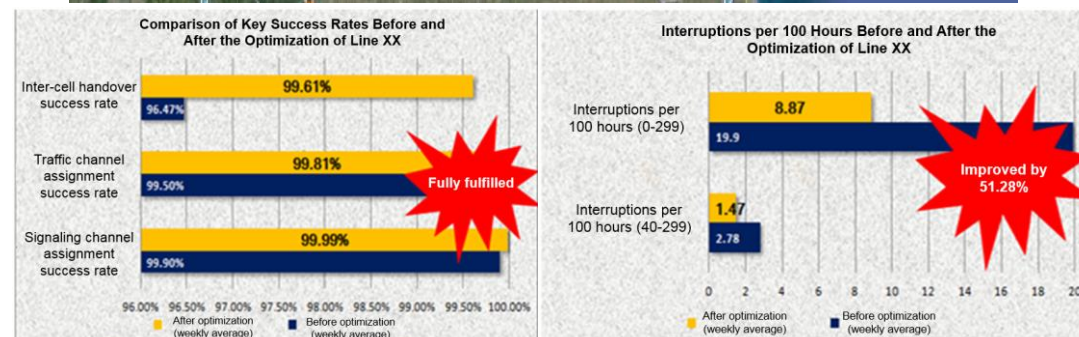
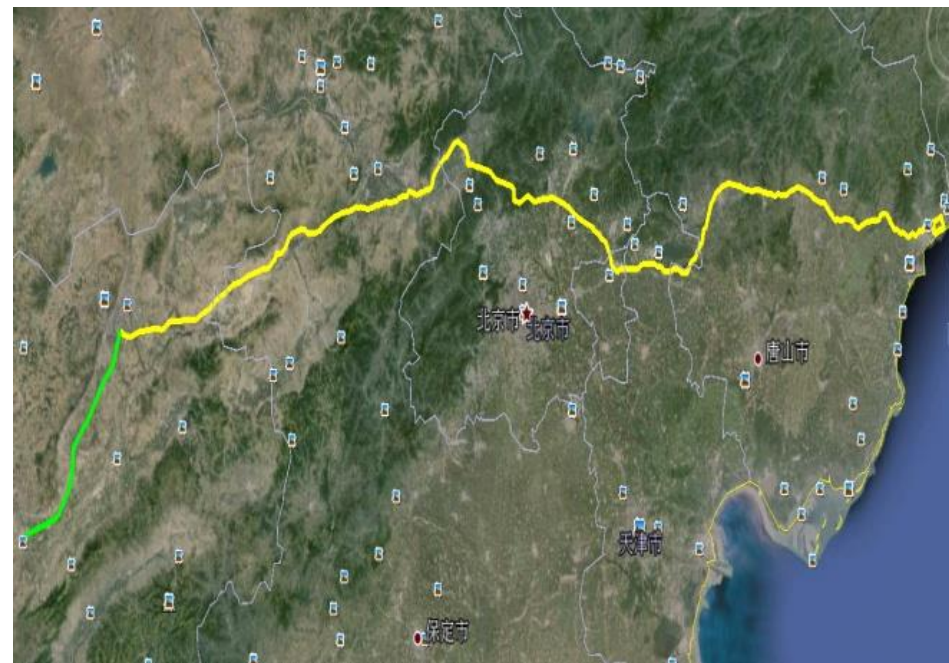
XX railway is a dedicated, modern heavy-haul line. With a total length of 686 kilometers, it is the main route for transporting coal in the country from west to east. The terrain for the whole railway is complex, with 60% mountainous area and 40% plains and hills. It has 33 tunnels, with a total length of 48 kilometers. Among them, the maximum one reaches 8.8 kilometers. The accumulated length of bridges reaches 20 kilometers. Along the line, co-site dual-network coverage is implemented using 312 macro base stations and 116 optical fiber repeaters. The network structure is also complex due to multiple tunnels and complex terrains.

## Huawei's Service Solution

1. Network evaluation based on network problems
2. RF optimization for coverage and switchover problems
3. Coverage and quality optimization for key areas
4. KPI optimization for railway system appraisal

## Customer Benefits

1. Significantly improves KPIs and coverage: All KPIs of the XX line meet the requirements. The number of interruptions decreased by 50%. The number of interruptions longer than 40 seconds decreased from 2.78 per 100 hours to 1.47 per 100 hours.
2. Solves most network quality and coverage problems (excluding those caused by external interference) during network growth, effectively relieving O&M pressure.
3. Effectively ensures reliable and secure operations of railway services.





# Intelligent Analysis Tool for Wireless Networks Assists Public Security Bureau Z with Major Event Safeguarding

## Challenges

An exposition was held in city Z on April 19 and 20, 2019. During the exposition, service terminals on the entire network failed to access the dedicated eLTE wireless network and did not recover within 1 hour, affecting over 600 users and security assurance work of public security bureau Z. The customer was very dissatisfied.

## Huawei's Service Solution

1. Before security assurance: network analysis and optimization suggestions, including detection and evaluation of the network resource capacity, parameters, KPIs, and interference; adjustment of more than 4000 network parameters and more than 900 network neighboring cells
2. During security assurance: on-duty support, including real-time monitoring of KPIs as well as exceptions related to call access, call holding, and call handover, and periodic sending of network running reports
3. After security assurance: security assurance summary, including a summary report on network performance optimization

## Customer Benefits

1. Enhanced network security and troubleshooting efficiency
2. Intelligent analysis service, reducing maintenance costs
3. Improved brand image and social image of the customer
4. Accumulation of communications assurance experience and capabilities







# Performance Management Service Improves the Quality of Public Safety Video Surveillance

## Challenges

With the development of Project Xueliang (Shiny) and video networking, the number of cameras of public safety departments has increased dramatically, and there are millions of cameras for public safety, government, and society purposes.

1. Approximately 15% images in a large number of cameras have problems such as black screen, blurry screen, and pixelation. However, there is a lack of fast ways to find these problems.
2. The video has high real-time requirements and large data traffic. **It is difficult to achieve refined image monitoring** and manage image quality.

## Huawei's Service Solution

Provides the improvement service for public safety videos and solves problems such as black screen, blurry screen, and pixelation.

1. Refined management of video quality and proactive warning
2. Data backtracking and evidence collection, fast fault demarcating and locating
3. Video quality analysis and optimization

## Customer Benefits

1. Fault reporting rate reduced by 30%
2. Video fault handling efficiency improved by 50%
3. Refined evaluation based on the valid online rate instead of the online rate, effectively improving the proportion of valid video content
4. Enhanced video-based case-solving rate



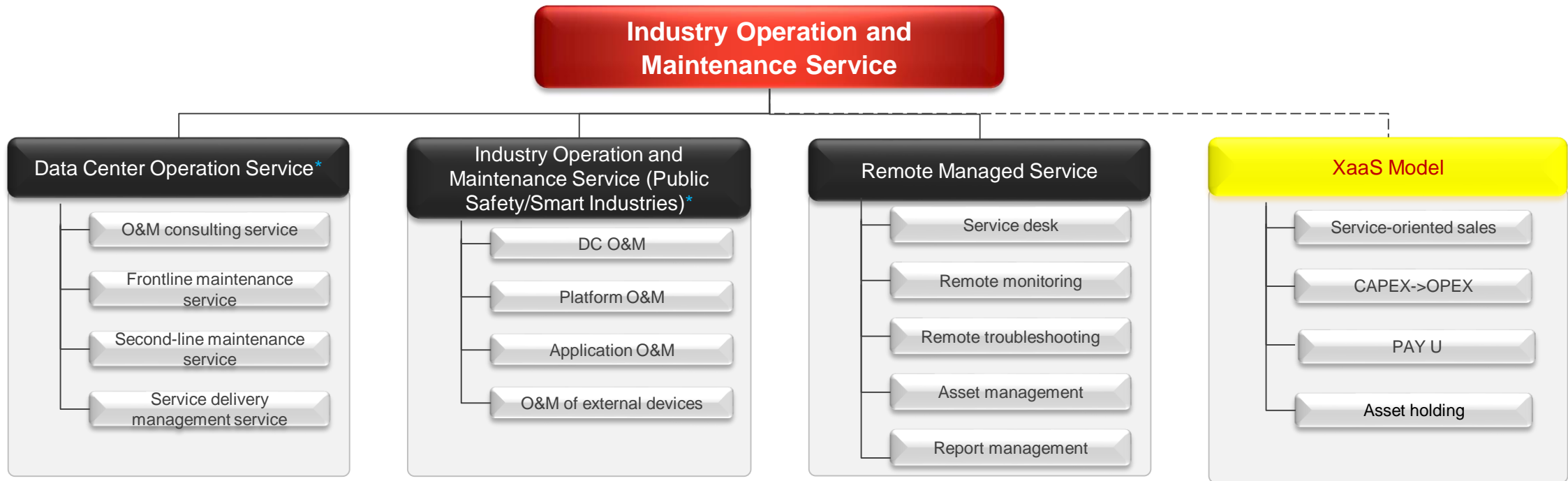


## 2.3 Industry Operation and Maintenance Service

### Introduction

Huawei provides professional O&M service for customers' DCs and ICT infrastructure, including consulting, design, and implementation (tool platform deployment, organization establishment, and process implementation) of routine O&M. Relying on Huawei's management capabilities, organization architecture design, tool platforms, and process capabilities, the service can achieve customer network stability, effective resource utilization, and OPEX reduction and optimization.

**Huawei can also provide the new XaaS transaction model for customers.**



### Features

- Mainly intended for Huawei-developed products, that is, taking over services that are previously implemented by customers.
- Provides two delivery modes (remote and on-site) and governance architecture and methods for the managed service.
- Provides ITIL-based service process management and service reports.

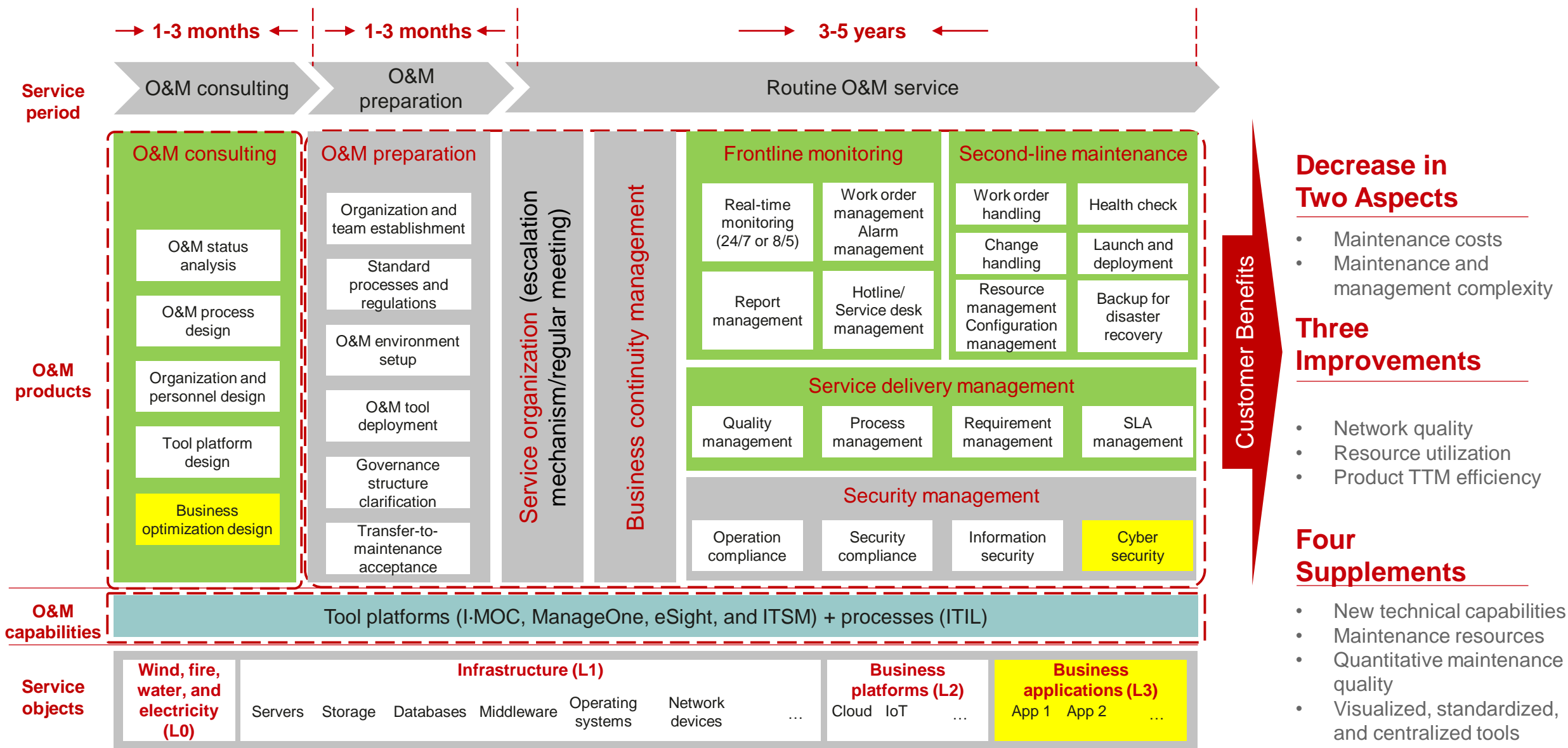
### Customer Benefits

- Allows customers to focus on their core businesses and keep pace with market changes.
- Reduces IT system O&M costs and reduces the pressure caused by IT technical changes.
- Ensures ROI and improves the operation efficiency and quality of IT systems.

\* Additional information is included in this catalogue.



## 2.3.1 Data Center Operation Service: E2E Service from Consulting to Implementation





## 2.3.2 Industry Operation and Maintenance Service: Derivative Capabilities and Diversified Objects

### Service capabilities

#### Software/Platform O&M capabilities

- **Fault monitoring, automatic discovery, and performance monitoring** of services, applications, and platforms
- Routine O&M of services, applications, and platforms (*provided by customers or the ecosystem*)

#### DC O&M capabilities

DC O&M

#### Subsystem O&M capabilities

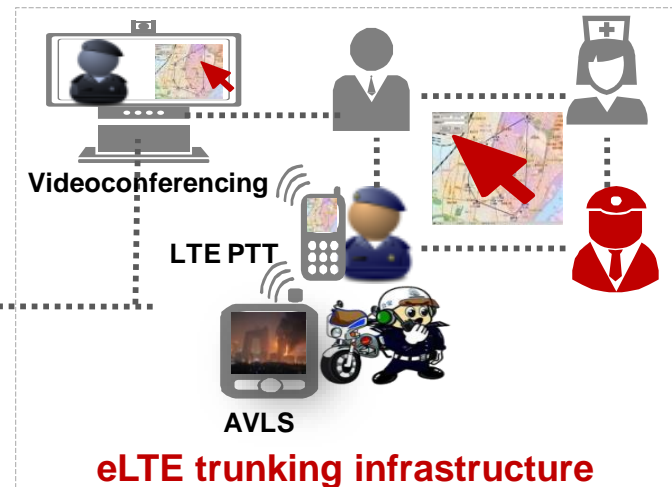
- Numerous cameras
- Checkpoints
- Radio trunk
- Wireless VIP sites

### Scenarios

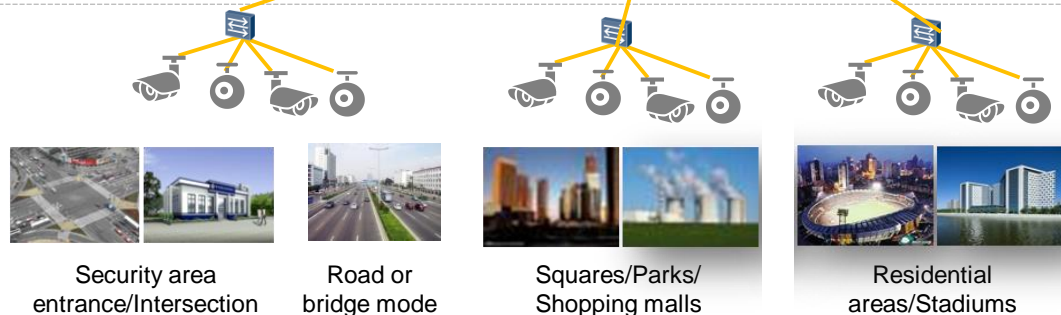
#### Converged command



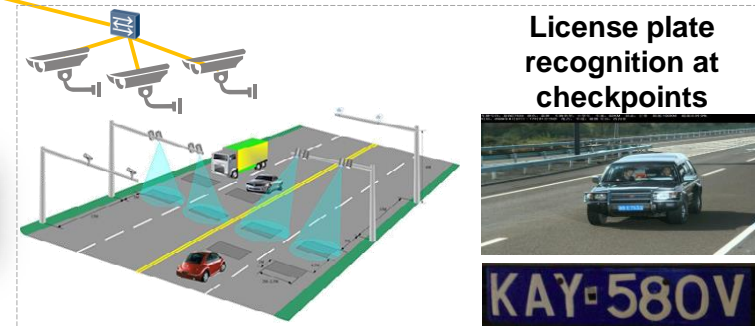
#### Emergency communication



#### Video surveillance

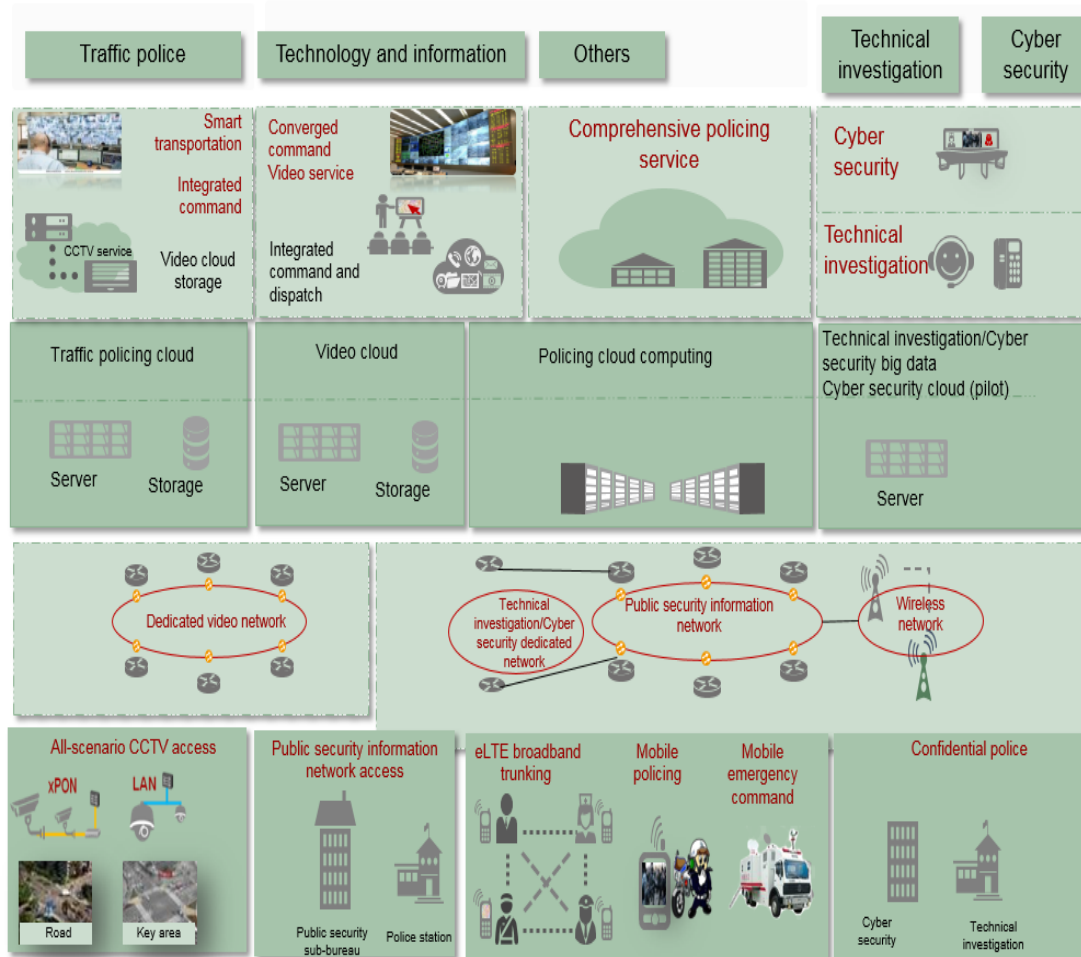


#### Road safety





# Success Story: Intelligent Public Security O&M Project in Country C



## Challenges

1. Siloed O&M
2. No standard process to support O&M, and no tool-based process
3. Poor skills of the O&M personnel
4. No unified O&M platform (independent O&M tools for each department)

## Huawei's Service Solution

1. O&M process design service: provides service requirement survey, service design, service process development, SLA/KPI design, O&M guide, personnel training, and position coaching.
2. O&M management platform: builds an integrated and comprehensive O&M management system based on successful I-MOC practices.
3. On-site O&M service: provides a one-stop service desk (hotline and service portal), monitoring, troubleshooting, and change support.

## Customer Benefits

1. Global visualization: enables overall O&M and clearly displays asset operations through configuration management and system interconnection.
2. Unified alarm management: breaks traditional network management limitations and implements unified alarm monitoring and management.
3. Process standardization: integrates standard ITIL processes into platforms so that issues can be quickly handled based on rules after an event happens.
4. Capability accumulation: integrates expert experience into platforms in the form of automation tools and expert knowledge libraries to improve O&M efficiency.
5. Concentration on core business: frees personnel from complicated routine O&M.





# CHAPTER THREE

Industry Cloud Enablement Service

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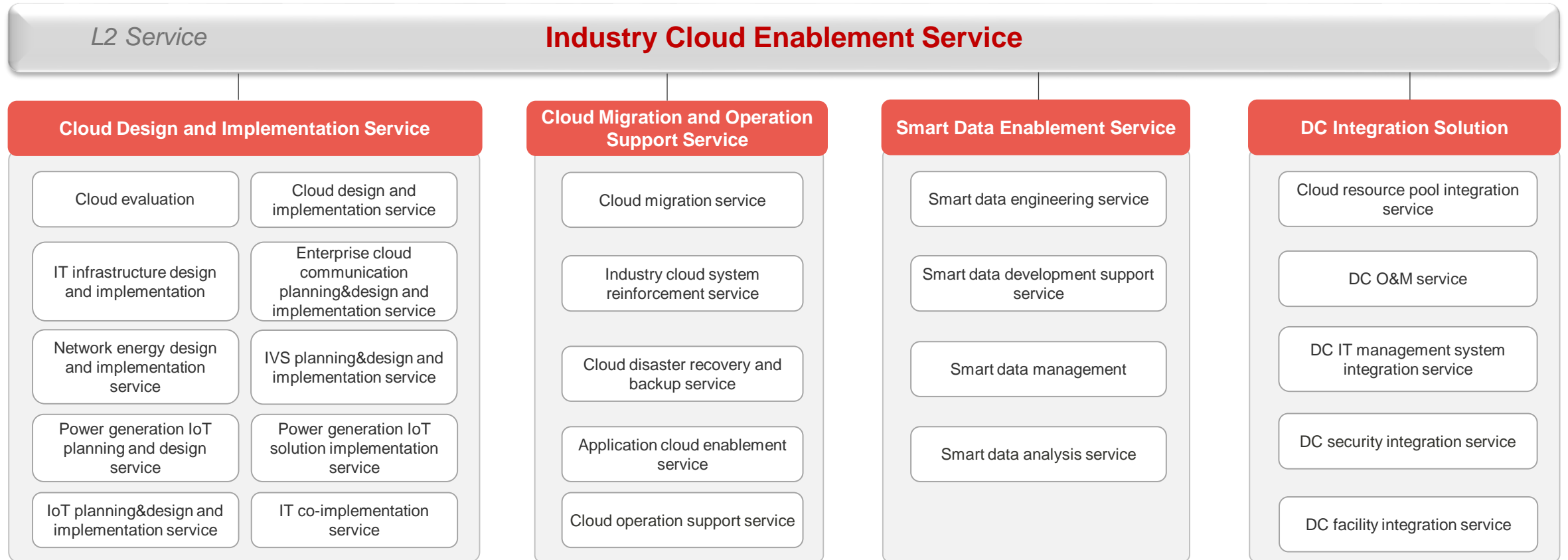


Home



# Industry Cloud Enablement Service Portfolio

The Industry Cloud Enablement Service caters to the cloud-based transformation requirements of governments and enterprises. Based on Huawei's years of experience in industry-specific services and new technologies such as cloud computing and big data, the service provides customers with a full-lifecycle industry cloud-based transformation service solution, helping enterprises succeed in cloud-based transformation. This solution consists of the Cloud Design and Implementation Service, Cloud Migration and Operation Support Service and Smart Data Enablement Service.

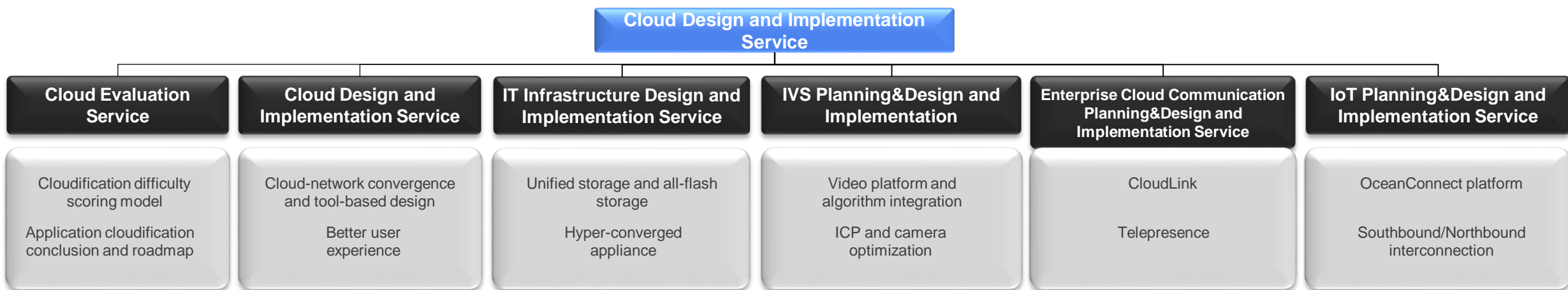




## 3.1 Cloud Design and Implementation Service

In the cloud computing 2.0 era, cloud has become one of the core technologies for digital transformation. With the aim of stimulating innovation, cloud computing no longer focuses on how to reduce costs, but on how to create greater value.

Targeting at difficulties encountered by industry customers' in cloud-based transformation, the Cloud Design and Implementation Service analyzes the infrastructure, resource, and application layers, and provides design solutions for cloud-network convergence, hybrid cloud featuring cloud-data linkage, IoT, enterprise communications, and intelligent security platforms, helping customers quickly and efficiently build platforms.

