



# Smart City Success Stories

**LEADING NEW ICT**

# Smart Longgang: Building a Converged Smart City



## Challenges

- With the non-registered population accounting for about 90% of the total, urban management was difficult. What's worse, insufficient surveillance coverage and difficult video information retrieval made it difficult to deal with the high crime rate and solve cases.
- The city lacked unified planning. The map information was inconsistent among multiple planning and management departments, causing long project planning periods and land and capital waste.
- Pervasive information silos led to low government approval efficiency. People had to visit multiple government agencies and wait for a long time before getting things done.

## Solution

- Data integration:** Under the "5+ architecture" (device + network + library + graphics + cloud), aggregated data resources and built a district-wide unified basic database to create and share public information resources in a unified manner.
- Map integration:** Built a two-dimensional, three-dimensional, and integrated spatio-temporal information sharing platform with 48 topic types and 421 data layers. This platform served as a unified portal to provide map services for departments.
- Smart governance:** Based on the city characteristic, built "7+1 sample applications" covering city management, government services, multi-planning-in-one, and public security.
- People welfare:** smart education, smart healthcare, wireless city, smart community, etc.

# Smart Longgang: Building a Converged Smart City

## Intelligent Operation Center

Mastering the urban operations situation in real time, realizing scientific city governance based on Big Data



- More efficient emergency response:** unified command and dispatch on emergencies, enhancing resource coordination efficiency by 60%.
- Timely pre-warning of hidden risks:** aggregates data from different sources, identifies exceptions in advance.
- Scientific city management:** Big Data analytics and visible live data presentation help to conduct easier city management.

## Smart Policing

Ubiquitous public safety system, reducing public safety and criminal cases



- Improved public safety:** The number of public safety and criminal cases is reduced by about 29% on a YOY basis, the biggest drop in Shenzhen, due to:
- Space-to-ground seamless surveillance: improving prevention and control;
  - Visualized and converged command: improving the command efficiency;
  - Video cloud (Big Data analytics): enhancing massive video search efficiency.

## Multi-Plan Unification

Develop a seven-department planning and collaboration mechanism to improve the approval efficiency of investment projects.



- One map:** solves multi-plan space planning conflicts.
- One platform:** implements information sharing and approval linkage.
- One table:** deepens the approval reform.
- One set of mechanism:** provides one blueprint from the start to the end.
- Full-process approval:** enables public participation in the full process.

## Smart Government

'One window, one ID, and one network,' enhancing the public's satisfaction



- One-window government services:** 600+ services across 32 agencies are already online
- One-network operation:** district-level service hall, eight neighborhoods, and 111 communities
- Number of windows reduced from 92 to **59**
- Waiting duration shortened by **50%**
- Timely handling ratio improved by **29%**
- In-advance completion ratio reached **22%**