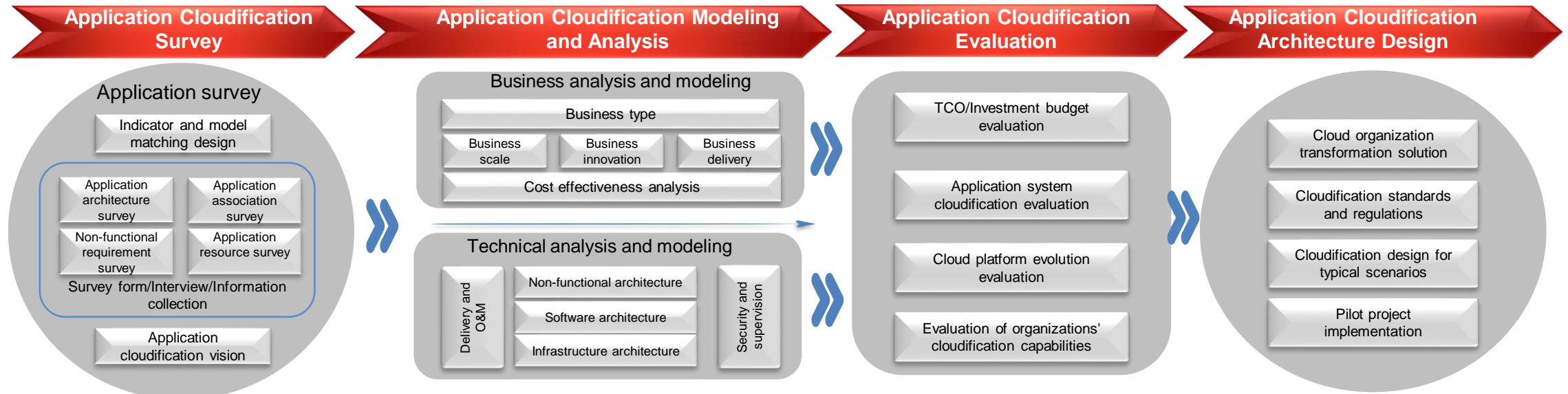


Service Product	Scenario	Value and Selling Point
Cloud evaluation service	e-Government cloud big data, policing cloud big data, financial cloud, video cloud, etc.	Professional methods, industry-specific models, and high-value reports
Cloud design and implementation service		Cloud-network convergence, tool-based design and implementation, and 500+ success cases
IT infrastructure design and implementation service	Unified storage, all-flash storage, and hyper-converged appliance deployment and capacity expansion	IT infrastructure integration planning and design
IVS planning&design and implementation service	Public safety and security protection in domains such as smart transportation and intelligent campus	Video platform and algorithm integration, design and implementation of ICP-based alarm receiving and handling, and camera optimization
Enterprise cloud communication planning&design and implementation service	CloudLink for digital office work and telepresence (for intelligent education and healthcare)	CloudLink/Telepresence planning, design, and implementation, enabling quick service rollout
IoT planning&design and implementation service	IoT OceanConnect platform, and OceanConnect platform southbound or northbound interconnection	Platform planning, design, and implementation, integration and interconnection with northbound applications/southbound devices, integration and interconnection with peripheral service systems, and more than 1000 ecosystems around the globe



## 3.1.1 Cloud Evaluation Service

The Cloud Evaluation Service conducts surveys and interviews, collects application data, uses standard models and evaluation tools to analyze 36 indicators in 8 aspects such as application cloudification cost and business value. Based on this, evaluation reports on cloudification feasibility, application cloudification roadmaps, and application schemes are provided, helping enterprises select a proper cloud architecture, avoid cloudification risks, and move their businesses to the cloud in an orderly, smooth, and secure manner. The service is supported by Huawei's technical experts with extensive cloud evaluation experience and partners specialized in industry businesses.



### Features

- **Professional methodology:** The professional methodology helps enterprises precisely analyze various application resources and requirements and guides customers to move their businesses to the cloud in an orderly, smooth, and secure manner.
- **Industry-specific models:** Modeling analysis and evaluation of 36 indicators in 8 aspects are conducted based on the characteristics of government and financial services. Application cloudification conclusion and roadmaps are provided.
- **Automation tools:** Huawei-developed scenario-based cloud evaluation tools are used to quickly and accurately guide cloud resource capacity planning and scoring of application cloudification difficulties.

### Customer Benefits

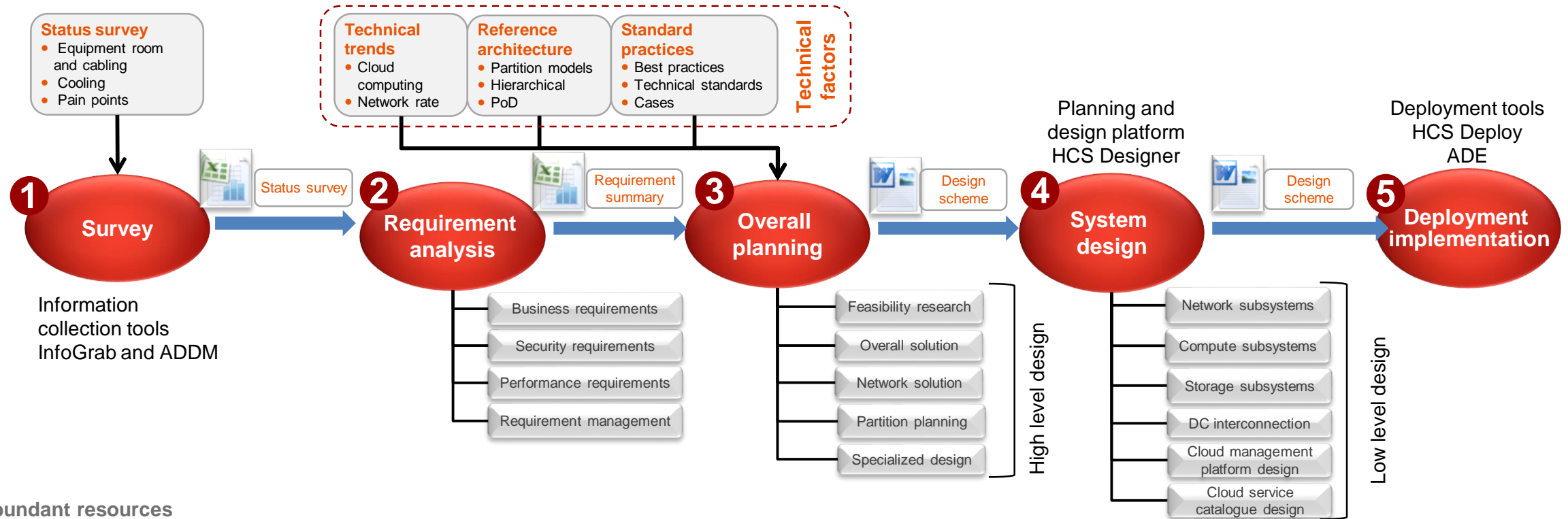
- **High-value reports:** Based on analysis and evaluation, produce application cloudification adaptability reports, cloud architecture selection reports, application cloudification reconstruction schemes, application cloudification roadmaps, and application cloud migration high level designs.
- **Minimized cloudification risks:** Help enterprises analyze various application resources and requirements in a fine-grained manner, provide guidance, specifications, and schemes for application cloudification, reduce business downtime, and guide customers to move business applications to the cloud in an orderly, smooth, and secure manner.



## 3.1.2 Cloud Design and Implementation Service

Enterprises are facing difficulties in deploying new cloud infrastructure during their business development and IT transformation.

The cloud infrastructure design and implementation service focuses on building hybrid cloud infrastructure featuring cloud-network convergence for customers. Based on requirement analysis, Huawei helps customers quickly build hybrid cloud platforms by leveraging its technical advantages in cloud computing, and specialized design and deployment tools.



### 1. Abundant resources

Extensive experience, covering various industries such as government, public safety, financial services, media, and large enterprises

### 2. Tool-based

Planning and design tool (HUAWEI CLOUD Stack Designer), deployment implementation tool (HUAWEI CLOUD Stack Deploy), and automatic deployment tool (ADE)

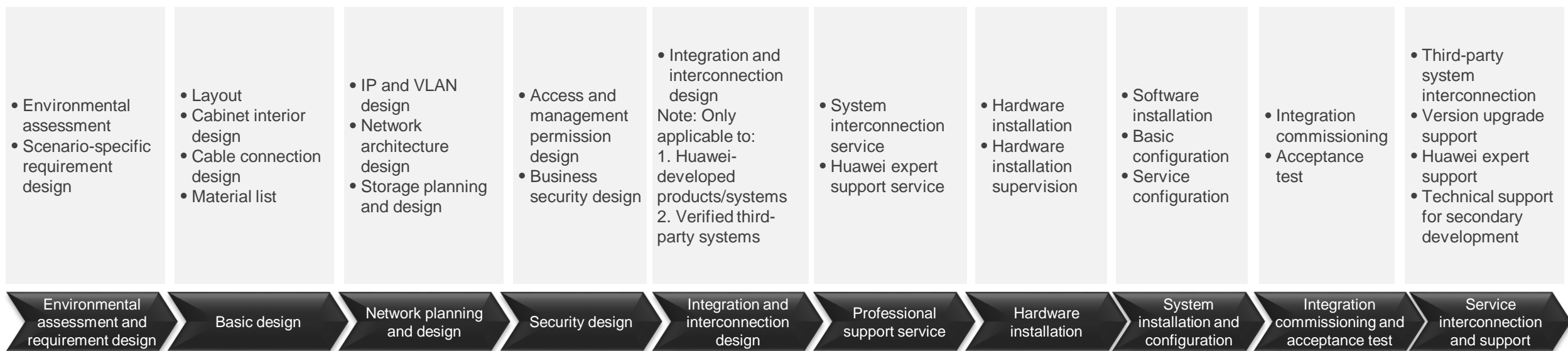
### 3. Professional delivery teams

Technical expert teams with rich experience, useful professional services, and guidance, ensuring smooth project delivery



### 3.1.3 IVS Planning&Design and Implementation Service

This service helps customers build intelligent video cloud platforms which enable video management, precise video analysis, and data retrieval. It can also help customers plan and optimize the camera locations to facilitate proper and orderly camera placement. It offers a unified, diverse video cloud ecosystem and competitive industry solutions to enable quick service rollout.



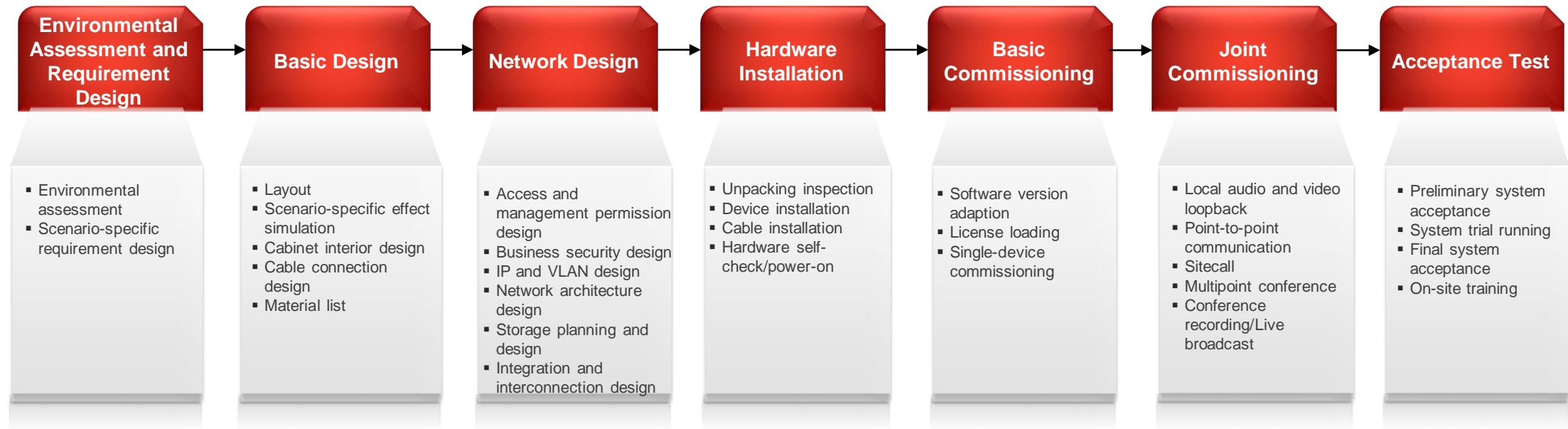
#### Highlights:

1. **Rapid system deployment:** fast algorithm integration and service rollout
2. **Multi-algorithm orchestration:** fast algorithm integration, focusing on feature extraction, and precise video analysis and identification
3. **Device-cloud synergy:** task collaboration, data collaboration, and algorithm collaboration



## 3.1.4 Enterprise Cloud Communication Planning&Design and Implementation Service

This service consolidates Huawei's rich experience in IT transformation and provides customers with the telepresence system and CloudLink solutions. Huawei provides customers with E2E professional services in the solution consulting, design, deployment, testing, and optimization phases, facilitating service rollout, achieving the evolution from business support to business enablement, and enhancing productivity with lower costs.



### Features:

**Optimal design:** flexible and reliable networking scheme design and comprehensive data planning

**Lower costs:** higher device reuse rate, less improper investment, and lower construction costs

**Fast deployment:** powerful tools, E2E processes, experienced engineers and partners, and professional project managers, enabling high-quality and efficient system construction

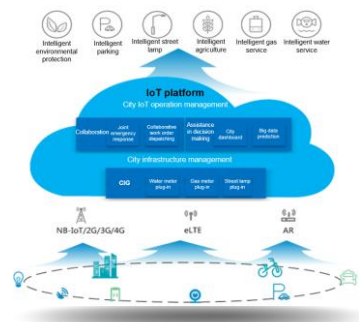
**Smooth rollout:** identification of risks, formulation of the rollout assurance solution, on-site assurance, and assurance summary, ensuring smooth rollout of service systems and protecting customer investment



## 3.1.5 IoT Planning&Design and Implementation Service

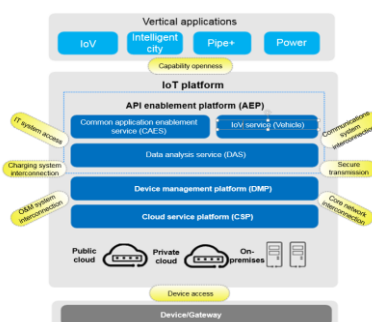
This service focuses on helping customers build IoT platforms where all things are connected, to enable city management and promote industry development. By providing general APIs and lowering the IoT development threshold, this service facilitates business innovation and ecosystem development. Huawei works with partners to jointly develop and offer innovative solutions to customers based on its global OpenLabs, providing strong support for ecosystem partners and extending the city IoT ecosystem.

### Platform Deployment Network Planning and Design



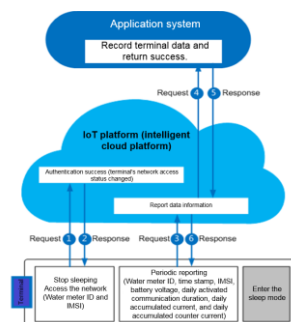
- Network information collection
- Environmental assessment
- Scenario-specific requirement analysis
- Network planning and design

### Software Installation and Deployment



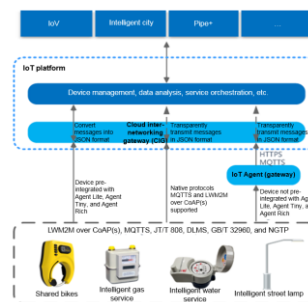
- Application deployment
- Initial configuration
- Security hardening
- Disaster recovery configuration

### Function Commissioning and Acceptance Test



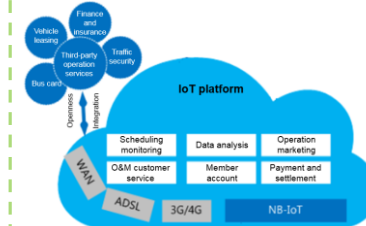
- Commissioning of basic functions
- Acceptance test

### Southbound and Northbound Integration and Interconnection



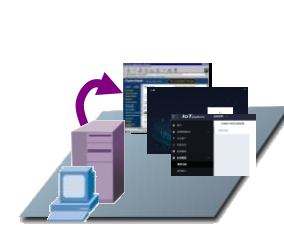
- Northbound application integration and interconnection design
- Southbound device integration and interconnection design

### Peripheral System Interconnection Service (Optional)



Service for third-party peripheral system integration and interconnection, ensuring the interaction among third-party systems

### IoT Commercial Use Assurance Service (Optional)



On-site assurance for IoT platform rollout, ensuring smooth system rollout

Highlights:

1. **Quick planning and deployment:** tools for efficient integration, interconnection, and delivery
2. **Management of numerous connections:** connection of a large number of devices, flexible and open application enablement, accurate and efficient big data analytics, multiple deployment methods, and all-round security protection
3. **More than 1000 Huawei global ecosystems:** help industry services to be quickly put into commercial use in a large scale.



## 3.1.6 Industry Site Facility Service

### Introduction

This service concentrates on DC facility integration. It provides E2E L1 professional services, including site selection consulting, solution consulting, planning and design, integration implementation, O&M enablement, and AI PUE energy saving optimization. It provides assistance to the industry cloud enablement service solution and attempts to create modular, environment-friendly, and intelligent site facility integration solutions for industries.

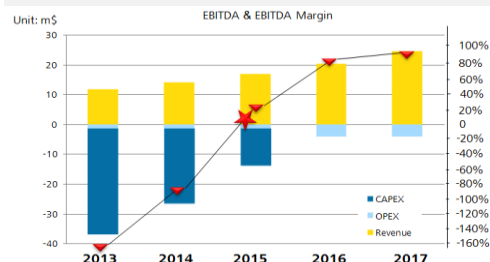
#### Site Selection Consulting Service

- Natural and geographical conditions
- Auxiliary facilities and surrounding environment
- Cost factors and policies
- Talent resources



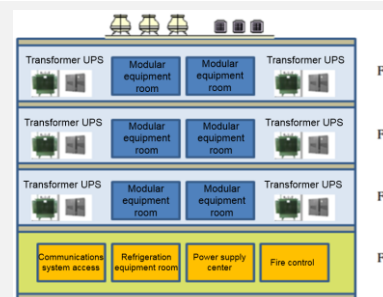
#### Design and Implementation Service

- Solution design based on the modular concept
- Solution design based on the environment-friendly concept
- Efficient integration of multiple L1 systems across domains
- Digital delivery platform with 4 phases and 16 steps
- Solution architecture based on the Uptime Tier standard



#### O&M Enablement Service

- Customer equipment room O&M information survey
- Customer O&M requirement analysis
- O&M solution planning and design
- O&M management document system building



#### AI PUE Optimization Service

- Customer equipment room PUE information collection
- PUE energy saving requirement analysis
- PUE energy saving solution design
- PUE optimization based on AI neural network algorithms



### Features

- **Professional methods:** The DC infrastructure is planned and designed based on a modular, environment-friendly, and intelligent design concept. The flexible architecture concept helps enterprises build DCs step by step, reducing the CAPEX and protecting customers' investment.
- **Digital tool platform:** DC infrastructure is integrated in multiple scenarios based on platforms such as the ISUP and BIM, achieving high-quality, collaborative, and quick integration.

### Customer Benefits

- Helps customers meet the environment-friendly and energy saving requirements of industries or national regulatory authorities. With less investment, customers can obtain benefits of the AI-based intelligent energy saving services, reducing the TCO.
- Provides customers with secure and efficient O&M enablement services with lower technical requirements and less hardware investment, and provides advanced infrastructure O&M methods by benchmarking with the leading O&M systems.



# Cloud Evaluation Helps City SH Launch Its Active-Active e-Government Cloud

City SH's municipal e-Government cloud project is the first project that uses a complete set of Huawei's cloud platform hardware and software to build an active-active e-Government cloud. It involves 2 cloud service providers and 4 DCs, making it the largest provincial e-Government cloud project in the country to date.

## Challenges

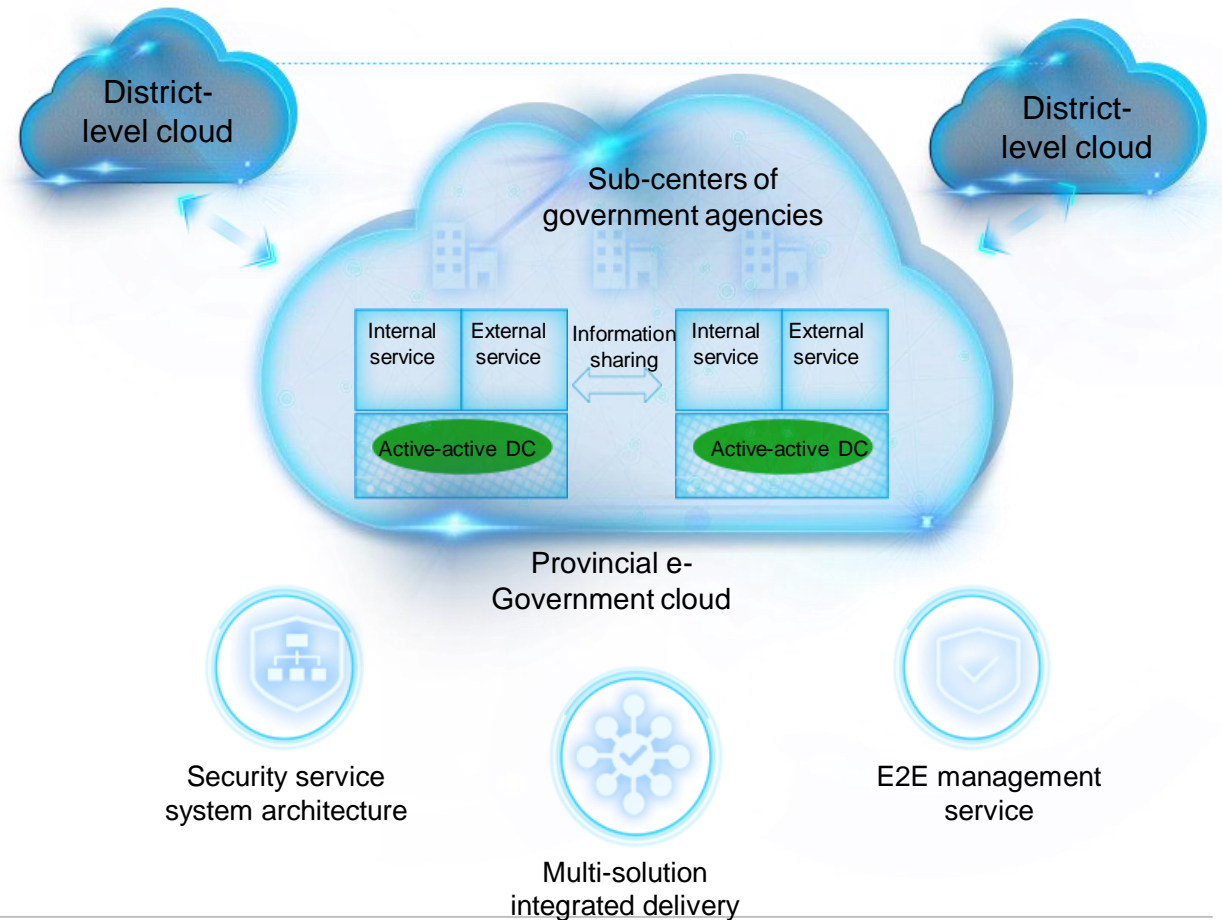
- How to plan the application cloudification architecture and how to ensure performance and security
- Whether certain application systems can be deployed on the cloud, how to move them to the cloud, and in how many batches and in what sequence will be the best

## Huawei's Service Solution

- Provides the cloudification framework and resource requirements of the e-Government cloud using the 4-phase 12-step methodology.
- Conducts multiple rounds of application surveys and interviews. Formulates an evaluation report on application cloudification and a plan for application migration to the cloud.

## Customer Benefits

- Smoothly migrates 100-150 business applications of over 10 government agencies of city SH to the e-Government cloud in just 4 months. After the first batch, it is planned that more than 500 applications of over 80 government agencies will be migrated to the cloud by the end of 2020.
- Optimizes the allocation of application cloudification resources of various government agencies in city SH, reducing the costs.





# Huawei Helps Province JX Build an e-Government Cloud Platform

The e-Government cloud in province JX consists of two levels, that is, 1 provincial cloud and 8 municipal clouds. Currently, more than 500 cloud hosts have been deployed on nodes of the provincial cloud, including more than 10 provincial and municipal government agencies. The cloud is used for 100+ business systems such as online approval and administrative supervision by electronic means.

## Challenges

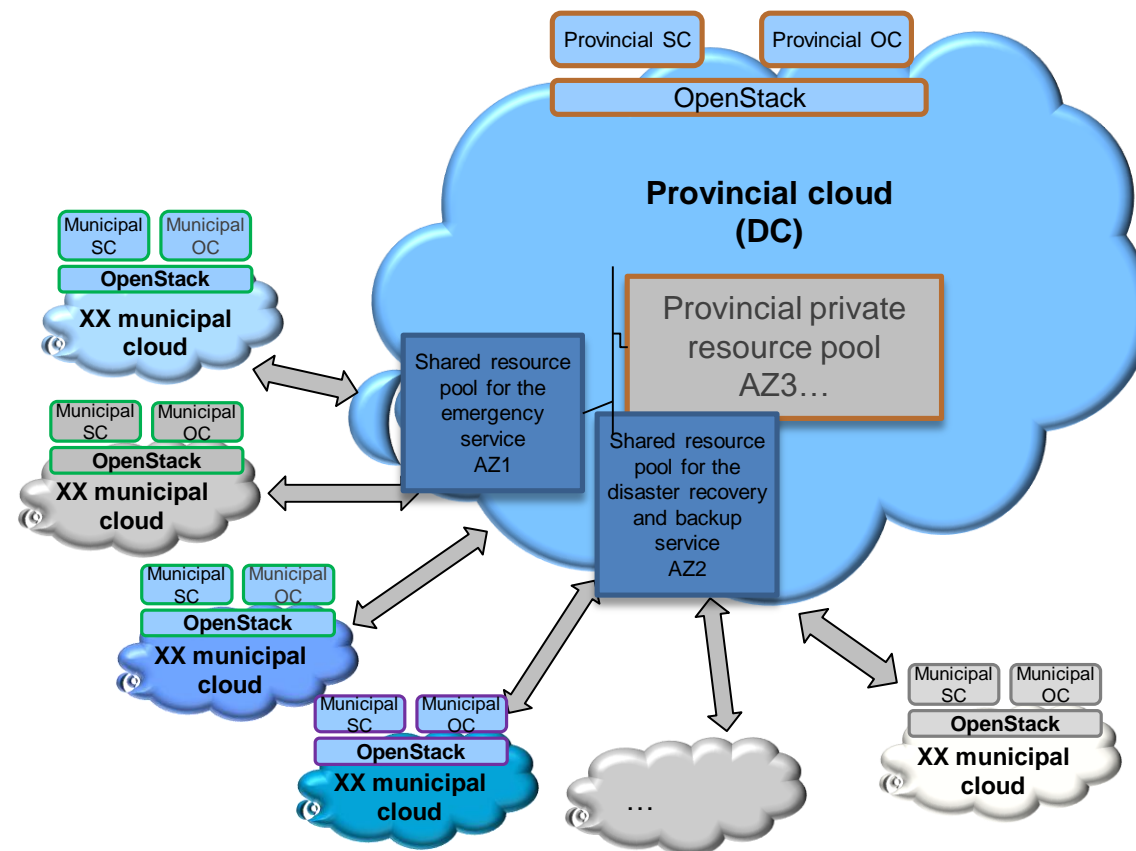
- Scattered and unbalanced e-Government system construction led to low equipment resource utilization.
- Most municipal governments and provincial- or municipal government agencies suffered weak O&M capabilities.
- A disaster recovery system was required to ensure the business continuity of provincial and municipal government agencies.

## Huawei's Service Solution

- Builds unified resource pools at the provincial and municipal levels to provide differentiated cloud services for government agencies at all levels.
- Implements cloud-network converged management based on SDN and VXLAN technologies, and builds a cloud for collaboration among provincial and municipal governments.
- Builds a unified O&M management platform, enhancing the O&M and management efficiency of the e-Government cloud.

## Customer Benefits

- The project is the first of its kind in the nation to implement resource sharing of e-Government cloud resources across a province.
- Consistent O&M service standards are adopted throughout the process, facilitating balanced development and improving customer satisfaction.
- The solution enables easy deployment of cloud disaster recovery and backup, simplifies management processes, and meets complex requirements.





# Huawei Intelligent Security Solution Helps Bank XZ with Security Protection



## Challenges

- Analog cameras were used and could not be connected to the network of the surveillance center.
- Cameras and DVRs were provided by multiple vendors.
- High labor costs were involved for maintaining devices in the bank outlets.

## Huawei's Service Solution

- Huawei DVRs are deployed in the existing bank outlets to replace incompatible DVRs.
- NVRs and 720p cameras are installed in newly constructed bank outlets, and an IVS platform is deployed at the surveillance center of the headquarters to provide high-definition and intelligent video surveillance.

## Customer Benefits

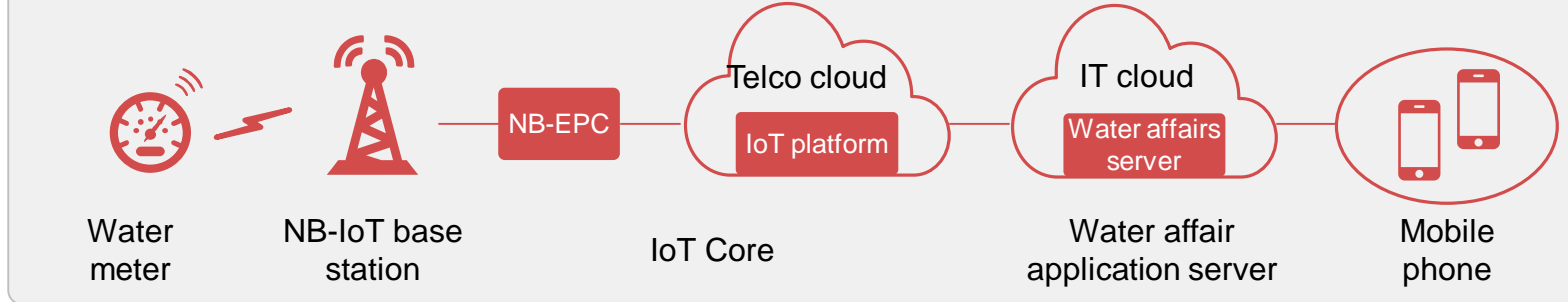
- Improves the bank's emergency management and security protection capabilities and implements networked surveillance and centralized management and control, reducing labor costs.
- Protects the customer's investment and interconnects with over 60% of the DVRs on the live network, enhancing management efficiency and increasing the factor of safety.
- Makes an appropriate network plan and leverages the bank's legacy network (bandwidth  $\leq 5$  Mbit/s), reducing the costs.



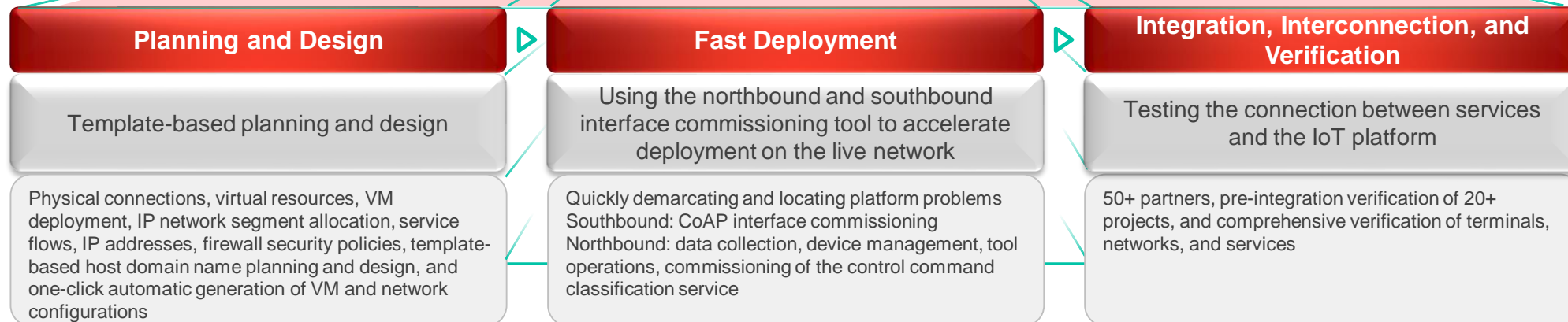
# Huawei IoT Platform Service Helps FJ Quickly Launch the Intelligent Water Meter Service



Network Architecture of the Intelligent Water Meter Service



Rollout Procedure

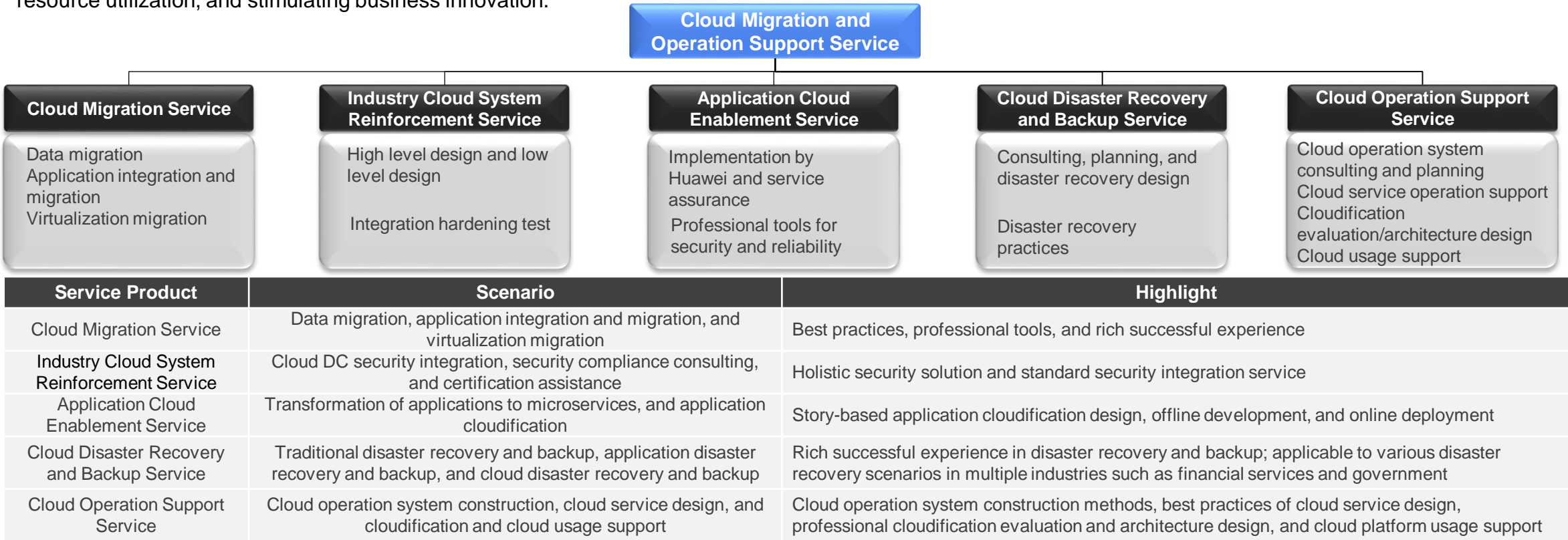




# 3.2 Cloud Migration and Operation Support Service

## Introduction

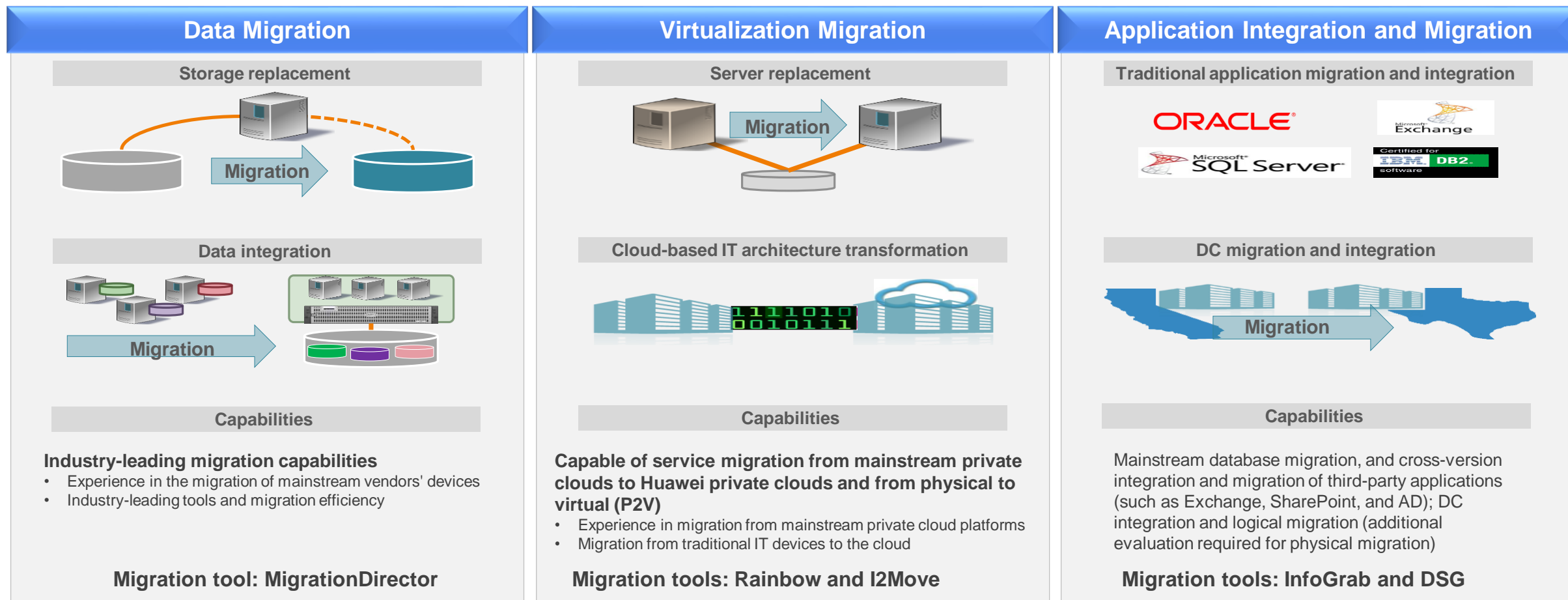
In the cloud computing 2.0 era, cloud has become one of the core technologies of digital transformation. With the aim of stimulating innovation, cloud computing no longer focuses on how to reduce costs, but on how to create greater value. This service helps industry customers quickly and smoothly implement cloud-based transformation, addressing the challenges faced by customers in cloud migration feasibility evaluation, cloud building, and cloud-based migration. In the migration phase, based on customers' live network conditions, Huawei provides the customized migration planning, design, and implementation service as well as the cloud operation support service to meet customer requirements on data integrity, service reliability, data privacy, and security. Huawei provides consulting and planning for customers' cloud operation systems and support for customers' cloud service operations (including service catalogue design and cloud usage support), helping customers with cloud service design, rollout, and continuous management, enabling secure and efficient service migration to the cloud, improving the cloud platform resource utilization, and stimulating business innovation.





## 3.2.1 Cloud Migration Service

This service covers three core parts: (1) data migration and integration; (2) virtualization, cloud migration, and architecture upgrade; (3) migration and integration of applications and DCs. It provides industry-leading tools and technical solutions, technical experts professional in migration, and comprehensive high-quality process control, helping customers implement smooth data migration and reliable, efficient, and smooth service changes.

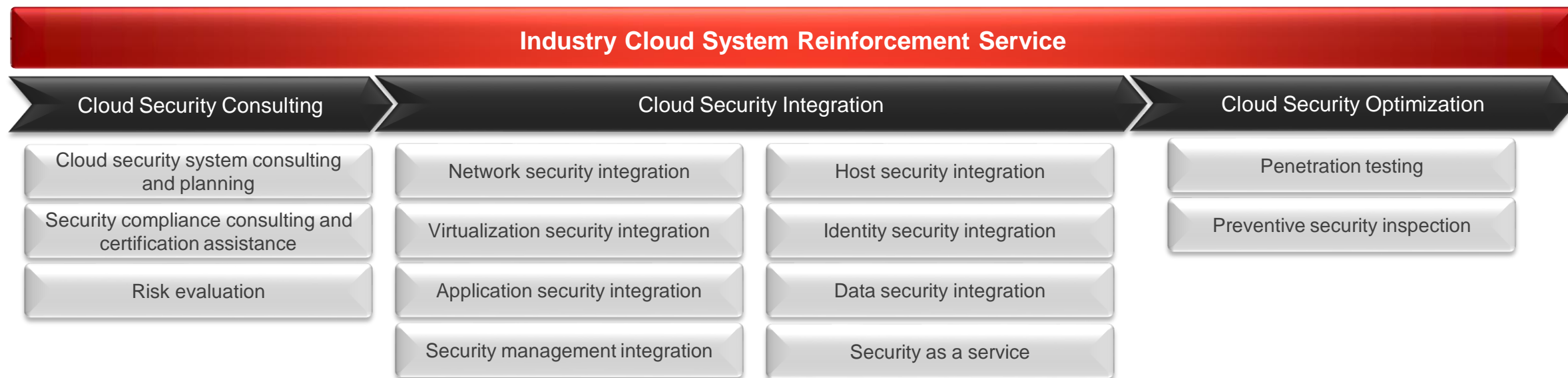


Successful delivery experience in more than 1500 global projects



## 3.2.2 Industry Cloud System Reinforcement Service

Huawei, in collaboration with industry-leading providers of security products and services, provides security consulting, security integration, and security optimization services oriented to cloud DCs. The services aim to build a multi-dimensional security protection system for customers, helping them cope with increasingly severe security challenges and threats, comply with national and regional security regulations and standards, and ensure the security and reliability of services and data on the cloud.



### Features

- **Solution:** Huawei provides a holistic security solution covering eight layers: network, host, virtualization, application, data, identity management, security management, and security as a service.
- **Delivery method:** Huawei uses proven delivery methods for standardized security integration services, ensuring successful project delivery and fast enablement.
- **Security as a service:** Huawei offers security capabilities as a service, supporting on-demand usage and elastic scaling.
- **Professional services:** Huawei provides the prospective security consulting service and professional security optimization service.

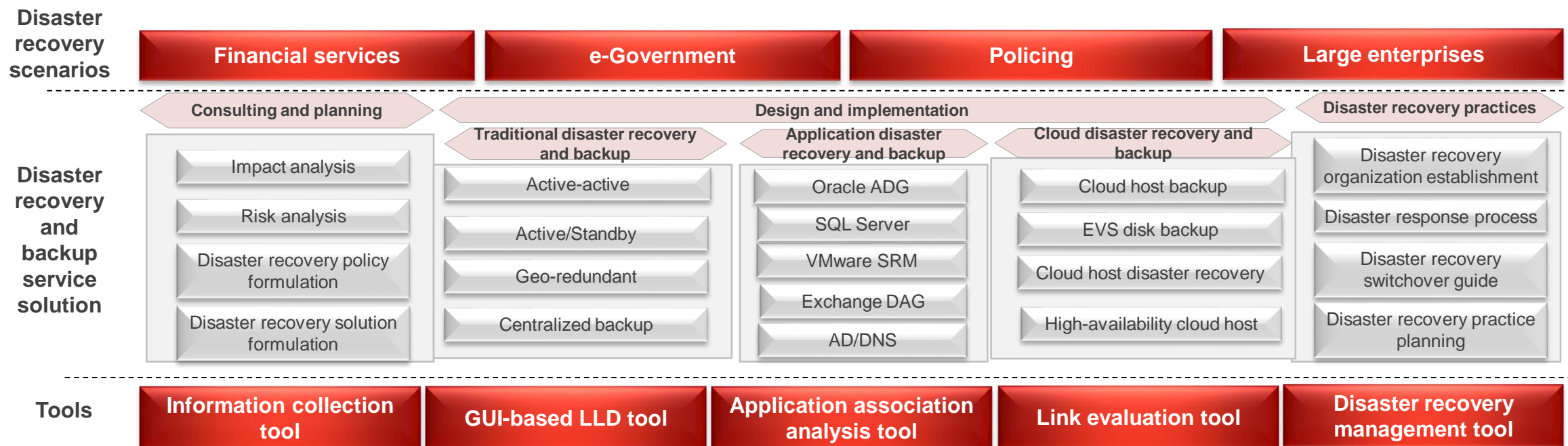
### Customer Benefits

- The security protection system of the cloud platform complies with level-3 information security standards and meets security compliance requirements.
- The cloud security system features complete architecture, in-depth defense, and multi-dimensional protection.
- The security as a service solution offers security capabilities that are deeply integrated with cloud tenants' environments.
- Automatic security management enables SDN-based automatic provisioning of network security services, reducing O&M pressure.



## 3.2.3 Cloud Disaster Recovery and Backup Service

This service supports planning and consulting, design and implementation, and practices for E2E cloud DC disaster recovery and backup. It analyzes disaster recovery requirements, formulates policies, designs disaster recovery architecture, completes solution deployment and implementation, develops emergency response plans, and carries out practices.



### Features

- Data-level, application-level, and DC-level disaster recovery and backup solutions to ensure business continuity
- Rich experience in disaster recovery and backup, covering various sectors such as financial services and government, contributing to a good brand image
- Cloud disaster recovery and backup planning, along with cloud-network convergence design, creating a standard and replicable cloud disaster recovery and backup solution

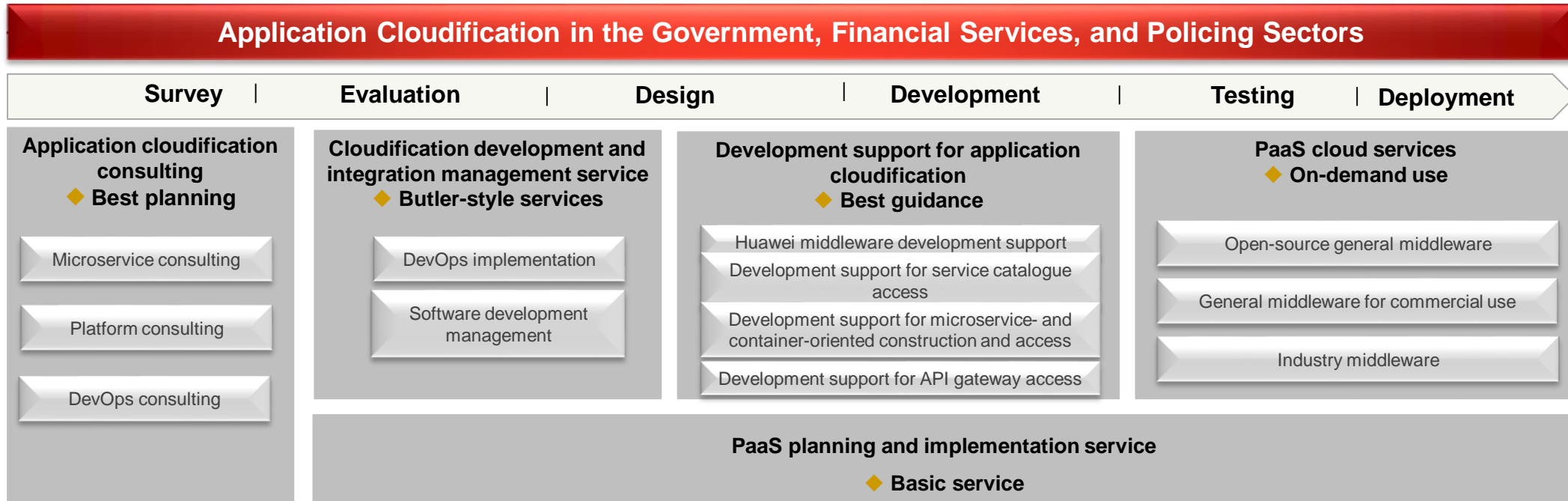
### Customer Benefits

- Customized disaster recovery and backup service solutions can satisfy customers' specific requirements.
- Disaster recovery and backup consulting, design and implementation, as well as practices and O&M meet the overall disaster recovery and backup requirements of customers' DCs.
- Optimal service solutions are provided based on Huawei's best practices.



### 3.2.4 Application Cloud Enablement Service

Huawei provides comprehensive E2E services, including consulting, integration management, installation implementation, development support, and third-party cloud services, to provide industry best practices of application cloudification and help customers achieve efficient cloud-based transformation.



## Features

- Professional E2E all-around application cloudification services for various industries
- Experience accumulated from internal super-large IT transformation projects and hundreds of industry projects, delivering best practices
- Expert team + standard processes + standard tools, ensuring efficient and high-quality project delivery

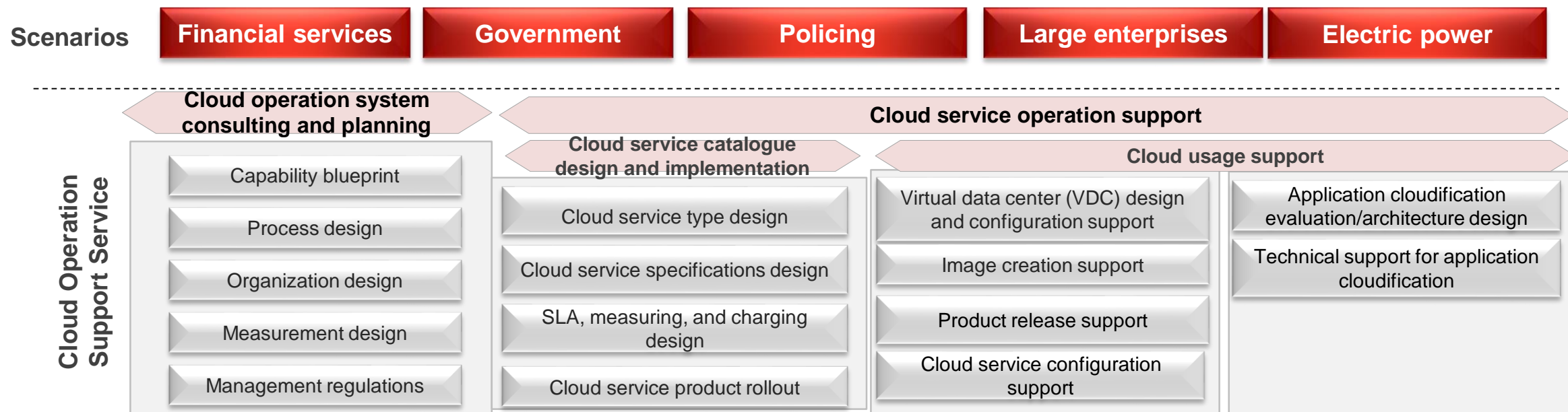
## Customer Benefits

- Accurate cloud-based transformation plans and practice roadmaps to reduce obstacles
- Application cloudification standards, and improved development, testing, and deployment specifications for independent software vendors (ISVs)
- Implementation of best practices in application cloudification, accelerating enterprises' cloud-based transformation
- Concentration on business innovation, improving enterprise competitiveness



## 3.2.5 Cloud Operation Support Service

**Introduction:** This service covers cloud operation system consulting and planning, and cloud service operation support (service catalogue design and cloud usage support). It provides E2E operation support for customers, from operation system construction to cloud service planning and design, configuration delivery, and service rollout, attempting to implement efficient service cloudification and improve the cloud platform resource utilization.



### Features

- Helps customers design operation models matching their cloudification solutions and build operation systems including processes, organizations, and regulations, ensuring that customers can make full use of cloud resources for business development.
- Provides support so that customers can implement efficient and secure cloudification and better use cloud resources.

### Customer Benefits

- Customizes operation systems that adapt to customers based on industry best practices to cultivate standard and professional cloud DC operation capabilities centered on cloud services.
- Supports the design, release, and continuous optimization of customers' cloud services, enables secure and efficient service cloudification, improves the resource utilization of the cloud platform, and maximizes the value of cloud and data on the cloud.



# Comprehensive Cloudification of Financial Applications in Province S



## Highlights:

- Supports application development and general integration, helping customers with ISV project development management and efficient accumulation of iteration capabilities.
- Defines standards and provides on-site development support, improving the cloud-based development and delivery efficiency of customers' applications.

## Challenges

- Siloed application systems, hindering sharing; low resource utilization; many old systems with poor system performance; slow response of man-machine interfaces, affecting user experience and work efficiency
- Standards not unified; different architectures adopted; difficulties in requirement implementation and vendor replacement; uncontrollable delivery

## Huawei's Service Solution

- Provides the E2E cloud-based general integration service and helps customers implement agile and efficient ISV project management, automatic development and testing, and integration verification based on DevOps.
- Assists customers with microservice-oriented architecture reconstruction of business applications, develops service platform capabilities, and provides full-cloudification solutions and implementation support for business applications.

## Customer Benefits

- ◆ Standardizes the application architecture as well as development and test management, strengthens the control over ISV application development processes, and improves the application delivery efficiency and quality.
- ◆ Supports microservice-oriented transformation of the system architecture, improves the business application scalability and flexibility, quickly responds to business requirements, and performs fast iterative upgrades, dramatically improving user experience.



# Geo-Redundant Cloud DC Migration Project for EMM in Country S

## Challenges

- The customer plans to build geo-redundant cloud DCs. The project involves more than 40 core applications, such as the vehicle dispatching system, graveyard distribution system, and payroll system. The migration must be completed in 6 months.
- Insufficient equipment room space: Need to reduce the number of servers and improve utilization.
- Lack of O&M manpower and capabilities: Require O&M automation of the new architecture to reduce manpower investment.

## Huawei's Service Solution

- Deploys the intra-city active-active architecture at the application level, and the active-standby remote disaster recovery architecture.
- Conducts detailed application survey and divides more than 40 applications into 4 migration batches.
- Adopts the Rainbow file-level online migration solution for the Windows platform and the Rainbow block-level online migration solution for the Linux platform.

## Customer Benefits

- Migrates more than 40 applications in 4 batches within 4 months.
- Achieves up to 90% virtualization rate and the 'one cloud + multiple pools' layout delivered by the heterogeneous VMware resource pool.
- Improves the management efficiency by 65% thanks to the unified, visualized O&M management platform.



### Highlight:

- E2E service capabilities of cloud migration, heterogeneous cloud platform management, and architecture disaster recovery



# e-Government Cloud CSHA Disaster Recovery Project for City S



## Highlights:

- Disaster recovery for e-Government CSHA
- Automatic and manual disaster recovery switchovers and practices, simplifying disaster recovery management

## Challenges

- The customer has clear requirements for consolidation, disaster recovery, and backup due to a number of system breakdowns and interruptions.
- Government agencies in city S need self-service disaster recovery management.

## Huawei's Service Solution

- Adopts the cloud server high availability (CSHA) architecture to build the largest active-active e-Government cloud platform in China and ensures the continuity of key business.
- Builds a high-availability cloud computing platform based on the flexible OpenStack architecture.
- Provides SLA-based customized DRaaS services to establish a smooth O&M management process for disaster recovery.

## Customer Benefits

- Rapid intra-city switchover: RPO=0, RTO~0
- Effective evaluation and analysis of business and applications, ensuring rapid disaster recovery system construction
- Automatic switchover management and SLA-based disaster recovery policies, improving efficiency by 30%
- Clear disaster recovery and backup architecture evolution roadmap, maximizing continuous return on invested assets



# Huawei Cloud Security Service Safeguards JX e-Government Cloud Platform

The JX e-Government cloud project uses a full suite of Huawei's cloud platform software and hardware to build an active-active e-Government cloud platform. Huawei is also responsible for project integration for this largest provincial e-Government cloud project in China. The professional services provided by Huawei include application cloudification evaluation and migration consulting, cloud platform planning, design, and implementation, security integration, disaster recovery and backup integration, and ITO consulting.

## Challenges

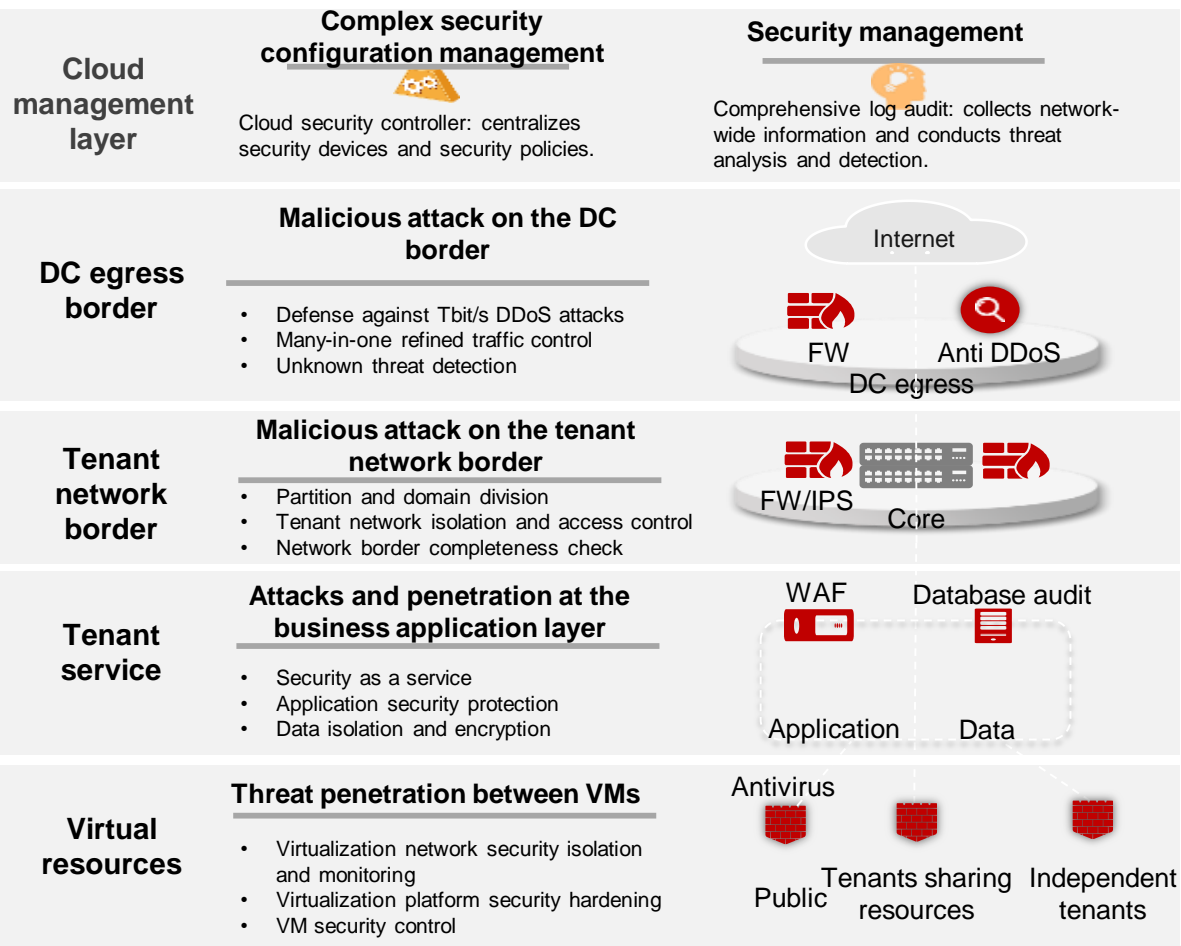
- The platform must be secure and controllable.
- Tenants (various government agencies) should be isolated from each other. The virtualization should be secure and reliable.
- Sharing and exchanges must be supported.
- The cloud platform should comply with the country's level-3 information security requirements.

## Huawei's Service Solution

- Divides security domains properly and ensures security isolation between different domains by using gatekeepers and firewalls.
- Virtual firewalls provide network isolation and protection between tenants.
- Uses the web application firewall and database audit system to protect the cloud platform against application-level attacks.
- Deploys a host security protection system to detect and defend against VM viruses.
- Adopts comprehensive log audit and bastion hosts to implement unified security management and O&M.

## Customer Benefits

- Quickly builds a comprehensive cloud security system to ensure secure running of the cloud platform and business applications on the cloud.
- The overall security of the cloud platform complies with the level-3 information security standards and has passed related certification.





## 3.3 Smart Data Enablement Service

### Introduction

Huawei helps customers build high-quality platforms, implement data governance and data mining, and exploit platform advantages for data visualization, management, and availability during digital transformation. The professional services provided by Huawei include smart data engineering, development support, management, and analysis, aiming to build a bridge among platforms, data, and applications, facilitate customers' data transformation, and help customers fully utilize the big data platforms.

### Smart Data Enablement Service

#### Smart Data Engineering Service

- Planning and design
- FusionInsight HD solution implementation
- GaussDB solution implementation
- Data migration

#### Smart Data Development Support Service

- Table design guidance
- Component development guidance
- Interconnection guidance
- Indicator optimization

#### Smart Data Management Service

- Data integration
- Data modeling
- Data governance
- Data operation support

#### AI Enablement Service

- AI consulting and architecture design service
- AI scenario development support service
- Model development support service
- AI technical support service

### Features

- Crossing three generations of platforms: database, big data, and AI; six OpenLabs around the world
- Providing the optimal overall solution; 200+ big data platform kernel engineers
- Top 1 in the big data market in China; **500+** global success stories

### Customer Benefits

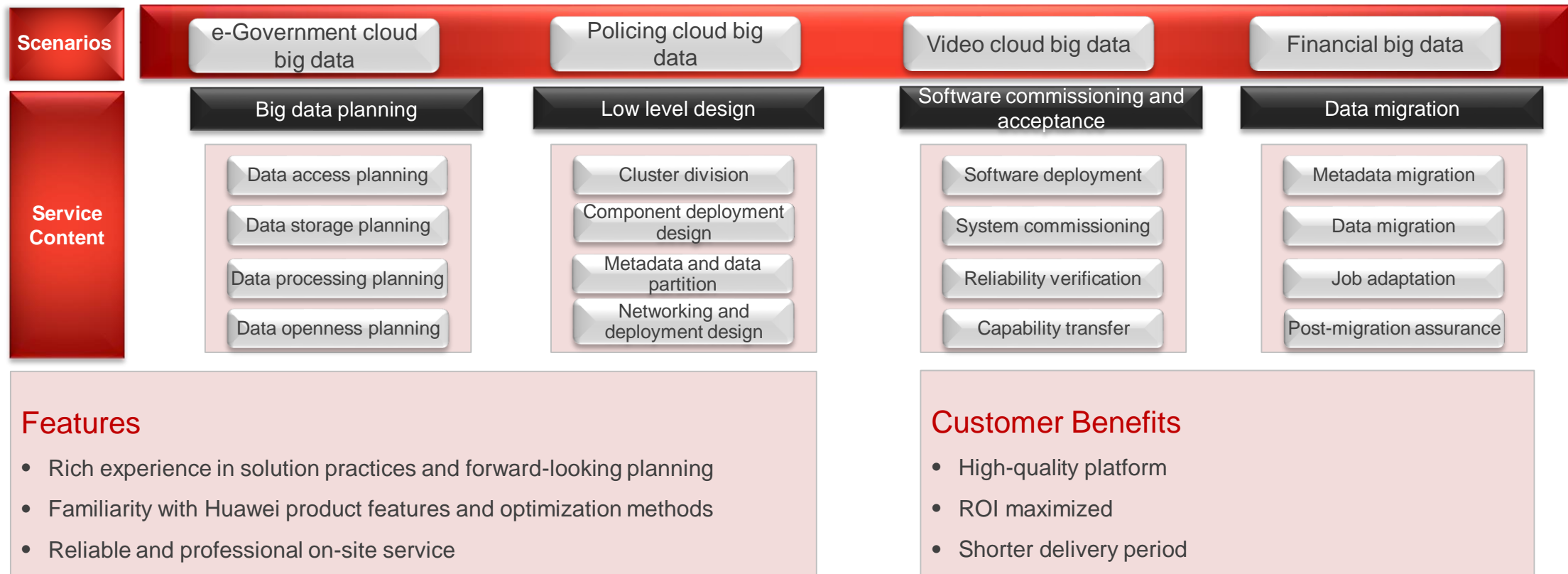
- Connects the platform and applications to explore data value.
- Improves the performance and efficiency and reduces the development burden.
- Obtains high-quality data and builds a high-quality data warehouse.



## 3.3.1 Smart Data Engineering Service

### Introduction

This service leverages the big data platform and technology to analyze customer requirements, produce enterprise data lake and data warehouse plans, and complete implementation and acceptance based on the plans, delivering a high-quality platform to customers. In addition, it helps customers with the migration from third-party platforms to Huawei's big data platform. The products involved include FusionInsight HD and GaussDB.

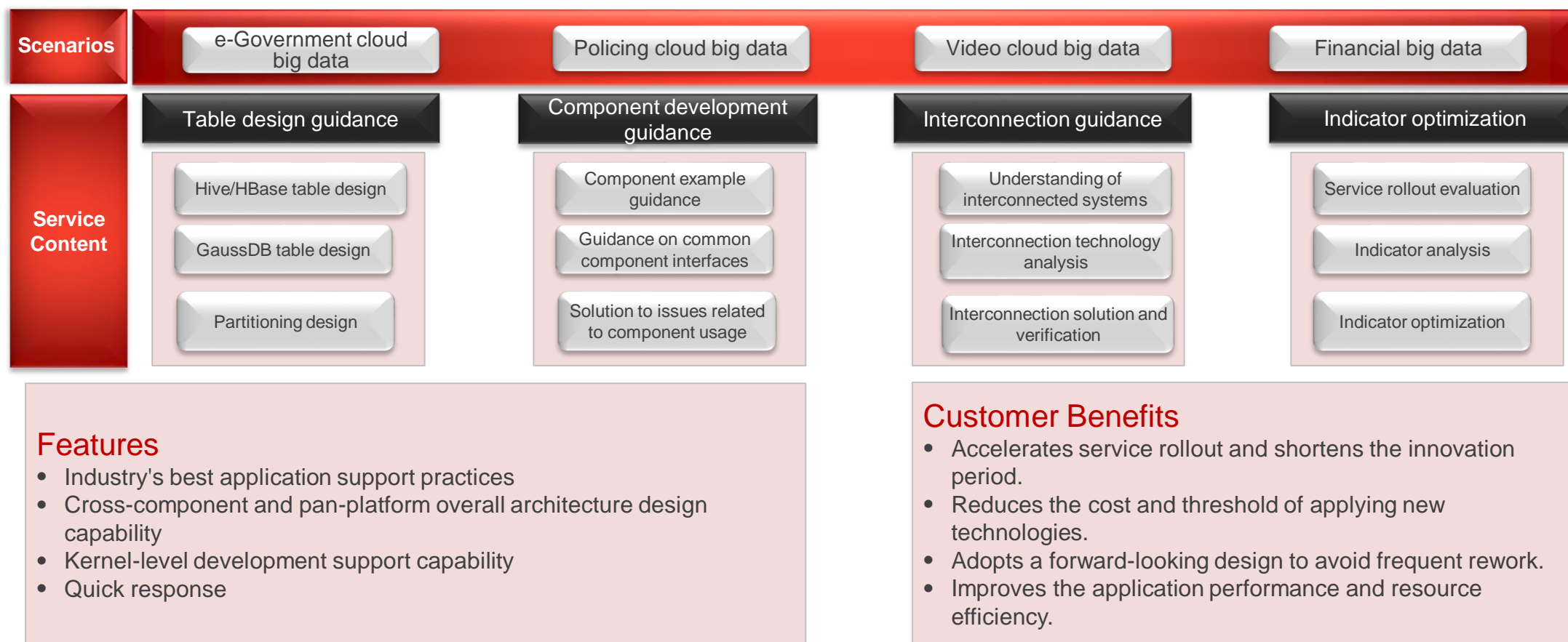




## 3.3.2 Smart Data Development Support Service

### Introduction

This service provides customers with full lifecycle support during development using the Huawei big data platform, including table design guidance, component development guidance, interconnection guidance, and indicator optimization. It aims to reduce customers' learning costs and improve customers' application development efficiency and quality.

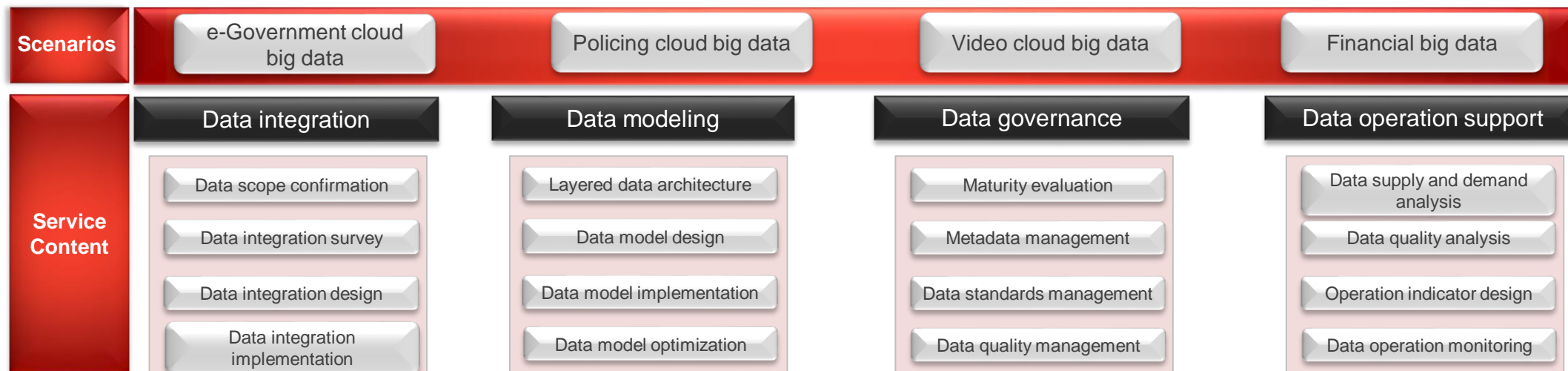




## 3.3.3 Smart Data Management

### Introduction

This service helps customers build a robust and effective data management mechanism and system, and provides customers with trustworthy, reliable, and usable data access service to help them improve their unified data standards and models. In addition, data views are provided to improve data quality and make data management mechanisms more effective.



### Features

- Comprehensive technologies, covering structured and unstructured data
- Rich experience in ecosystem building and vendor integration
- Trustworthy services provided by data experts from various domains

### Customer Benefits

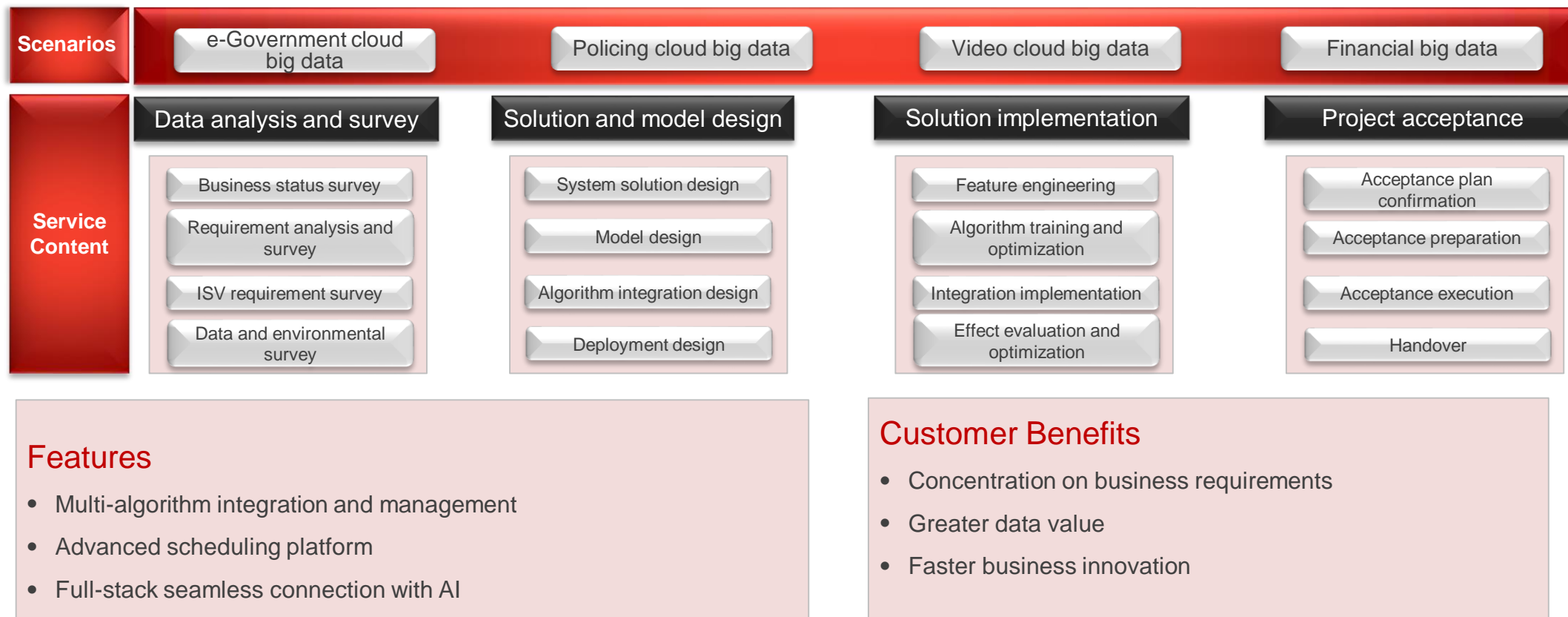
- Unified data standards and models
- Available and readable data supported by data views
- Improved data quality and complete data management mechanism



## 3.3.4 AI Enablement Service

### Introduction

Huawei AI technologies are utilized to develop scenario-specific solutions and deepen collaboration in the digital ecosystem. In this way, Huawei can transform customers' business pain points and requirements into AI algorithms and scenario-specific models, developing customers into intelligent enterprises competent in business innovation and intelligent decision making.





# Success Story: Bank G's Converged Data Warehouse Building

Bank G has been using Huawei's FusionInsight big data platform since 2014. Before that, in the face of fierce competition from peers and Internet finance, the traditional data warehouse could not fully meet PB-level big data analytics requirements. In addition, the data warehouse system featured high costs and closed architecture, which was not conducive to innovation and development. Therefore, Bank G was much concerned for a long time. After cooperating with Huawei, Bank G had its data warehouse enhanced and adapted by Huawei in terms of the big data reliability and security. After that, Bank G successfully launched big data applications, such as customer profile, precision marketing, and anti-fraud. Compared with the traditional architecture, the new architecture has the software and hardware costs reduced by 90%, implementing real-time sharing of the big data platform resources and data. The resource utilization is improved by 166%.

## Challenges

- In the face of diversified competition from peers and the Internet finance, the traditional data warehouse could not fully meet PB-level big data analytics requirements, for example, real-time user profile, precision marketing, and anti-fraud.
- The existing data warehouse system featured high costs and closed architecture, which was not conducive to innovation and development.

## Huawei's Service Solution

- Understanding of business development: introduces the Hadoop/MPPDB data platform with an open architecture.
- Planning and design: optimizes the data mart and enhances data sharing.
- Development support: helps the customer resolve nearly 100 technical difficulties in business innovation.
- Big data migration: implements migration of 12 million small files (online), 300+ TB data of the original data warehouse, and about 20,000 jobs.

## Customer Benefits

- Transforms the enterprise data warehouse into a system featuring cost-effectiveness, open architecture, and technology development.
- Launches big data applications, such as customer profile, precision marketing, and anti-fraud.
- Reduces the software and hardware costs by 90% compared with the traditional architecture.





# Success Story: Data Governance in New Area L

China's big data strategy emphasizes data resource integration, openness, and sharing, with the aim of building a digital China that can better serve the national economic and social prosperity as well as well-being improvement. Against this background and challenge that data is unknown, inaccessible, uncontrollable, and independent, the government of new area L has chosen to cooperate with Huawei. Thanks to the mature data governance system architecture, Huawei's professional data governance service solution helps customers implement unified management, sharing, planning, and standards. Finally, one map is formed using more than 240,000 metadata records in the whole area, six basic databases are built based on more than 200,000 data items, a data quality management system is created, and unified data standards are formulated, enabling more than 20 government applications of this area to provide services efficiently.

## Challenges

- Unknown data: data barriers and no unified management of data
- Inaccessible data: complex data sharing process and difficulties in obtaining data
- Uncontrollable data: poor data quality and incomplete data quality management system
- Independent data: lack of data standards, and no association of data from different business systems

## Huawei's Service Solution

- Unified management: centralized management and optimization of data assets
- Unified sharing: cross-domain data sharing and flow
- Unified planning: unified planning of big data requirements and development
- Unified standards: unified data standards for different applications, making data easy to be understood, obtained, controlled, and associated

## Customer Benefits

- One data map based on more than 240,000 metadata records
- Six basic databases integrating more than 200,000 data items and supporting more than 20 applications
- One data quality management system composed of more than 400 check rule libraries and three main processes
- Unified data standards for 125 types of national and local standards to standardize data of more than 70 offices





# Success Story: Review of Unusable Images to Facilitate Smart Transportation in City S

Huawei's intelligent remote law enforcement solution adopts AI technologies to help traffic departments intelligently preview images taken at road checkpoints to detect traffic violations, thereby significantly improving the efficiency of traffic violation investigation and handling in city S. Huawei's Smart Data Analysis Service supports the AI deep learning platform and excellent algorithm warehouses, allowing data and resources to be fully utilized and improving law enforcement efficiency.

## Challenges

- Heavy workload: 30,000 images needed to be manually reviewed every day, requiring more than 100 persons.
- Large number of unusable images: A total of 24,000 images were regarded as unusable by manual review every day, leading to law enforcement omissions.
- New types of violations: such as making phone calls during driving, and driving on prohibited lanes

## Huawei's Service Solution

- Secondary image recognition: identifies various types of violations based on the AI intelligent algorithm platform and all images provided by the image access system.
- Secondary analysis of unusable images: uses the AI platform to identify usable images from those regarded as unusable by manual review.

## Customer Benefits

- The number of traffic violation images that need to be manually reviewed is reduced from 30,000 to 9000, reducing the pressure on manual review.
- Unusable images are strictly reviewed, increasing 300 usable images per day and enhancing law enforcement.





## 3.4 DC Integration Service

### Introduction

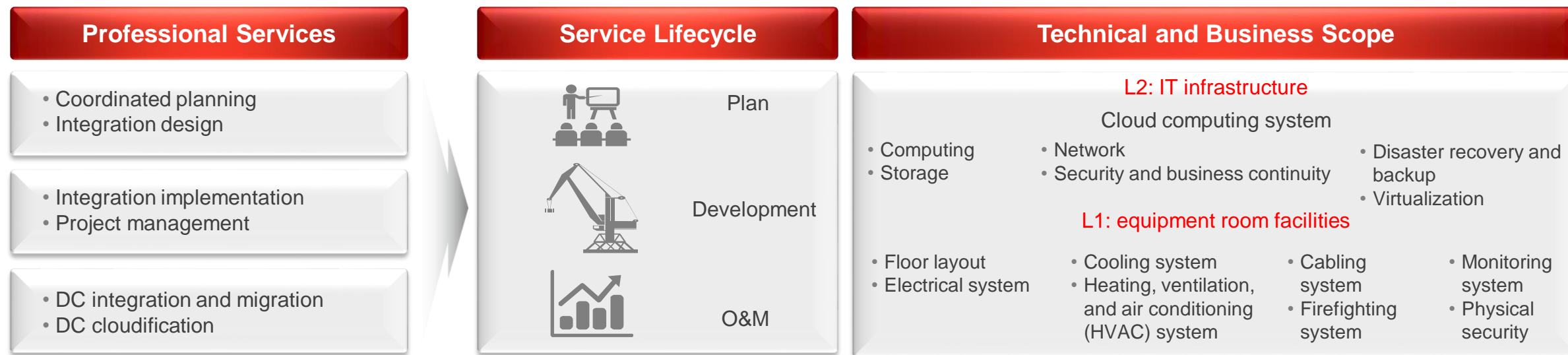
Enterprise DCs are built to support businesses. The Huawei Enterprise DC Integration Service takes a business-oriented, top-down approach through the service lifecycle. This enables efficient infrastructure development, accelerates service deployment, reduces energy consumption, and lowers the system TCO.

Flexibility and efficiency of a DC are critical for business agility and future business growth, and help lower the DC OPEX. This service provides coordinated planning, integration design, and integration implementation services for enterprises, helping them build flexible and eco-friendly modular cloud DCs.

This service has more than 100 service models, which can help customers identify their business needs and determine their requirements for IT infrastructures and equipment room facilities. It can also help customers balance the requirements of different departments, effectively lowering the CAPEX and maximizing the ROI.

Designed with flexibility and eco-friendliness in mind, this service helps customers handle ever-growing applications and IT systems to meet their present and future business requirements in an agile and cost-effective way.

Huawei's eco-friendly and energy-saving technologies have helped more than 880 DCs around the globe, including 420 cloud DCs, effectively lowering their long-term OPEX.





## 3.4.1 DC Integration Service — L1: Equipment Room Facilities

### Challenges

Customers face the following challenges when building DCs:

- 1. Equipment room facilities have a longer service life:** In a DC, equipment room facilities have a service life 3-5 times that of the IT infrastructure and dozens of times longer than application systems. Therefore, facilities in the equipment room must be highly adaptable to meet the future upgrade and capacity expansion requirements.
- 2. Different departments have different KPI requirements:** Most of the KPI requirements are ad-hoc and require a quick turnaround. For example, the sales department needs to lease more racks. The business planning department focuses on short-term business development, while the construction department places more attention on long-term development of equipment room facilities.
- 3. High OPEX after the DC is built:** The electricity cost accounts for over 30% of the DC's OPEX. To reduce the OPEX, customers require eco-friendly designs and cloud computing services to build an energy-saving and flexible environment for the DC.

The successful construction of a DC relies on a clear statement of requirements (SOR), which generally includes the requirements on flexibility and scalability of the equipment room facilities and IT infrastructure.

### Features

The Huawei Enterprise DC Integration Service consists of three parts: coordinated planning, integration design, and integration implementation.

#### 1. Coordinated Planning

Huawei uses proven models and processes to plan equipment room facilities, IT infrastructure, and application systems in a coordinated manner while fully considering their lifecycle differences. These models and processes can also precisely identify the business requirements of different departments and provide SOR reports based on the corresponding business models for customers.

#### 2. Integration Design

To better respond to customers' requirements and pain points, Huawei provides flexible and energy-saving system integration design based on the modular DC solution.

The hybrid cooling system uses room-, row-, and cabinet-level cooling designs to flexibly control the temperature. The reliable and scalable architecture is **provided by Huawei** to cope with different SLA and Uptime Tier standard requirements and meet diverse business requirements. The visualized planning and design platform uses professional tools, such as 3D modeling and CFD simulation, to significantly reduce risks in construction, rack deployment, and thermal distribution.

The Huawei green technology lab researches cooling technology and energy efficiency. Huawei provides chip-, device-, and equipment room-level research platforms and owns more than 50 technology patents.

Huawei is an active contributor in leading organizations such as the Green Grid, ASHRAE, LEED, Uptime, CCSA, and ETSI, and has over 60 research partners worldwide.

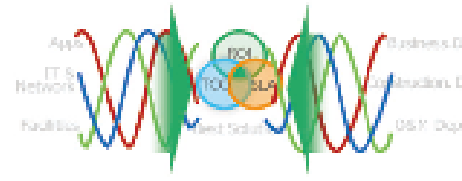
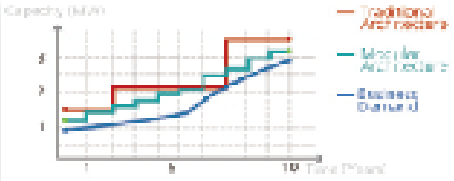

Huawei has conducted joint innovation projects with more than 10 customers worldwide. Some of these projects have won prestigious DC awards from Datacenter Dynamics.

Huawei's integration design service integrates multiple eco-friendly technologies into customers' DCs, including CCHP, natural cooling, HVDC, and heat pipe backplane, with positive results.



### 3. Integration Implementation

The Huawei DC Integration Implementation Service can help customers quickly and efficiently construct DCs, shortening DC TTM. Huawei has its own testing and verification lab for verifying all integration designs, which helps ensure successful project delivery. Huawei has extensive experience in DC implementation, including quality and project management. Our quality management system is designed around '4 phases and 16 steps' and efficiently manages and controls project risks. The 4 phases are quality planning, assurance, control, and evaluation.

Smart Investment Reducing TCO by 25%	Accelerated TTM Shortening TTM by 50%	Best Practice PUE = 1.2	
<b>Coordinated Planning</b>  <ul style="list-style-type: none"><li>• Coordination at multiple levels: application, IT, network, and equipment room</li><li>• Coordination among different departments: sales, business, and construction</li></ul>	<b>Integration Design</b>  <ul style="list-style-type: none"><li>• Design for flexible capacity expansion and upgrade</li><li>• Eco-friendly, efficient, and energy-saving design</li></ul>	<b>Integration Implementation</b>  <ul style="list-style-type: none"><li>• Quality management</li><li>• Schedule management</li></ul>	
<b>Integration Capabilities</b>			
<ul style="list-style-type: none"><li>• 100+ business models</li><li>• 10+ scenario-based architectures</li><li>• ROI and TCO investment analysis tool</li></ul>	<ul style="list-style-type: none"><li>• 100+ design cases</li><li>• 50+ eco-friendly technology patents</li><li>• CFD simulation tool</li></ul>	<ul style="list-style-type: none"><li>• 1000+ certified engineers</li><li>• 5000 m<sup>2</sup> lab</li><li>• Rainbow tool</li></ul>	<ul style="list-style-type: none"><li>• PUE evaluation tool</li><li>• BIM 3D visualized modeling tool</li><li>• Energy efficiency evaluation tool</li></ul>

#### Customer Benefits

More than 880 DCs in the world, including 420 cloud DCs, have successfully applied and benefited from the Huawei DC Service Solution. With the help of Huawei's industry, IT, and infrastructure experts and special analysis tools, customers can have deep insight into business requirements. The modular architecture can help reduce the CAPEX and OPEX. The flexible business system meets different SLA and availability requirements. In addition, the scalable system architecture can easily support capacity expansion in the future. Huawei's system architects, technology consulting team, IT engineers, and infrastructure experts work closely to help customers identify business strategies, define IT strategies, and customize DC infrastructure. Huawei services throughout the DC lifecycle help customers shorten the TTM and focus on their core businesses.

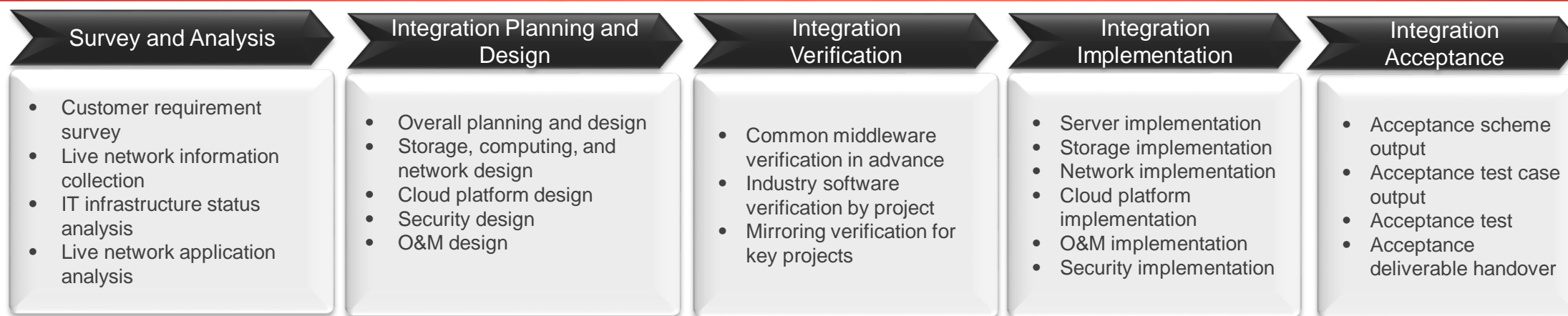


## 3.4.2 DC Integration Service — L2: IT Infrastructure

### Introduction

Huawei offers a whole portfolio of IT infrastructure planning and implementation services to answer to the IT infrastructure design and construction demands of customers. The services cover servers, storage, networks, and cloud platforms. Huawei also provides an overall DC IT infrastructure solution. With its rich IT service experience and powerful expert team, Huawei provides comprehensive IT service solutions and meets customers' requirements for business reliability and data security.

### DC Integration Solution — L2 IT Infrastructure



### Features

- Full coverage of all types of IT professional service scenarios, providing one-stop service solutions
- Standardized and process-based services, helping customers plan, implement, and maintain the IT infrastructure
- Rich experience gained from successfully delivering massive IT professional services, covering multiple industries, such as finance and government, and building a good brand image
- Asia's largest OpenLab, numerous excellent practices, and complete technical certification systems

### Customer Benefits

- Customized IT professional service solutions, meeting customers' personalized requirements
- Standardized service process, reducing the fault rate and improving business reliability and data security
- Automation tools, improving service efficiency and reducing customer costs
- Various excellent practices, providing optimal service solutions for customers



# Success Story: Country M's National DC Project Delivered Using the Huawei Enterprise DC Service Solution



## Project Overview

Country M's national DC covers 2200 m<sup>2</sup> and the owner is the National Ministry of Science and Technology. The project is a turnkey project that complies with Uptime Tier III design standards. Huawei provides the E2E solution that covers civil work, equipment room devices, ICT integration, and delivery implementation for the DC.

## Challenges

- A lack of the unified database carrier failed to support interoperability and integration of government services and ministries' services.
- Capital shortage made management of the DC construction budget more difficult.
- A lack of flexible IT infrastructure hindered the development of new services.
- The capabilities of constructing the equipment room facilities based on the Uptime standards were not supported.
- The existing equipment room required high O&M costs, demanding energy-saving design.
- The newly constructed DC could not be launched or take services within a short time because of no project management capabilities.

## Huawei's Enterprise DC Service Solution

- Accurately identifies business requirements based on the four core business models.
- Customizes the infrastructure and sets two areas (private and leasing) to meet requirements of national ministries and enterprises in the campus, and simplify and promote the future service expansion and evolution of the DC.
- Adopts high-reliability design for the equipment room including its layout, power supply, cooling system, and energy-saving; employs reliability technologies such as hardware backup and redundancy for key devices.
- Introduces the modular design concept and uses dedicated design tools (including 3D modeling and CFD simulation) to meet service requirements and improve design flexibility and efficiency.

## Customer Benefits

- Service interoperability and integration: promotes interoperability and integration of government services and ministries' services based on the infrastructure.
- Unified budget management: helps the Ministry of Finance manage complex DC budgets of different ministries and solve capital shortage issues.
- Business-oriented architecture: meets the increasing requirements on new IT services with the flexible modular architecture.
- Uptime consulting service: provides free-of-charge consulting and design drawing pre-review services.
- Energy-saving design: uses energy-saving design to control the PUE to a value smaller than 1.4, reducing the OPEX and TCO.
- Rapid service rollout: implements strict quality management and schedule management to ensure efficient and quality project operation, reducing the TTM of the customer's DC.





# CHAPTER FOUR

Industry Consulting and Application Integration

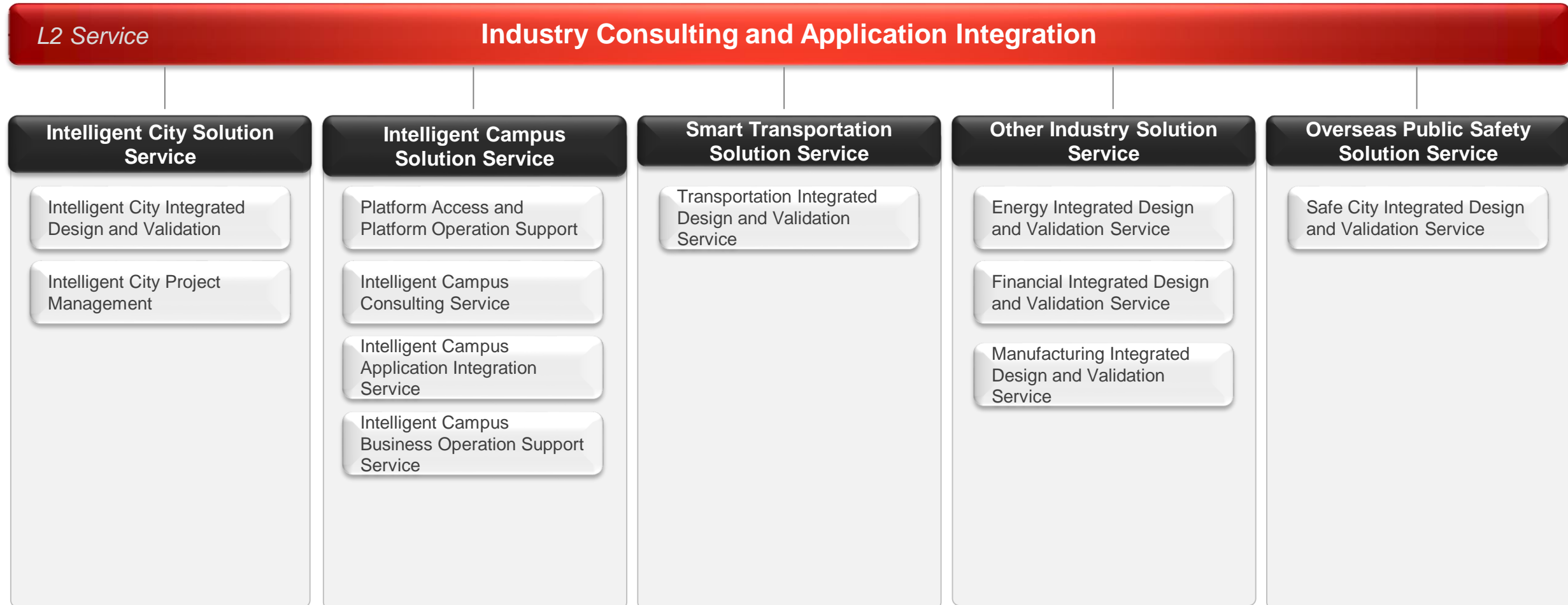
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Home



# Industry Consulting and Application Integration Portfolio





A wide-angle, long-exposure photograph of the Guangzhou skyline at night. The Canton Tower, a tall, lattice-structured tower, is illuminated in red and orange, standing prominently on the left. The Pearl River flows in the foreground, reflecting the city lights. To the right, a cluster of modern skyscrapers is lit up with various colors, including purple and blue. The sky is a deep blue, and the overall scene conveys a sense of a vibrant, modern metropolis.

# Intelligent City Consulting & Application Integration Service

Enabling Smarter City Management and  
Creating Better Lives



# Intelligent City Consulting & Application Integration Service

Focusing on the concept of "enabling smarter city management and creating better lives," Huawei applies intelligent city construction best practices, and more than 30 years of experience in the ICT industry, to help city managers improve service quality and efficiency. Huawei provides a comprehensive Intelligent City Solution Service that integrates top-level planning, design validation, integration implementation, operation support, optimization, improvement, talent development, and project management, supporting intelligent city construction.

## Huawei Intelligent City Consulting & Application Integration Service Solution

### Top-Level Design Service

- Top-level solution design
- Feasibility study support
- Preliminary design support

### Integrated Implementation Service

- Digital brain integration service
- Intelligent application integration service
- Digital platform integration service

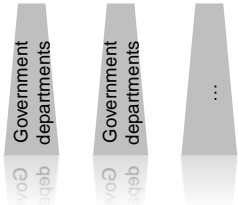
### Continuous Operation Service

- System O&M service
- Operation support service
- Intelligent city talent development service

### Customer Pain Points



Difficult overall planning and few reference cases



Many data silos and inefficient sharing



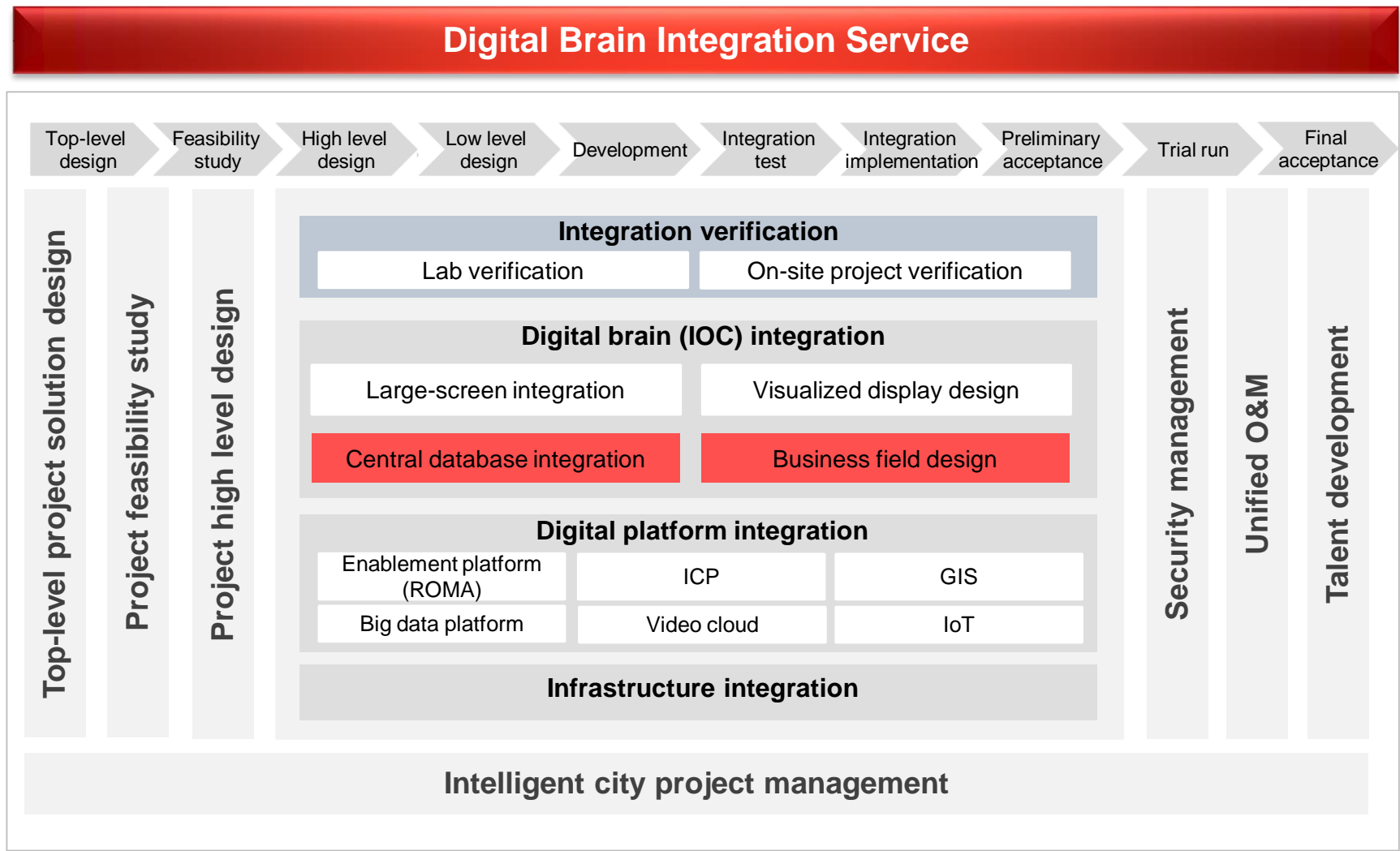
Various city components which are difficult to control



Multiple business departments, complicating service collaboration



# Digital Brain Integration Service

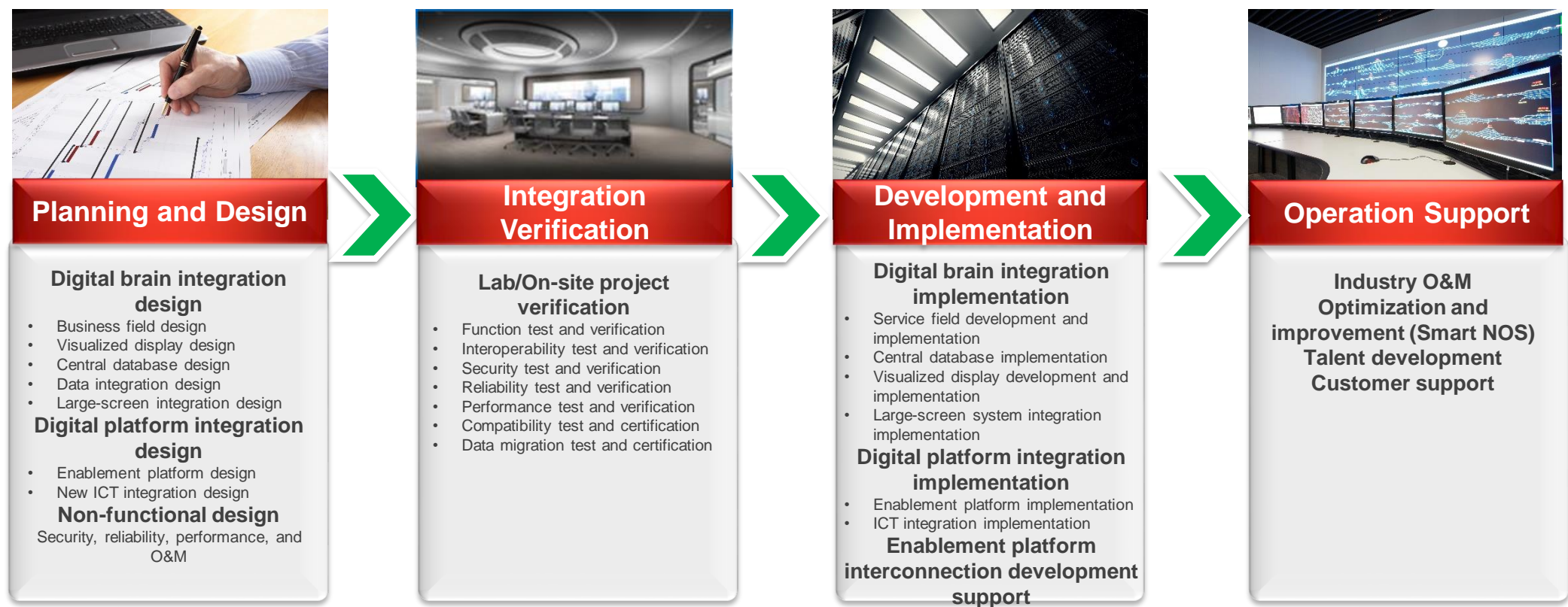


## Service Highlights

- **Independent and controllable:** The future-oriented, top-level design uses open and inclusive technical architectures to maximize the return on government IT investment.
- **Secure and shared:** The comprehensive city digital platform architecture ensures that urban data is secure and shared to fully unleash the data value.
- **Business-driven:** An intelligent city's digital brain integrates more than 10 IOC business fields and 50 government service functions.
- **Mutually beneficial partnership:** Huawei works with ecosystem partners to develop industry-leading solutions.



# Digital Brain Integration Service





# Success Story: Intelligent City Project at L New Area

## Building a New Industrial City on the Silk Road Through Technology-Led Innovation



### Challenges

- Overall objectives: The area wanted to enhance city service functions, establish a strategic platform for opening up to the West, and set up an industry and R&D base to drive regional economic development.
- Challenges: The newly established area suffered from limited industries, insufficient resources, vulnerable ecosystem, limited financial investment, as well as weak technological and innovation capabilities.

### Huawei's Service Solution

- **Digital brain integration service:** Built an intelligent operation center (IOC) to centrally schedule city services and manage data assets.
- **Digital platform integration service:** Centrally planned, constructed, and managed city information infrastructure, such as the spatial-temporal information platform, IoT platform, video sharing platform, unified communications platform, big data sharing platform, cloud data center, e-government network, and city IoT. Quickly rolled out city applications such as emergency command, smart government, smart environmental protection, and segment-based governance on the platform.

### Customer Benefits

- The largest big data industrial park in Northwest China has been built, attracting 397 industry projects and industry clusters worth CNY200 billion. This promoted the smart development of industries such as tourism, logistics, and manufacturing.
- Smart environmental protection and water management applications are used to fully monitor water quality and green spaces. The urban greening rate has reached 31%.
- The measurable and visualized smart government services improve administrative approval efficiency by 50%.
- A 15-minute life circle has been built, offering high-quality education and medical resources to all residents.





# Intelligent Campus Bringing Digital to Every Campus for Pervasive Intelligence



# Intelligent Campus Solution Service

- How to plan for the future (cloud/big data/intelligence)?
- How to meet the requirements of various services?
- How to make full use of existing assets?
- How to ensure that the top-level design is followed?
- How to meet customized business demands?
- How to verify the feasibility of E2E solutions?
- How to meet the requirements for fast rollout?
- How to control the delivery quality?
- How to manage multi-vendor integration?
- How to perform O&M based on the platform?
- How to operate to achieve good indicator results?
- How to track business changes?

What to build

How to build

How to build high-quality campuses

How to operate

Customer pain points and challenges

Huawei's service solution

Top-level design

Business objective

Industry analysis

Constriction content

Budget evaluation

Benefit analysis

Implementation planning

Procurement model

Supply list

Solution design

General design of ELV engineering

Technical architecture

Function list

Solution design

Detailed quotation

Campus cloud service design

Solution implementation

Engineering: decoration, cabling, and pole deployment

Front-end deployment

Platform deployment

Application integration

Service setting

Joint development of data models and platforms

Operation management

Front-end maintenance

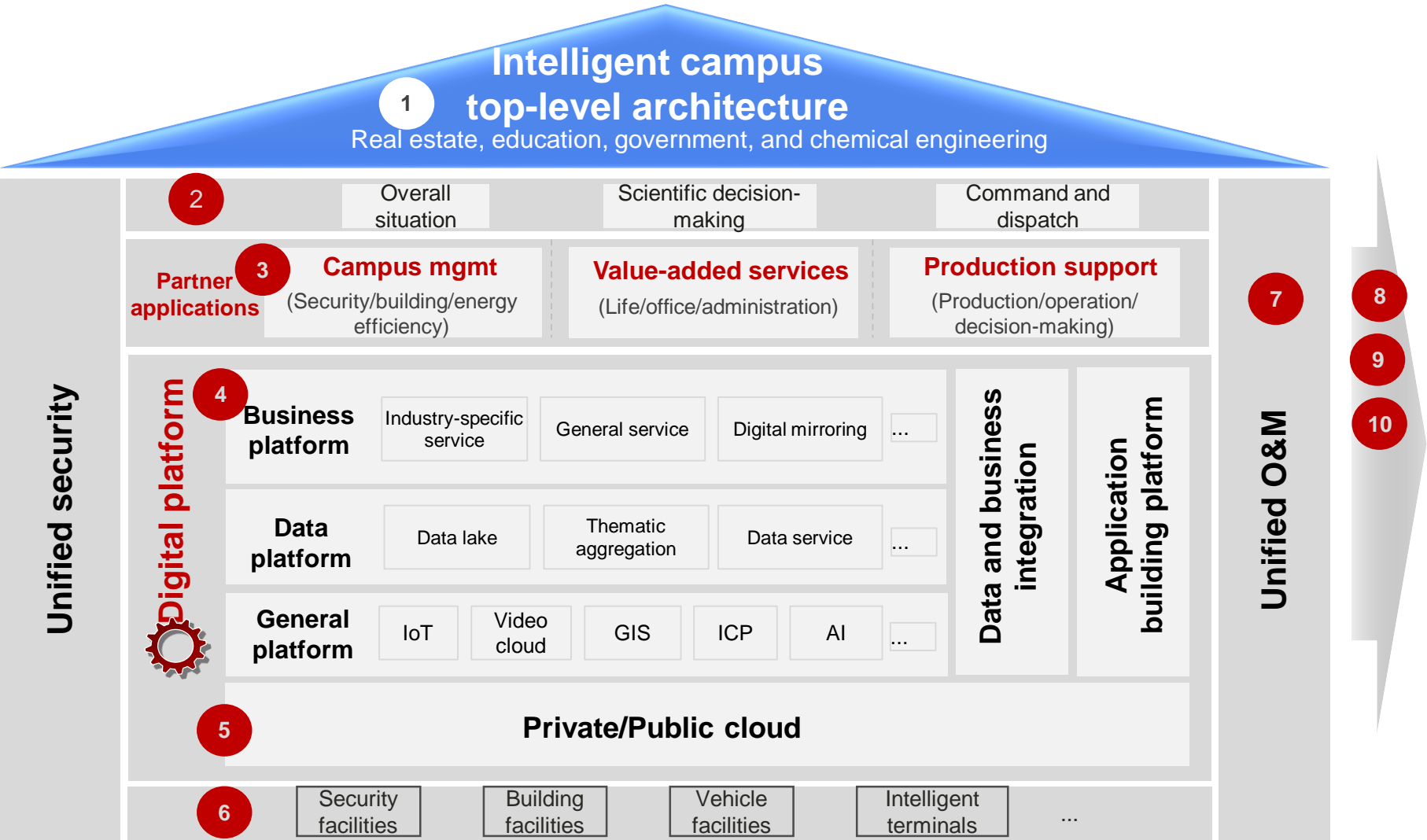
System maintenance

New business support

...



# Intelligent Campus Solution Service



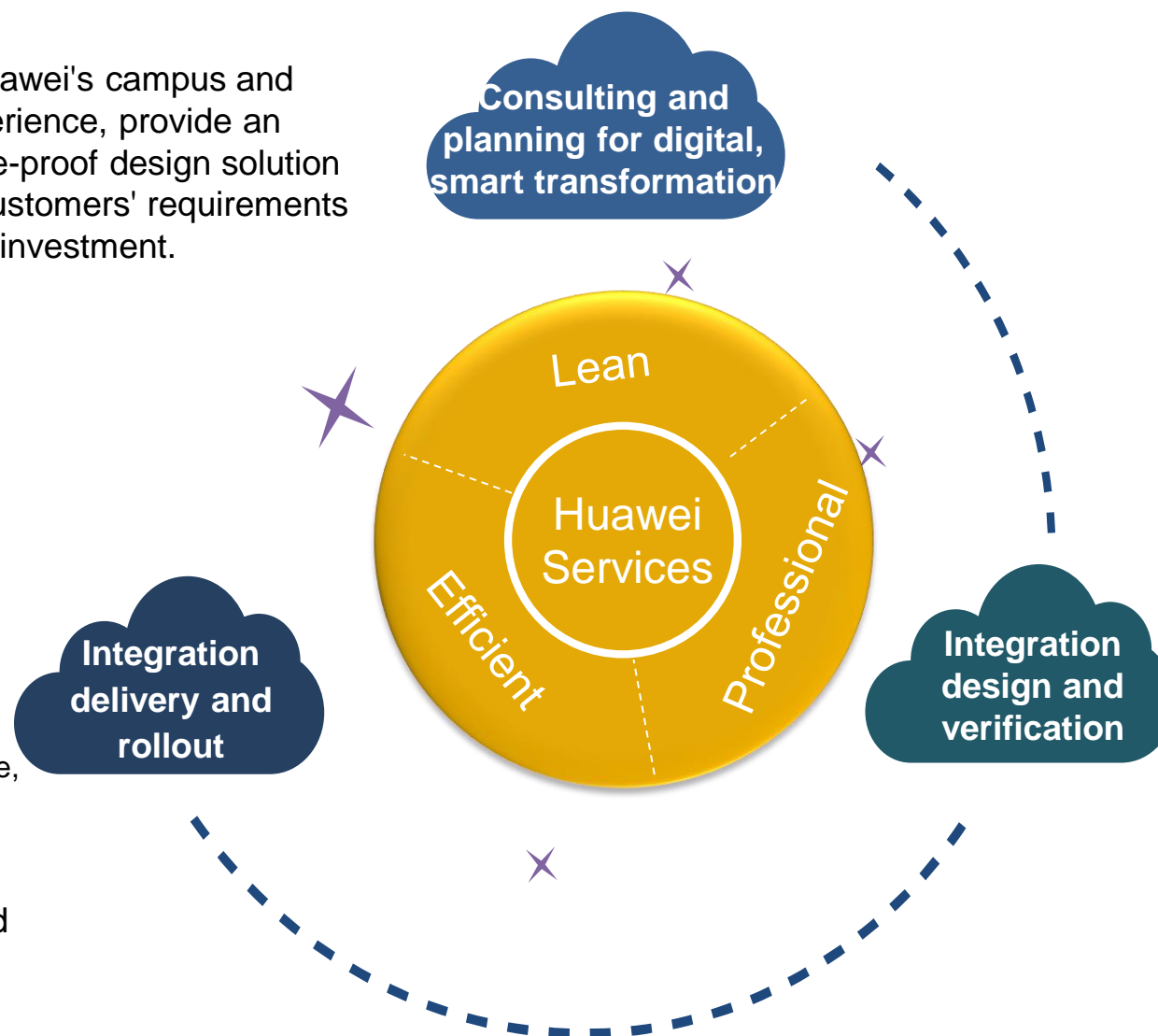
No.	Service
1	Consulting and planning service for digital, smart transformation
2	IOC integration service (IOC design guide and development support)
3	Application design service/development support service
4	Basic service of the enablement platform
5	ICT infrastructure design service
6	Purchased part service
7	Campus solution O&M service
8	System scenario integration service
9	Operation support service
10	Training/Certification service



# Service Solution Value

Based on Huawei's campus and industry experience, provide an optimal future-proof design solution that meets customers' requirements and protects investment.

- Abundant experience in project integration delivery
- Professional scenario-specific integration delivery capabilities, supporting quick rollout (quick infrastructure deployment, big data service capabilities, migration service, and customized platform integration capabilities)
- Excellent experience in procurement from suppliers and supplier delivery & quality management



- Extensive experience in ICT infrastructure design
- Excellent experience in application platform design and rich ISV resources
- Global OpenLabs, providing E2E design verification capabilities



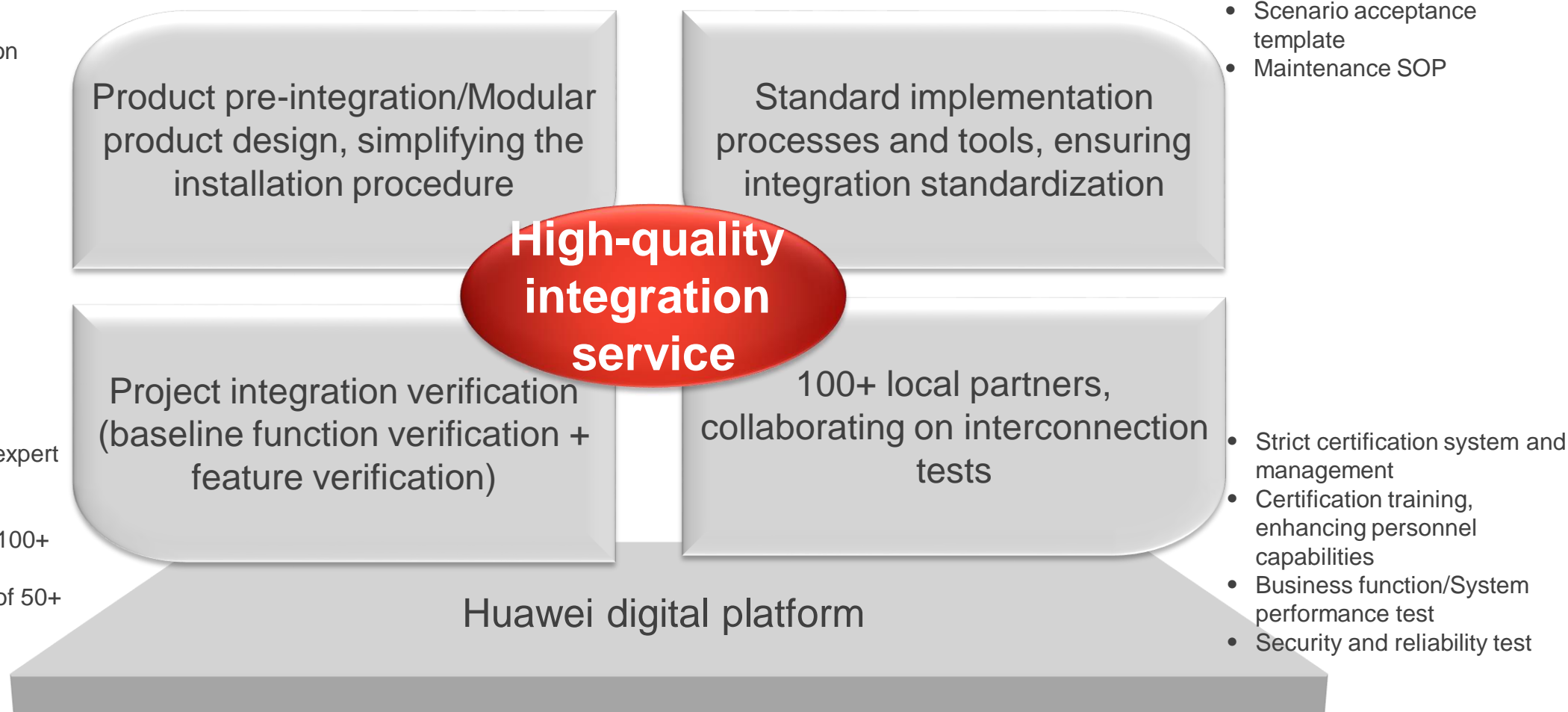




# Intelligent Campus Application Integration Service: System and Scenario Integration Service

- Product pre-integration
- Modular design

- Scenario integration expert team
- 20 open labs
- Joint innovation with 100+ industry partners
- Success experience of 50+ projects





# Intelligent Campus Application Integration Service: Data Service

01

## Data planning

Project business system and data survey, project requirement survey, and data architecture design

03

## Data integration

Campus business system data extract, transform, and load (ETL), including data integration solution design, data integration tool interconnection, and data integration implementation

02

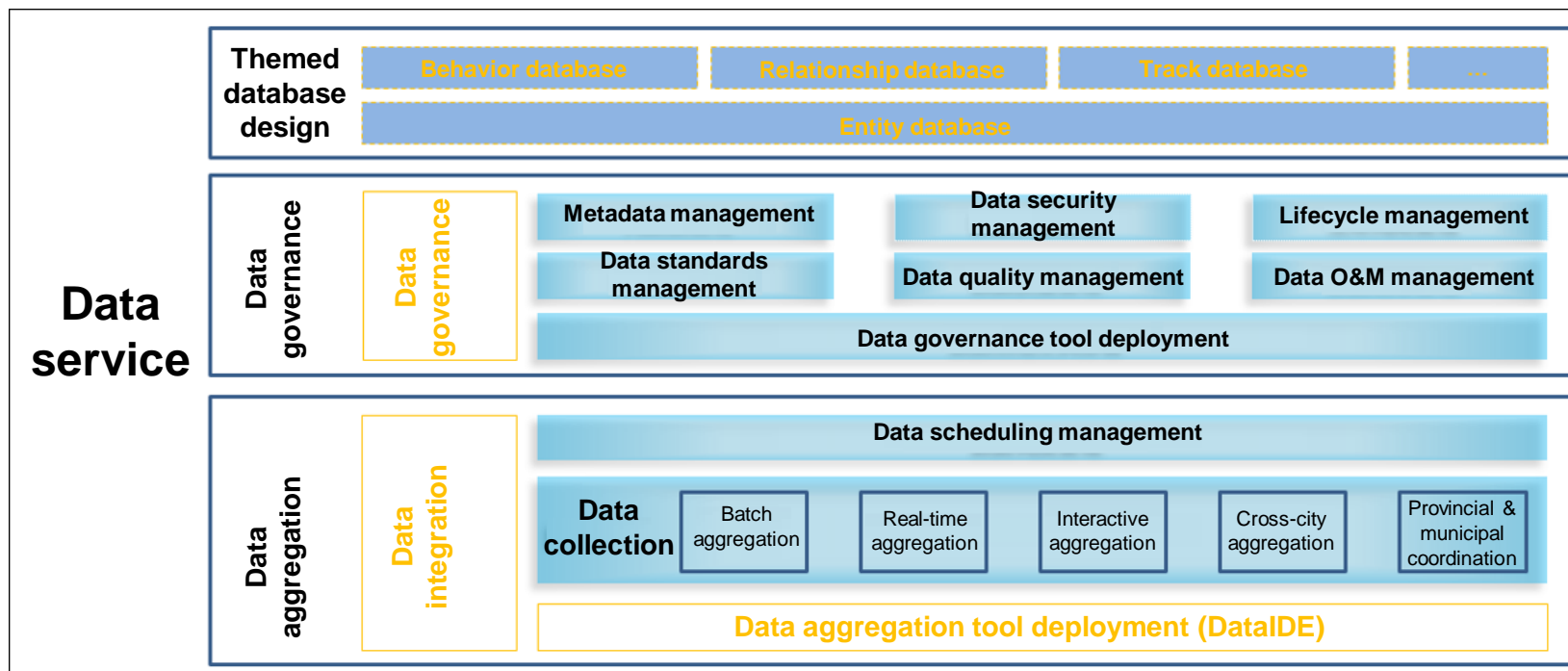
## Themed database design

Campus themed database design (business objects, data attributes, and data relationships), involving logical and physical models

04

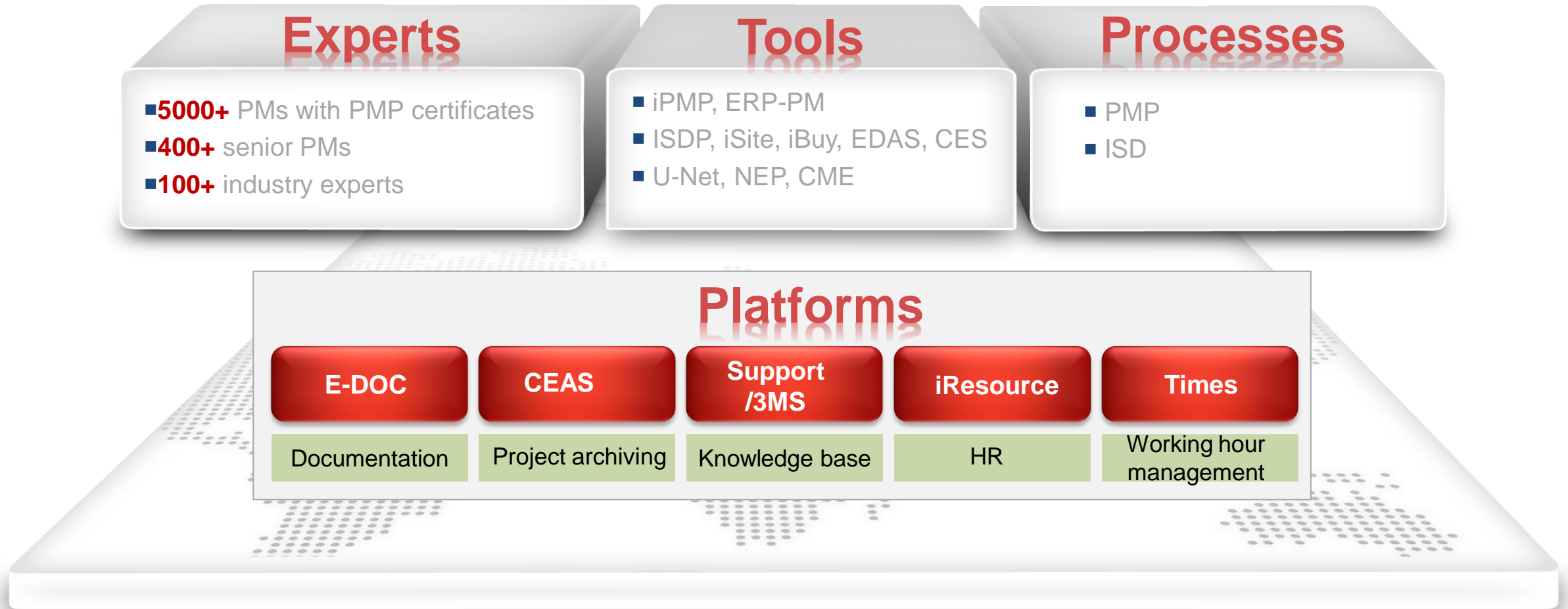
## Data governance

Data standards and regulations formulation, data system metadata management, and data quality management





# Intelligent Campus Application Integration Service: Project Management Service





# Success Story: Huawei Intelligent Campus

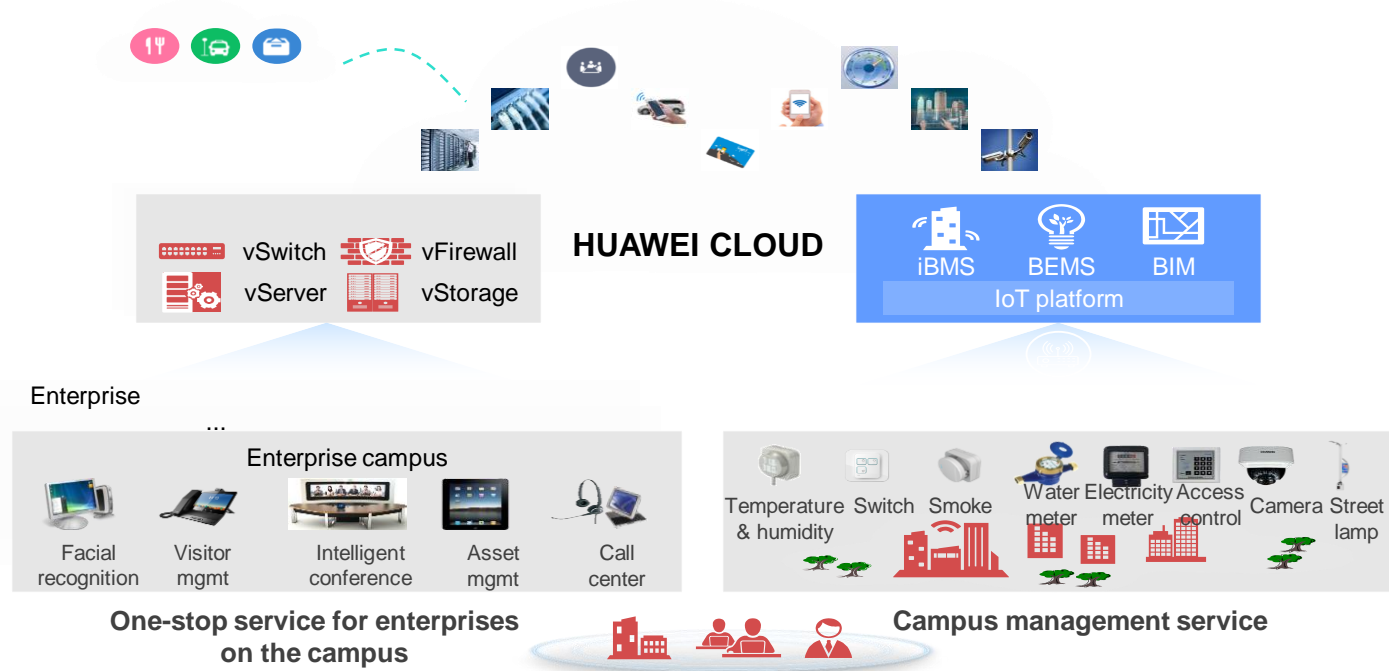


Facial recognition: The system enables smart attendance by connecting to the attendance system, ending the card-swiping era.

Visitor mgmt: Self-service, eliminating the need for employees' company

Asset mgmt: status visualization and second-level counting

Intelligent conference: real-time, online, and seamless



## IOC: visualized, manageable, and controllable



**Visualized** (IoT awareness based on GIS)



**Controllable** (trend prediction and risk control)



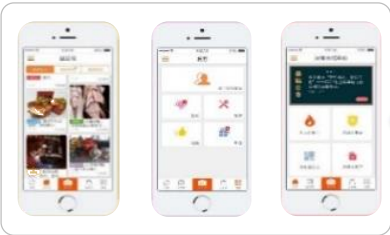
**Manageable** (campus management and control)



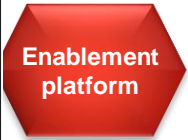
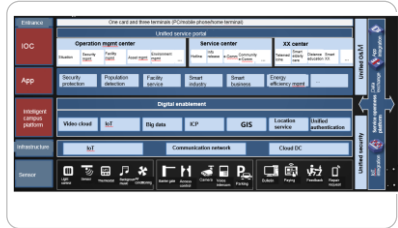
# Success Story: WK Intelligent Industrial Park



- Overall situation
- Incident monitoring
- Industry analysis
- Decision-making support
- Visible status
- Manageable business
- Controllable operation

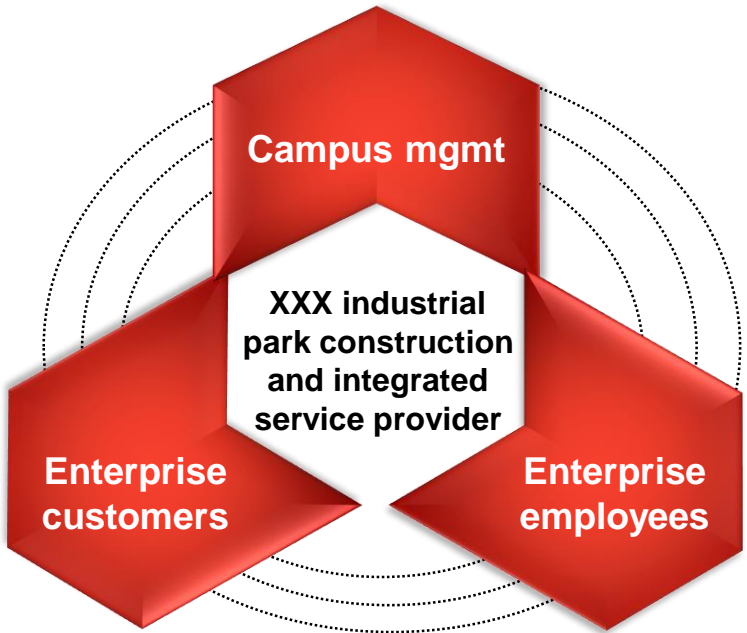


- Security mgmt
- Vehicle mgmt
- Energy efficiency mgmt
- Enterprise service mgmt
- Resource sharing mgmt
- Facility and asset mgmt



- Video cloud
- Big data
- IoT platform
- Integrated communications
- GIS/Positioning
- Unified authentication

- **Applicable to: campus management, enterprise customers, and enterprise employees**
- **Security, efficiency, energy | Operation support, service sharing, and industry development**



Campus mgmt

Security  
Efficiency  
Energy

Enterprises and employees

Operation support  
Service sharing  
Industry development

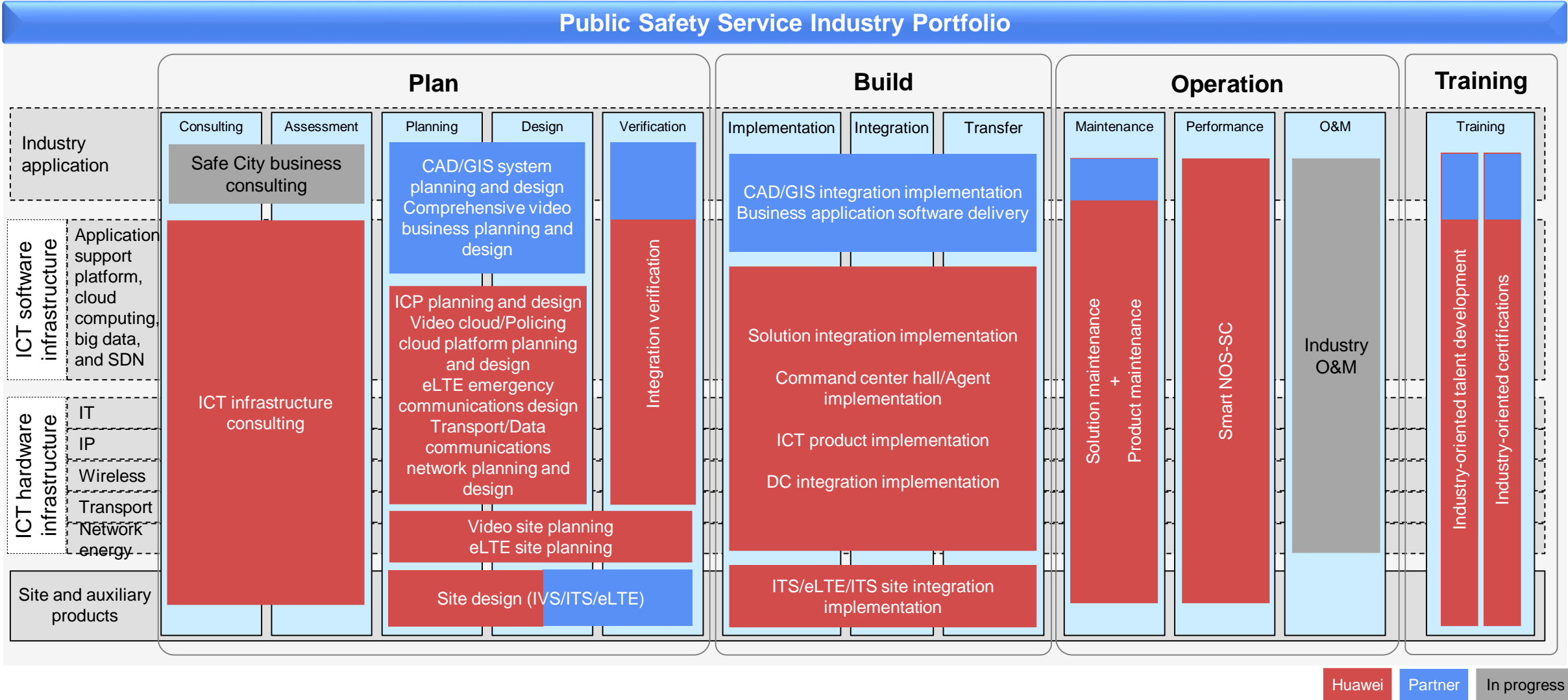


# Professional Safe City Services Supporting Collaborative Public Safety





# Safe City Service Industry Catalog





# Safe City Solution Service

The Safe City Service is based on in-depth understanding of the industry and customer requirements. The solution includes: consulting, planning and design, integrated implementation, O&M, and optimization. It helps customers build safe cities quickly, enable ICT applications in city management, and improve public safety in cities.

## Huawei Safe City Service Solution



Comprehensive  
Safe City



Command center  
compact



Intelligent facial  
application



Major event video  
security



Smart traffic police



Mobile video patrol  
and surveillance



Critical infrastructure  
protection

### Consulting

- Safe City business consulting
- Safe City ICT structure consulting
- Safe City O&M consulting

### Planning & Design

- Integration design
  - Solution requirement analysis
  - Overall solution design
  - Business system customization and adaptation
  - Subsystem design
  - Site planning and design
- Delivery verification
  - Delivery verification planning
  - Verification process/Environment management
  - Pre-integration and admission verification
  - Application integration and delivery verification

### Integration Implementation

- Central site survey
- Integration implementation
- Customized software deployment
- Site implementation
- Solution test and verification

### O&M

- Solution support
- Solution O&M
- Optimization service
- Major event assurance

### Training

- Business skill training
- Product skill training
- TTT training



# Success Story: Safe City Project in Country S



## Challenges

- Systems provided by multiple vendors exist in the overall solution, and need to be connected and integrated. How can we ensure satisfactory system performance?
- How can we design and quickly deploy a surveillance platform and bearer network to access a large number of cameras?
- How can we quickly deploy a large number of IVS/ITS sites in cities?
- How can we ensure effective system O&M?
- There is no standard alarm receiving and incident handling system, process, and platform, leading to difficult cross-departmental collaboration and inefficient handling.
- Key assembly events are held every year. With a large number of people gathering in a short period of time, the events are prone to mass disturbances, posing great pressure on public security management.

## Huawei's Service Solution

- **Planning and design service:** Helps customers design systems for converged command, video surveillance, emergency communications, and network management. Multiple Huawei products and solutions are involved.
- **Delivery verification service:** Supports 1:1 lab mirrored environment verification, including the command platform, intelligent transportation, emergency communications, and video surveillance to lower delivery risks and enhance delivery quality.
- **Integration implementation service:** Provides comprehensive implementation services for data centers, command centers, and outdoor sites to ensure project quality, delivery progress, and security.
- **Solution training:** Provides training for different positions, roles, and levels to enhance police officers' and management personnel's skills and policing platform efficiency.
- **Solution support:** Provides 24/7 VIP support. Professional contacts for different positions are ready to help. Related problems enjoy higher priority.

## Customer Benefits

- **Reduces the number of sites by 15% to 20%.**
- Through the delivery verification service, **more than 70% of the potential problems** can be detected in advance.
- Products are delivered after the pre-integration, greatly reducing **site implementation costs**.
- Customers can select the optimal backhaul plan based on the network status, **reducing the CAPEX by 20% to 35%**.
- Professional training and O&M support services **accelerate the commercial use of the project**.
- **Fast project delivery and rollout** ensure zero accidents and casualties during major gatherings.
- Integrates various functional platforms and unifies incident reception hotline numbers to **implement collaborative operation among departments**, improving incident reception efficiency and public security management.





Smart Transportation  
Building a Fully Connected  
Transportation Network



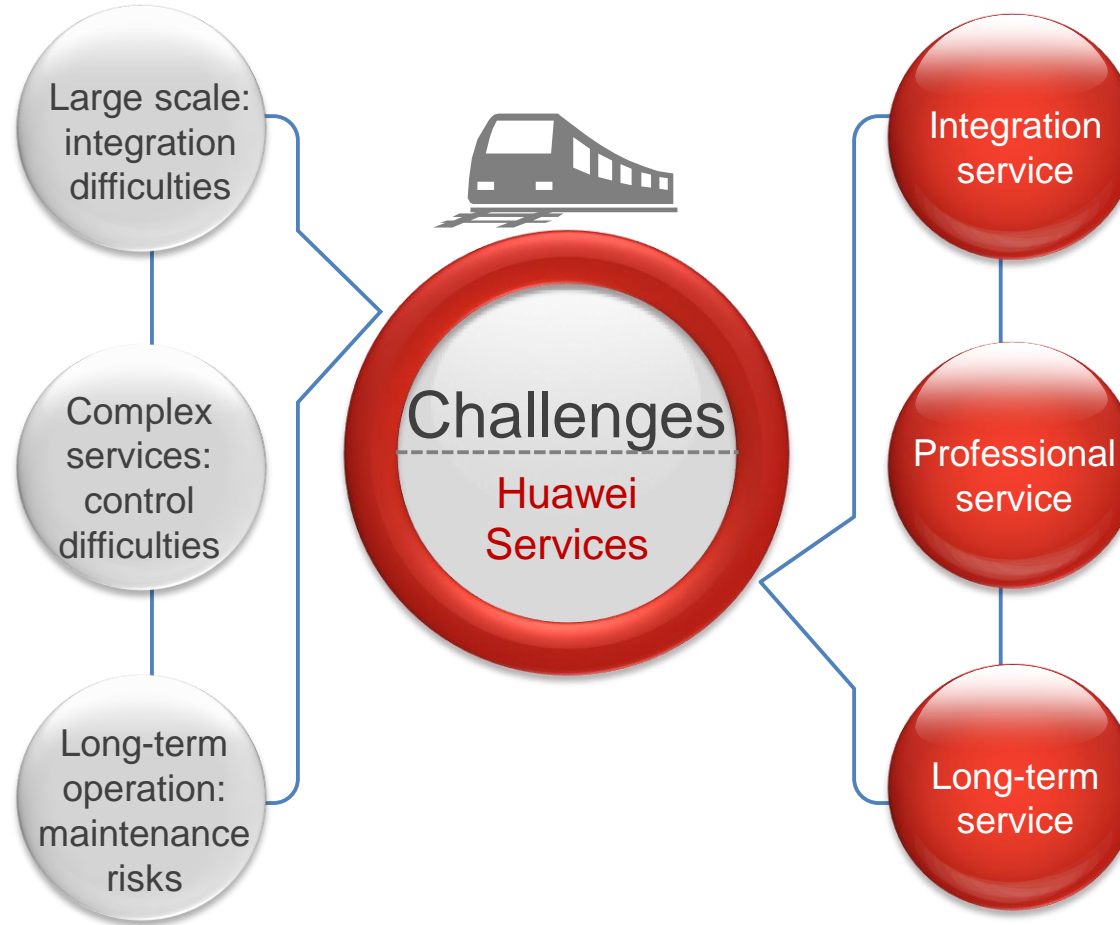
# Smart Transportation Solution Service

Help customers rise to challenges.

- Complex contractual relationships and a large number of stakeholders
- Multi-domain, multi-system, and cross-domain management and coordination
- Varied service quality

- Complex engineering implementation environment
- Multi-service system integration
- Integration and interconnection of interfaces, ports, and products from multiple vendors

- Expense control throughout the life cycle of a project
- Long-term reliable operation of a system
- Demands for services provided by original vendors

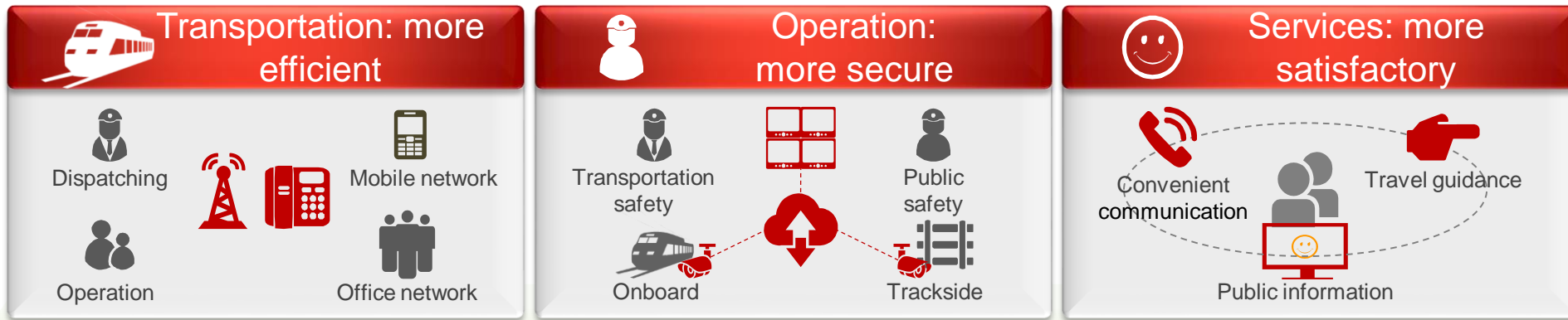


- E2E service solutions, simplifying the communication with property owners
- Extensive experience in EPC project and technology management, ensuring efficient collaboration in various fields
- Standardized service processes and SOPs, ensuring high service quality

- Overall design for complex scenarios and system-level interface design and integration verification, ensuring solution feasibility
- Efficient network optimization service to improve performance indicators
- Independent system support services, ensuring the availability, reliability, and security of the entire process from design, to production, implementation, and operation

- Forward-looking planning and design, ensuring smooth capacity expansion and upgrade
- Training based on industry characteristics, improving customers' O&M capabilities
- Local service teams worldwide, offering long-term, stable, and timely services





## Huawei Smart Transportation Solution Service

Huawei Smart Transportation Solution Service complies with the industry's mainstream standards, processes, and best practices. Huawei's EPC project and technology management teams, professional all-domain integration verification labs, and localized after-sales service centers all work together to provide a turnkey transportation solution, with the best services such as consulting, designing, verification, implementation, and maintenance. Utilizing decades of best business practices and professional solution service teams, we provide you with optimal transportation solution services.

### Network Construction

- Project management
- Integration design and implementation
- RAMS design
- Integration verification

### Network Optimization

- GSM-R network optimization
- eLTE network optimization
- Transmission network optimization

### Customer Support

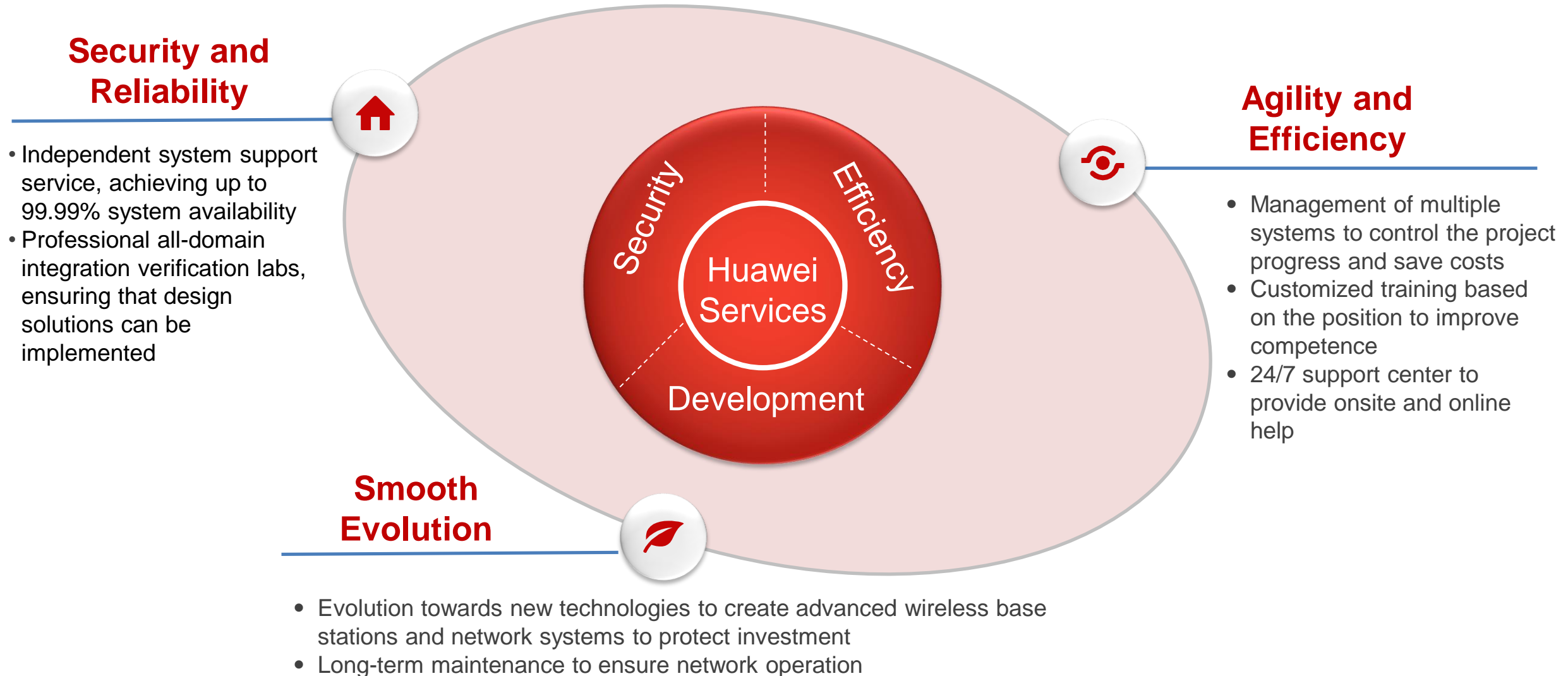
- Long-term maintenance
- Remote/On-site support
- Proactive support

### Training Service

- Product technology training
- O&M training
- Position-based skills training



# Customer Benefits





# Success Story: LRT Extension Line in Country M

## Project Background

The LRT line of Country M has 13 stations and a control center, covering 18 km and serving densely populated residential and commercial areas. The customer planned to select an experienced communications system contractor to replace devices on the existing network and deploy cutting-edge communications systems in a centralized manner, with the aim of providing more diversified transport services and optimizing passenger experience.

## Huawei's Service Solution

- Provides EPC project management relying on the solid cooperation relationships with integrators of four electrical systems, signaling system integrators, and vehicle integrators.
- Provides integration design and implementation services concerning over 10 communications subsystems including CTS, telephony, PIS, PA, TETRA, and CCTV. Professional service managers and design teams perform the integration verification in advance.
- Provides E2E RAMS design and verification services, ensuring high network reliability.
- Provides precise network upgrade for telephone, PIS, and PA systems as well as design, verification, and implementation of the migration scheme.

## Customer Benefits

- High-quality network delivered, contributing to high customer satisfaction
- Up to 99.999% reliability, no EHS accidents
- Smooth network upgrade and migration, helping the customer implement fully IP-based networks and greatly improve operational efficiency



# Success Story: Railway Project in Country A

## Project Background

The railway project involves a total length of 700 km. As the supplier of GSM-R communication system devices and services, Huawei has provided the GSM-R network, transmission system, recording system, in-vehicle terminal, dispatching system, and other systems. The customer has stringent requirements for network KPIs, including no single point of failure.

## Huawei's Service Solution

- Provides professional scenario-based design to meet the network performance requirements in various scenarios.
- Provides professional project management and implementation process and ensures plan reliability through tests such as FAT, SEFT, SAT, SIT, fault test, and dynamic test.
- Provides E2E RAMS design and verification to ensure 99.999% reliability.
- Provides all-round support for customer's service operations, full-lifecycle support for products, and quick response to customer's requirements.

## Customer Benefits

- High-quality GSM-R network to support railway operations
- Long-term technical support to ensure network operations





# Success Story: Subway Transmission Network Replacement in Country M

## Project Background

The SDH-based transmission network of Company S in Country M was constructed a long time ago. The original vendor could not continue to provide technical support, causing frequent network faults and maintenance difficulties. The customer urgently needed to replace and evolve the transmission network in a secure and stable manner.

## Huawei's Service Solution

One-stop subway transmission network replacement services help the customer achieve network evolution in a short period of time:

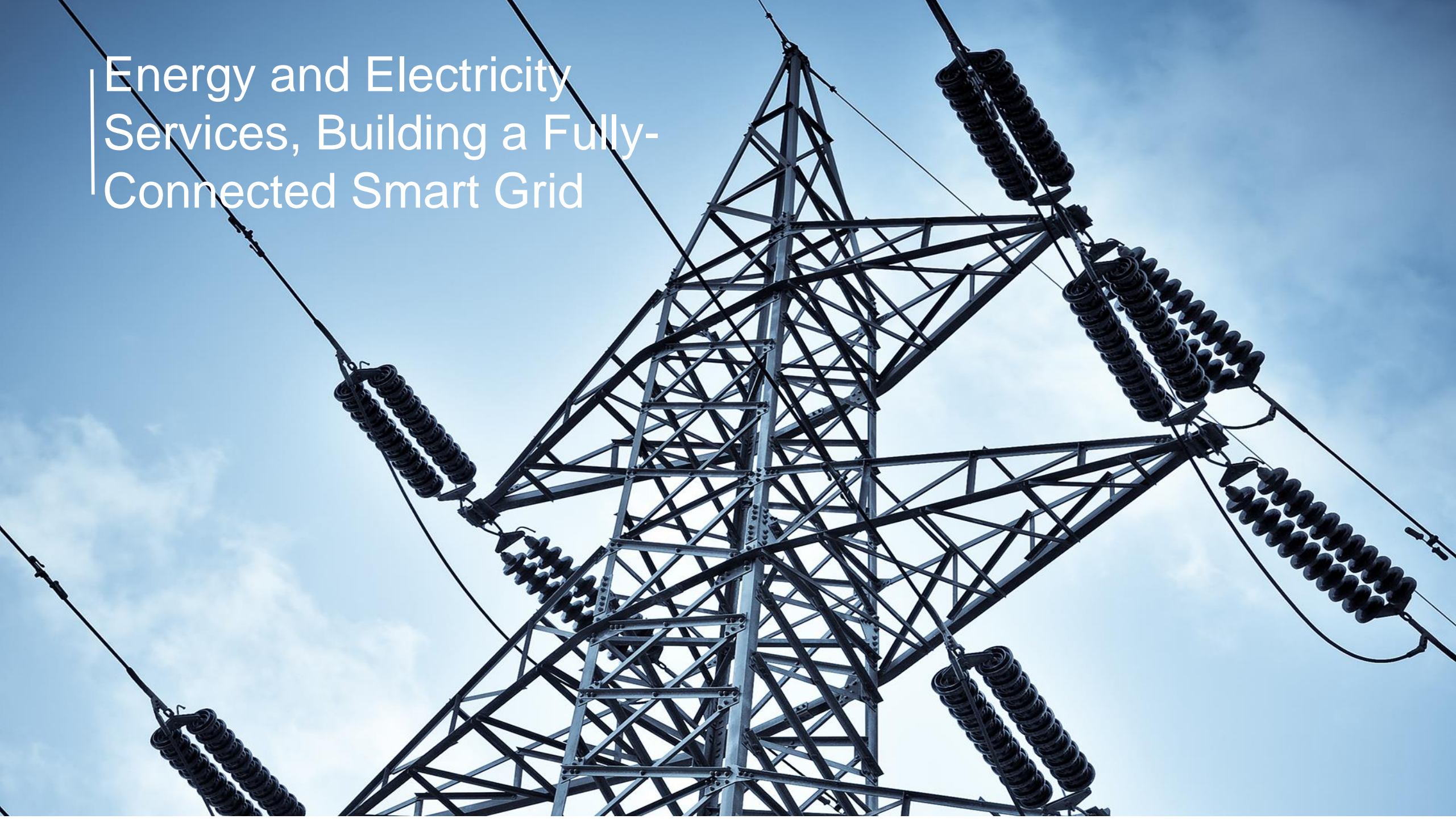
- Network information collection and analysis: The customer's existing network changes frequently and the documents are outdated. Leveraging its extensive experience in subway transmission network deployment, Huawei has effectively streamlined E2E information about the entire network and services.
- Planning and design for replacement: Through detailed analysis and planning by professional teams, Huawei has designed a detailed replacement plan, including the order, device ports, timeslot, onsite implementation scheme, and rollback scheme.
- Implementation and assurance: A total of 13 nodes have been replaced within three consecutive months, and each service downtime is less than 10 minutes.

## Customer Benefits

- Efficient, timely, and faultless replacement of the transmission network and IP-based evolution
- Secure operations



# Energy and Electricity Services, Building a Fully- Connected Smart Grid





## 4.3 Power IoT AMI Solution Service

### Complex Businesses



- How do we enable the solution to interwork with existing businesses and processes?
- How do we design complex and diversified site types?

### Strict Verification Requirements



- How do we ensure design accuracy?
- How do we make clear the delivery process and materials?

### Strict Period and Cost Requirements



- How do we quickly deploy high-quality service platforms and sites?
- How do we ensure accuracy of massive amounts of site information, and low-cost delivery?

Overcome challenges with world leading professional services

### Professional

Planning and design streamlines business processes based on customer requirements.

### Precise

Integration verification ensures high performance and availability to satisfy customer requirements.

### Efficient

Standardized solution implementation (integrated implementation + site/site type standardization) enables efficient and low-cost delivery.



# Service Value

## Quick Deployment



### Shorter delivery period

- Integration verification
- Modular design
- Pre-installation and pre-configuration plan
- Efficient fault diagnostic tool

## Simplified Service Process



### Lower deployment costs

- Higher efficiency with a clear process and professional tools
- Shorter project duration through site and site type standardization
- Higher location accuracy through fault diagnosis

## Stable Operations



### Higher service quality and user experience

- Higher system reliability and stability
- Flexible and stable design
- Customized services

## Smooth Upgrade



### Higher asset utilization

- Unified data planning and high-quality delivery
- Integration research and integration verification
- Compatibility analysis and design for devices on the live network



# Success Story: AMI Project in Country N

## Project Background

- High maintenance and management costs due to the complex electricity operations system and difficulties in system deployment
- Management difficulties and long project duration made it difficult to attain timely returns on investment.

## Huawei's Service Solution

- Professional planning and design team with over 60 members
- **Expert team with over 10 experts** to provide planning, customization, and consultation
- **Resource pool with over 500 electricity project implementation supervisors** ensure quality by collaborating with vendors
- **Internet apps and professional fault locating tools for external lines** optimize the work process, enabling paperless information transmission, and accelerating fault locating.

## Customer Benefits

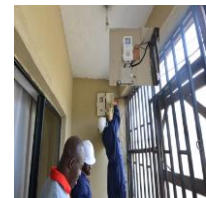
- Planning and design services provide a modular and scenario-based design, helping the customer optimize the service operation process, simplify maintenance, and **improve fault handling efficiency by 50%**.
- The power IoT metering solution ensures timely delivery and **reduces line loss by 20%**, allowing for timely returns on investment.



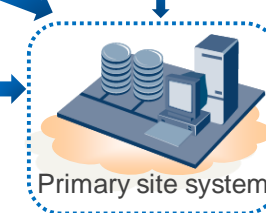
Distribution transformer



Enterprise user



Resident



Primary site system







# CHAPTER FIVE

Training and Certification Service

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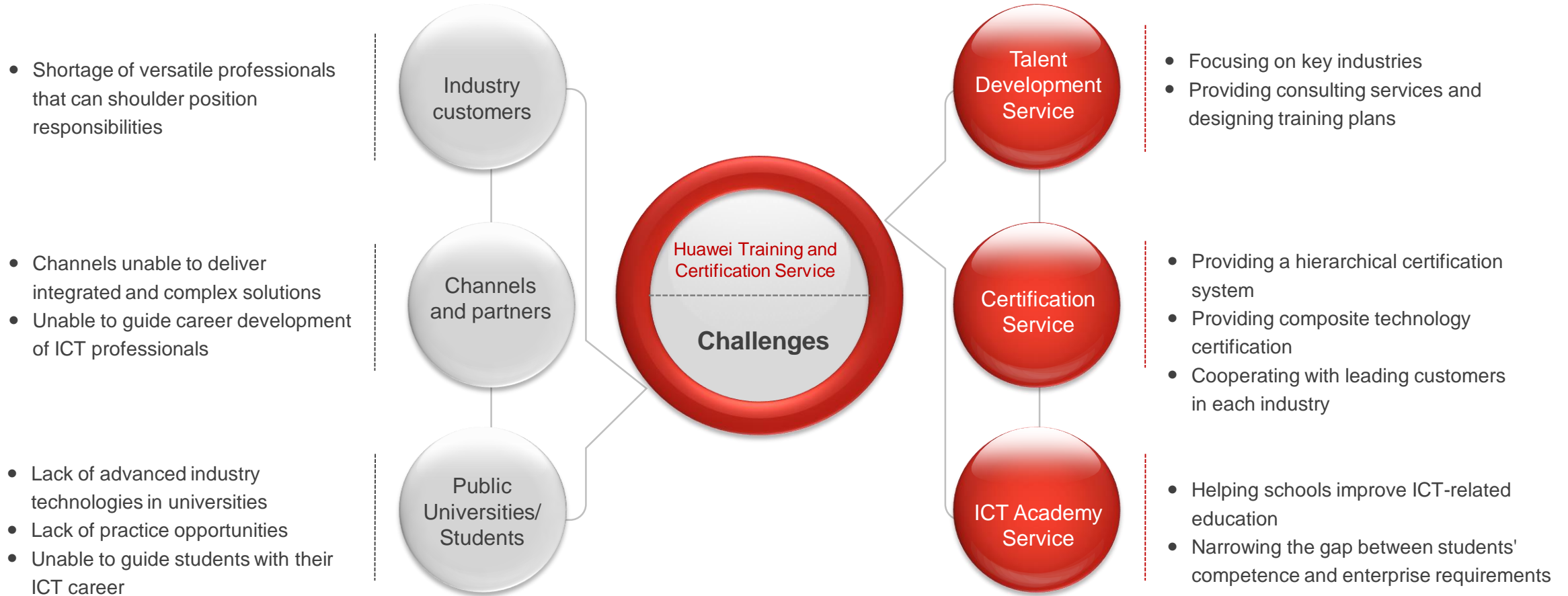


Home



# Customer Requirements and Challenges

It is estimated that by 2020, around 30 million students will graduate from universities and 1.6 million ICT-related positions will be created annually. Almost everyone is facing different challenges, including students, channels, partners, enterprise customers, and the general public. These challenges include talent standardization, ICT convergence, and transformation methods.



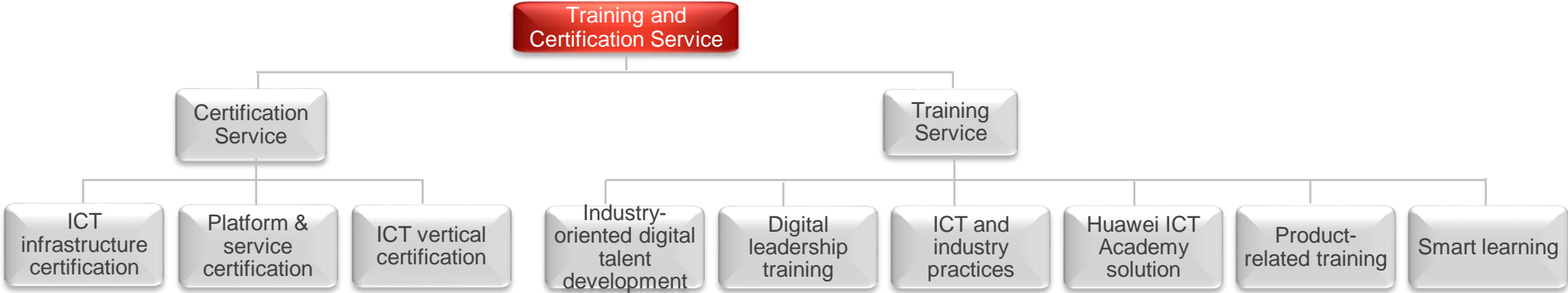


# Training and Certification Service

## Introduction

The Training and Certification Service provides a comprehensive, accurate, and tailored training solution. It covers a series of services, including product-related training, ICT and industry practices, career certification, professional certification, and industry-oriented digital talent development, helping trainees stand out in the ICT era. Huawei seeks to become the top ICT training choice for enterprises by creating a rigorous ICT certification system and a healthy ecosystem.

## Service Product



## Customer Benefits

**Channels/Partners**



**Transfer of Huawei's technical knowledge**

- Get systematic learning and best practices.
- Encourage employees to obtain ICT certificates to drive their career development.

**Industry Customers**



**Employees' competence**

- Analyze competence gaps and design learning plans based on ICT capability consulting and analysis.
- Design capability improvement projects.

**Public/Students**



**Career planning and development**

- Obtain industry-leading ICT certification.
- Establish a clear career path in the ICT industry.

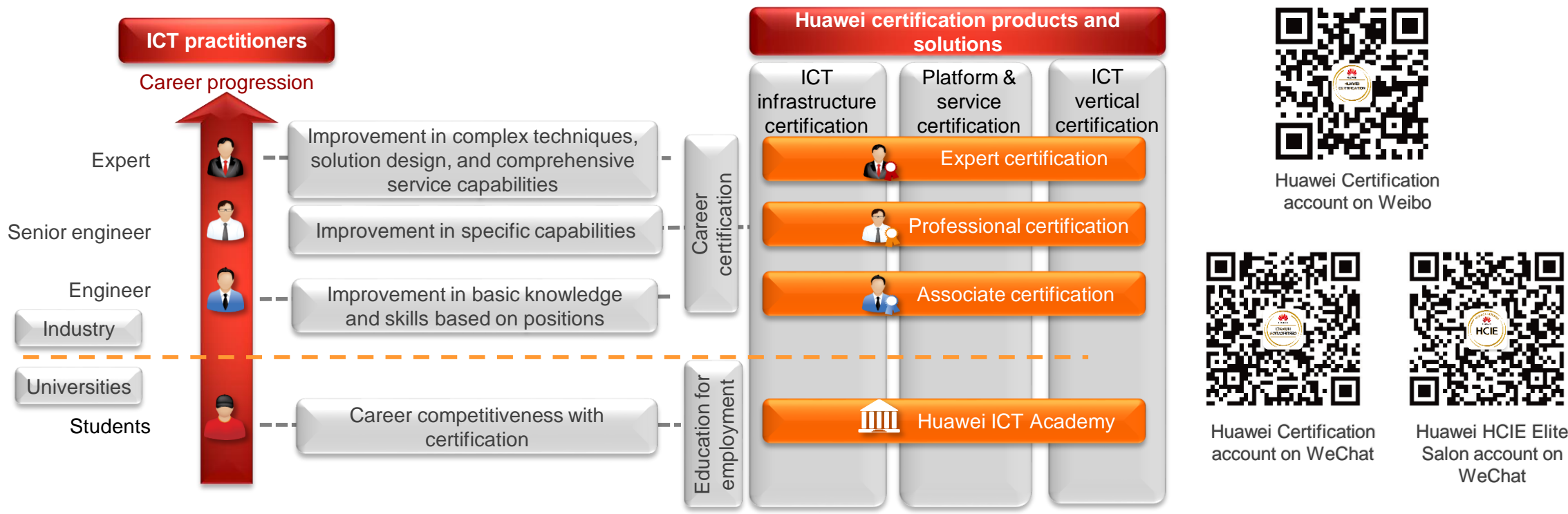


# 5.1 Certification Service

## Introduction

Based on the career lifecycle for the ICT industry chain, Huawei Certification Service has three levels of certification: Associate, Professional, and **Expert**. This service aims at providing comprehensive competence improvement solutions, helping new employees to become engineers and technical experts. Huawei's certification system is the only one of its kind that covers **all ICT technical fields in the industry**. It keeps pace with the latest technology trends and is widely recognized.

## Certification Service

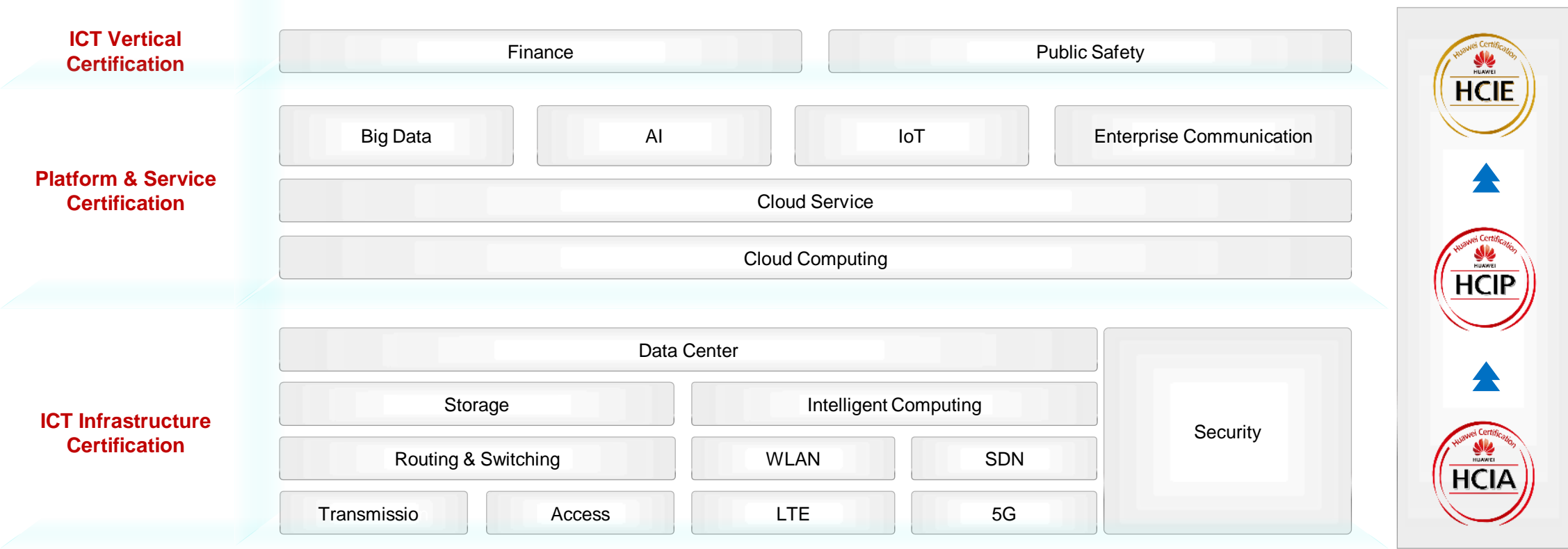




# Huawei Certification System

Based on the "Platform + Ecosystem" strategy and device-pipe-cloud synergy, Huawei certification system covers ICT technical architecture certification, platform and service certification, and industry ICT certification. Huawei is the only company that provides a certification system covering all ICT technical fields.

## Huawei Certification





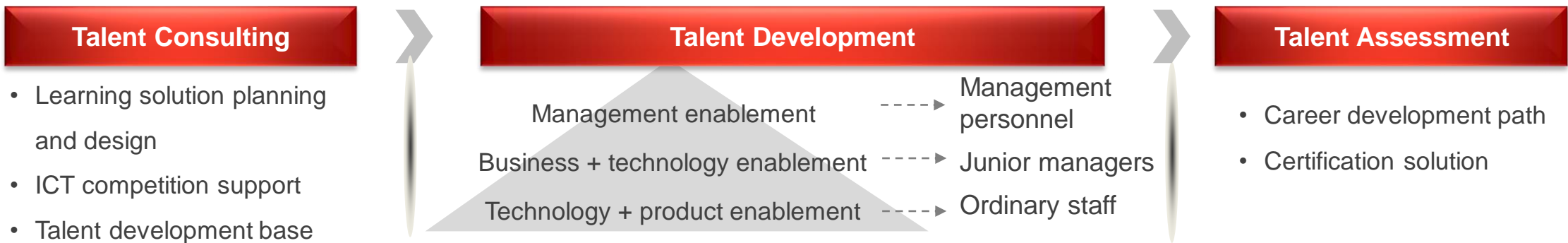
# 5.2 Industry Digital Talent Development

Support enterprise strategies and enable business success.

## Introduction

- Huawei provides E2E services covering consulting, training, and certification tailored for customers, helping customers make a plan for short and medium term learning scheme or design a competence standard for the qualification system.
- Huawei provides position-specific training plans for different industries. The training covers both industry businesses and application and designs activities such as visiting and communications.

## Service Plan



## Industries



Public safety & government



Banking



Railway



Electric power

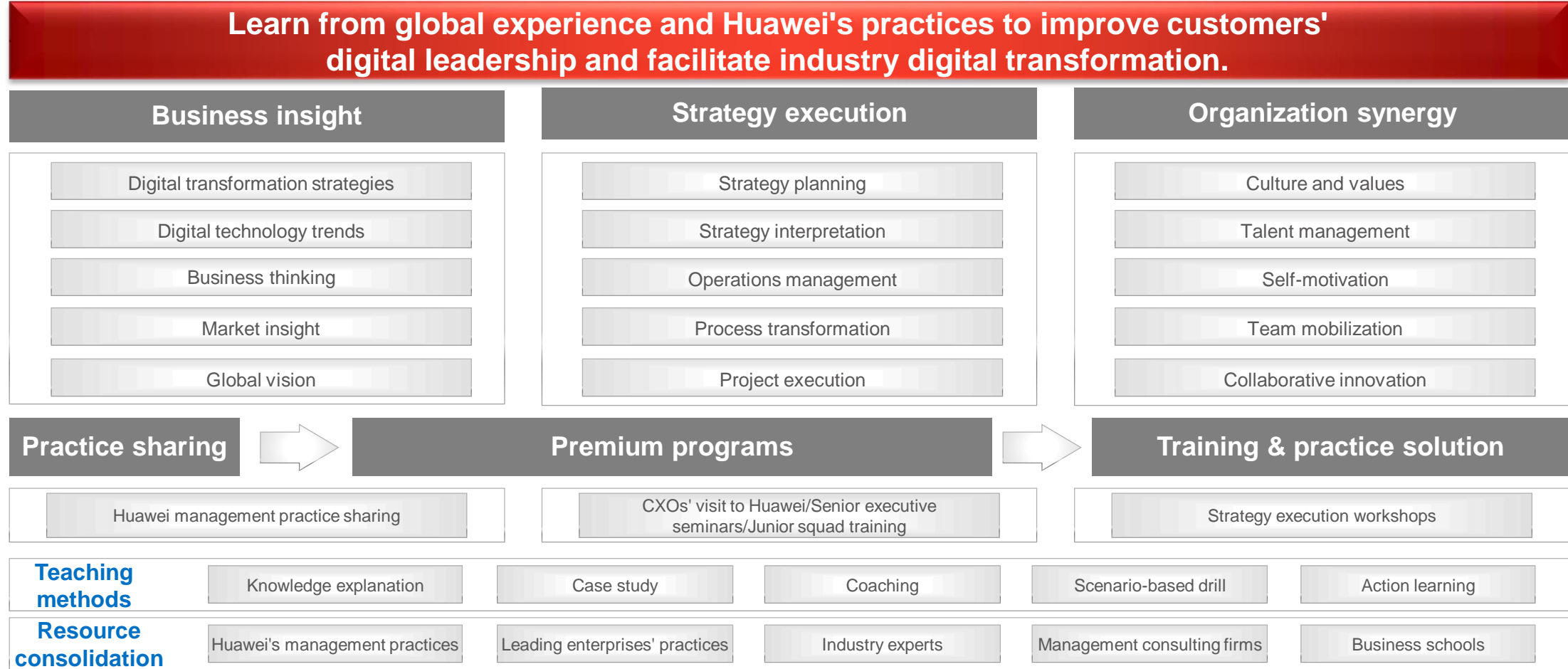


For more information,  
please visit the Huawei  
Certification website.



## 5.3 Digital Leadership Training

Support transformation strategies and enable business success.





## 5.4 Product and Technology Training

Scenario-based training courses for products and technologies at different levels



**IP**  
**250+**  
courses

### Curriculum system

All series, multi-level, and scenario-based

### Highlights

- Position-based
- Method-centered
- Practice-oriented
- Tailored to industry requirements

### Solutions

- Campus Network Talent Development Solution
- Enterprise WAN Talent Development Solution
- WLAN Talent Development Solution
- DC Network Talent Development Solution
- Security Talent Development Solution
- Enterprise Transport Network Talent Development Solution
- Enterprise Access Network Talent Development Solution



**IT**  
**100+**  
courses

### Curriculum system

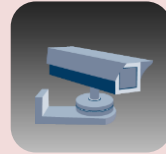
Best practices for service scenarios

### Highlights

- Service-oriented
- Hotspot-focused
- Systematic
- Position-based
- Tailored to industry requirements

### Solutions

- Enterprise Storage Talent Development Solution
- Cloud Computing DC Talent Development Solution
- Desktop Cloud Talent Solution



**UCC**  
**130+**  
courses

### Curriculum system

Covers different scenarios, positions, and industries

### Highlights

- Safe City
- Transnational commerce
- Distance learning
- **Telemedicine**
- Network-wide finance

### Solutions

- IPT Talent Development Solution
- ICP Talent Development Solution
- Telepresence and VC Talent Development Solution
- Intelligent Security Talent Development Solution



**Wireless**  
**90+**  
courses

### Curriculum system

Based on industry and position requirements

### Highlights

- Based on scenarios and positions
- Focused on theories and practices
- Promoting advanced technologies

### Solutions

- eLTE Talent Development Solution
- GSM-R Talent Development Solution
- 5G Talent Development Solution



**Network energy**  
**60+** courses

### Curriculum system

Comprehensive and one-stop

### Highlights

- Position-based
- Network convergence
- Operation-focused delivery cases
- Customization

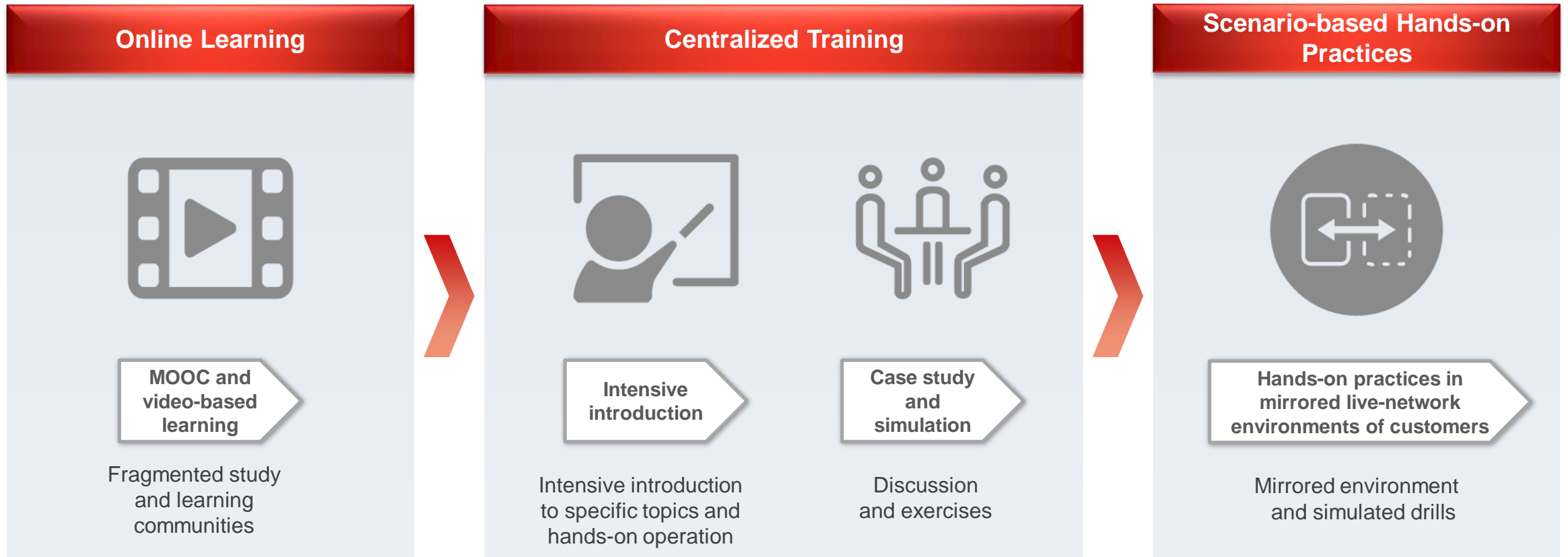
### Solutions

- DC Infrastructure Talent Development Solution
- Safe City Energy Talent Development Solution



## 5.5 ICT and Industry Practices

Provide practice opportunities to meet customers' high-level requirements for upgraded training.



Practices: Oriented to high-end talent development, give full play to the subjective initiative of trainees, integrate leading teaching methods in the industry, and simulate customers' live-network environments to let trainees have a hands-on experience.

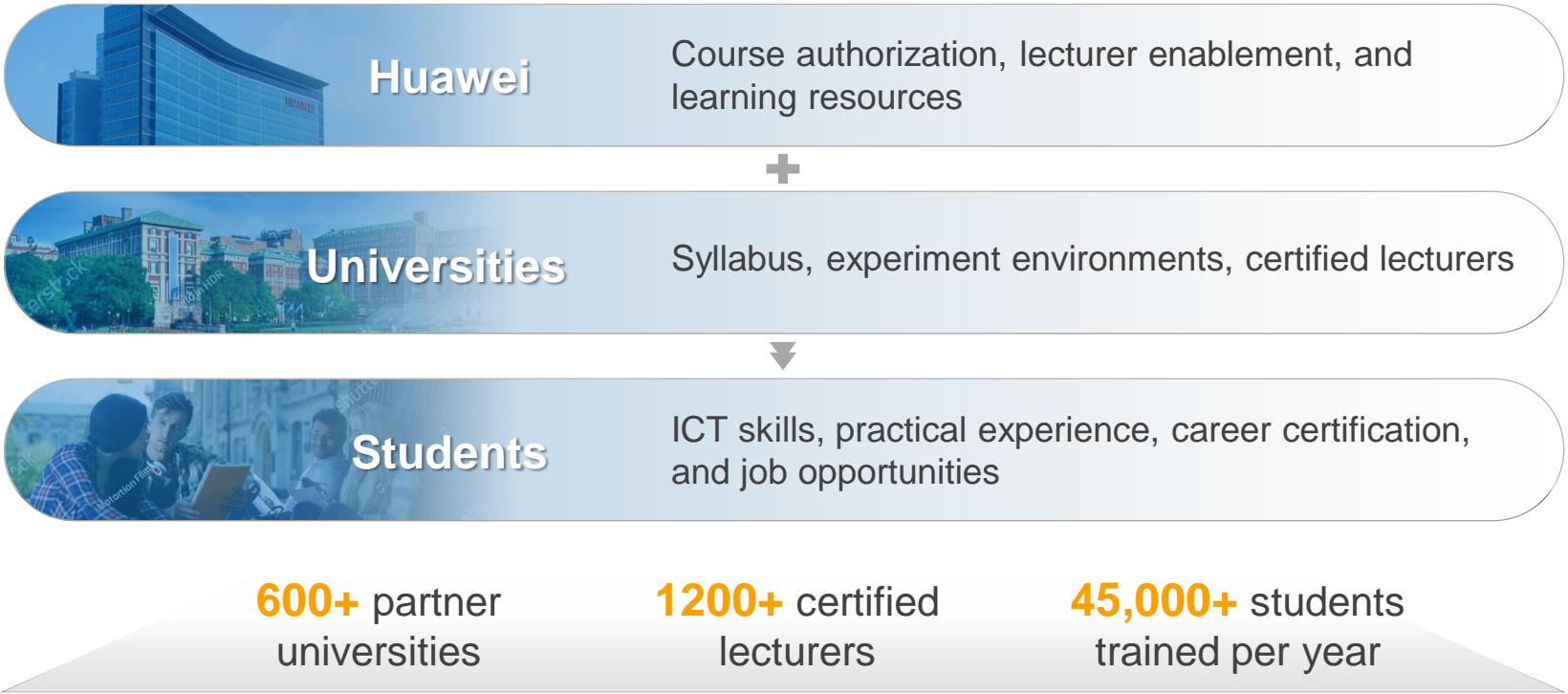


# 5.6 ICT Academy Solution

## Shaping the future of ICT

### Introduction

Led by Huawei, the Huawei ICT Academy is a collaborative program between Huawei and universities. It offers ICT-related courses, training, and certification. This program aims to promote ICT talent development

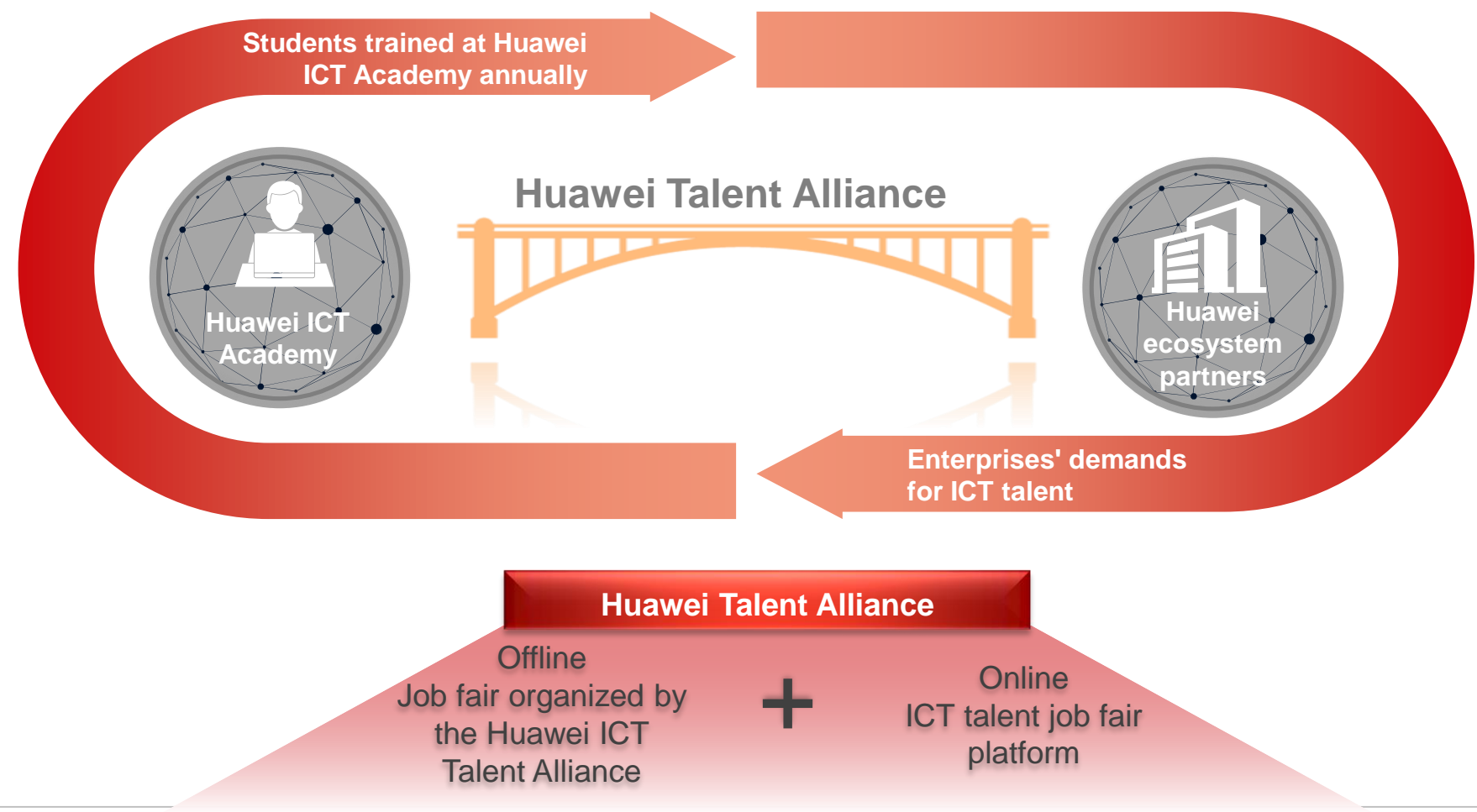


Official website of  
Huawei ICT Academy



# 5.6 ICT Academy Solution

Huawei Talent Alliance — Bridging ICT talent supply and demand by aligning recruitment and job-seeking





# Huawei ICT Competition: an ICT Arena for Global Students





## 5.7 Smart Learning

Smart learning: Huawei's official certification learning platform makes learning more effective, enriched, and efficient.



**Excellent MOOCs**

170+ excellent courses covering 18 technical directions in the ICT field

**Competence assessment**

Online assessment of 100+ Huawei certification courses, as well as capability development plans

**Expert live broadcast**

Technical experts, gold medal lecturers, HCIE examiners, etc.

**Forum**

Experience sharing by global trainees

**华为e学云**  
Huawei e-Learning

- 1.5 million registered users
- Courses taken 2 million times/year

**HCIA-AI 华为认证人工智能工程师培训V1.0**

**专家带你玩转 物联网**  
INTERNET OF THINGS  
学习IoT, 从‘此’启航

**SDN网络**  
助力企业数字化转型  
颠覆你看待网络的方式

**HCIE-Cloud Computing 云计算精英培训V2.0**



# Success Story: Huawei ICT Competition and Talent Summit in Region Z

## Project Background

In order to promote Huawei's certification volume and enhance the Huawei ICT Academy brand, region Z, together with the EBG HQ, PR, and HR departments, set up a joint work team for organizing the ICT Competition. The event aims to select outstanding students in ICT majors, continuously provide high-quality new recruits for the talent ecosystem, and promote talent development in technology fields in region Z.

## Huawei's Service Solution

- Held 73 roadshows in 11 countries in region Z, attracting 12,368 candidates from 166 universities.
- The regional office, EBG HQ, PR, and HR departments set up a joint work team.
- With the support from ministries of 15 countries, invited 40+ deputy ministerial officials to attend important ceremonies of the competition.
- Invited ambassadors from 10 countries in region Z and senior officials from the UNESCO to attend the Talent Ecosystem Summit.

## Customer Benefits

- Provides students with a national competition and communication platform to improve their practice capabilities, application skills, and innovation awareness.
- Transfers the latest technologies to local universities, provides equal, high-quality education for students, and helps students master ICT skills and find better jobs.
- Supports local ICT talent development; helps local enterprises achieve digital transformation and benefit from technologies.



Candidates competing at the final round



Talent Ecosystem Summit



# Success Story: Cooperation Between Huawei ICT Academy and M University

## Project Background

- M university launched its first experiment courses in 2018.
- In 2018, 45 students passed the first certification exam.
- In 2018, the university ranked No. 8 among Huawei ICT Academies.

## Huawei Service Solution

- HCIA - R&S is included in the Bachelor's degree program, and 100+ students are trained per year.
- Students can perform on-site experiments using eNSP and Huawei network devices.
- The university and Huawei Russia Office jointly plan and conduct activities.

## Customer Benefits

- Students learn technologies and obtain Huawei certificates, helping them find better jobs after graduation.
- Establishes a cutting-edge, standard, and practical ICT training environment, improves trainees' practice and application capabilities, and seamlessly aligns university education with enterprise application.
- The latest ICT is embedded into courses, which strengthens the integration of industries and education and helps build a local ICT talent ecosystem.





# Thank you.

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

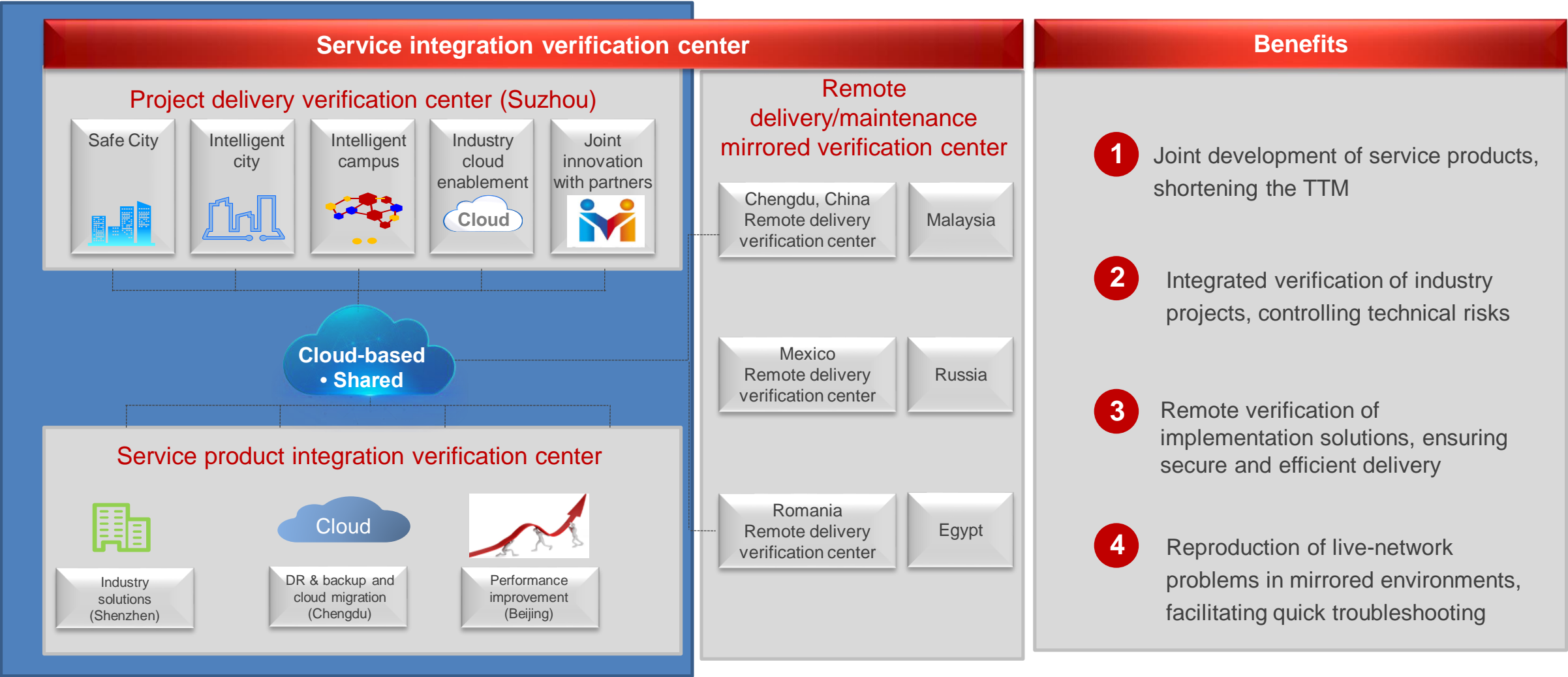
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# Appendix 1: Service Integration Verification Lab Providing E2E Assurance (Development + Delivery + Maintenance)



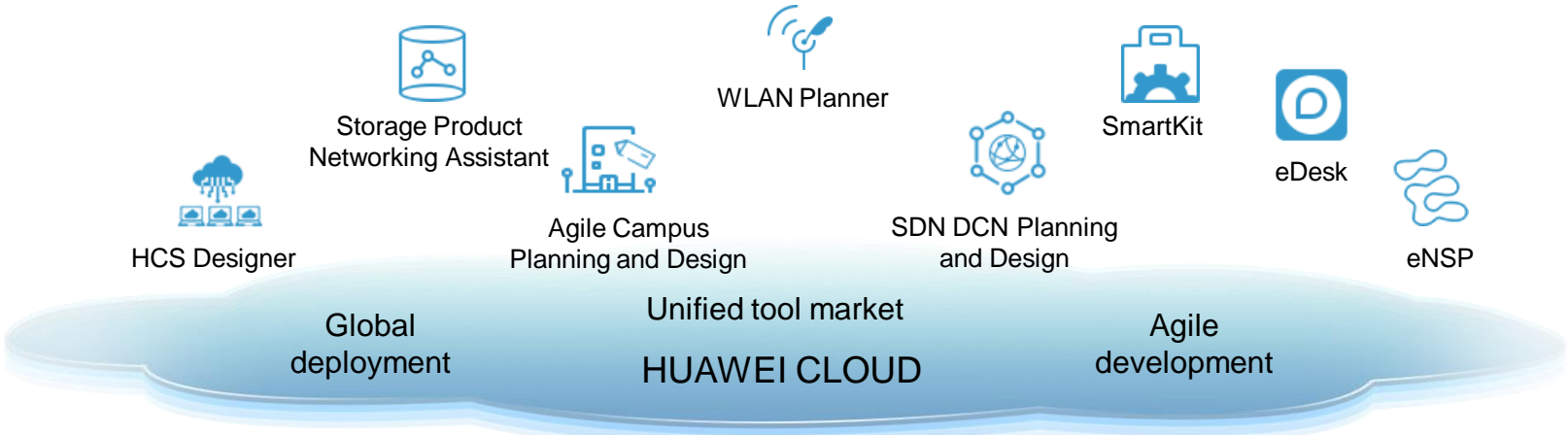


# Appendix 2: ServiceTurbo Cloud



80+ tools improve the competitiveness of five professional services, ensure service delivery quality, and enhance service delivery experience.

① Planning and design service	② Integration implementation service	③ Cloud migration service	④ Technical support service	⑤ Assessment and optimization service
Integrating the experience of 500+ experts	100% E2E delivery visibility	Zero service interruption or effect during migration	Proactive issue identification	Bandwidth usage: 20% ↑
30% intelligence	Rollout time: 20% ↓	Resource usage: 30% ↑	Intelligent trend prediction	No video package loss or frame freezing
60% automation	TCO: 15% ↓	Service performance: 2x ↑	60% issues intercepted	Minute-level troubleshooting

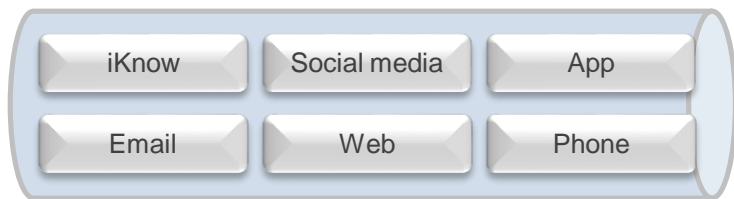


<https://serviceturbo-cloud-cn.huawei.com>



# Appendix 3: Introduction to GSC Capabilities

## Overview of Huawei Global Service Center (GSC)



**Cross-channel access to a variety of services**

### Technical support center

- Service request handling
- Service dispatching
- RMA handling
- Major accident handling
- Other

### Network O&M center

- Remote change support
- Remote fault management
- Remote alarm monitoring
- Asset management
- Other

**One-stop integrated platform**

### Marketing and channel support center

- Pre-sales consulting
- Channel policy consulting
- Visitor reception
- Satisfaction management
- Other

### Remote delivery center

- Remote planning and design
- Remote solution review
- Remote solution implementation
- Remote solution verification
- Other