# Smart Gaoqing: Demonstrating the New Connotation of 'Good Governance of a County Is Vital to Stability of a Country'



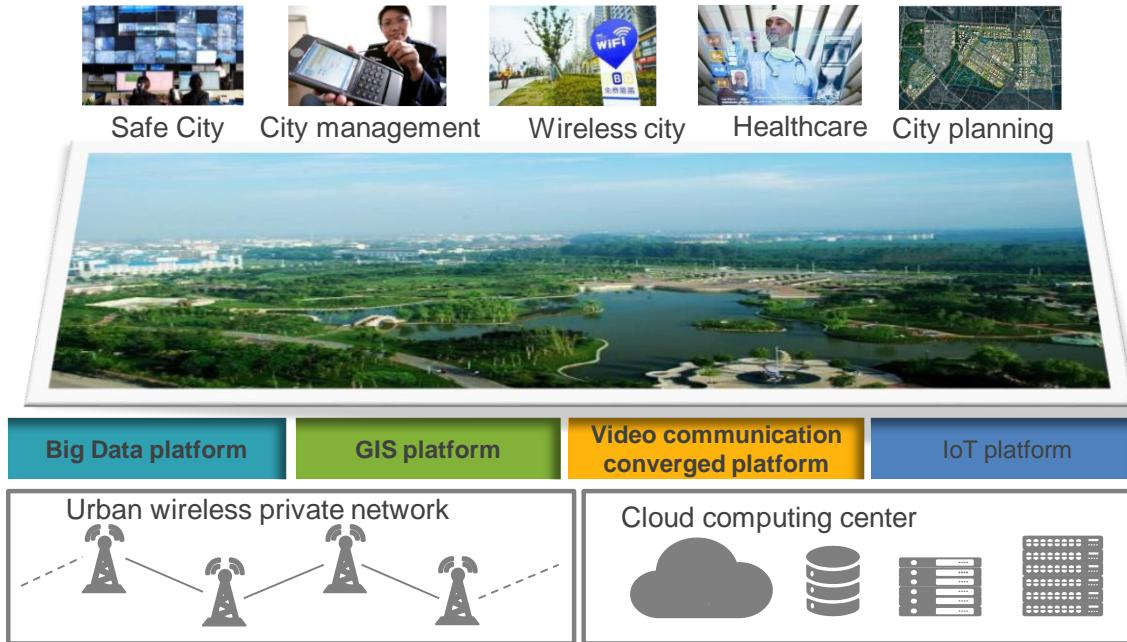
## Project Background

- Gaoqing, a county of Zibo, Shandong province, suffered from a shortage of talent, technical backwardness, small economic volume, low industrial development level, and slow economic development.
- In 2017, the government developed the 'Five Gaoqing' strategy layout with Smart Gaoqing as the focus. The purpose was to seize the opportunity of cloud computing, Big Data, Internet of Things, and Smart City construction, implement economic driving force transformation, and accelerate the economic and social development.

## Business Requirements

- Built an efficient city operations management system: Used the IoT and Big Data technologies to conduct intelligent reconstruction in various areas of the city and implement refined city management.
- Built a citizen-centric service system: Provided services such as one-stop e-Government, smart healthcare, smart street lamp, smart parking, and wireless Gaoqing to improve public service satisfaction.
- Promoted industrial structure optimization and upgrade: Built large-scale, branded, and modern agriculture industry and tourism industry based on the IoT.

# Smart Gaoqing: Demonstrating the New Connotation of 'Good Governance of a County Is Vital to Stability of a Country'



*"Three factors contribute to the success of Gaoqing Smart City construction: first, top-leadership support; second, strong execution teams; third, an industry-leading digital partner. Gaoqing has cooperated with Huawei to build a Smart City and obtained great support."*

By Zhao Xinguo, Deputy Director of the Smart Gaoqing Construction Office

## Solution

Huawei developed the '124N' blueprint with partners for Smart Gaoqing:

- One center: Smart Gaoqing cloud computing center
- Two networks: eLTE wireless trunking private network and IoT private network
- Four platforms: Big Data platform, geographic information cloud platform, communication and video convergence platform, and IoT platform
- N applications: The types included governance, livelihood service, and industry development.

## Customer Benefits

- A GIS map integrated thousands of urban and rural components, enabling visualized city administration.
- Traditional Industries were reconstructed using new technologies, creating a large number of information position opportunities.
- 10 million-level data of 90+ government agencies was integrated, facilitating data sharing and improving service efficiency.
- A Smart Healthcare cloud was constructed to connect and share medical resources and provide high-quality medical services to every village.

# Weifang: Smart Weifang 3.0 in the IoT Dimension Provides a New City Development Mode



*"Weifang and Huawei are jointly building the world's first city-level NB-IoT common service platform. In the future, the IoT platform service capability will be extended from IaaS to PaaS to enable IoT and ICT integration and usher in the Smart Weifang 3.0 era."*

*By Zhang Baoqing, Director of Weifang Smart City Construction Office*

## Background and Requirements

- In 2012, Weifang was positioned as one of the first two pilot Smart Cities by the Shandong government.
- Despite the homogeneity trend in Smart City construction, Weifang adhered to the people-first and innovation-driven principle, and explored a new mode of Smart City construction with the IoT as the core and livelihood services as the characteristics.

## Construction Content

- Top-level design: one network, one platform, and  $N$  applications
- Infrastructure: city-level NB-IoT network and IoT connection management platform for unified device management, access management, data aggregation, and application enablement
- Service application: 12 types of city IoT applications, including Smart Lighting, Smart Parking, Smart City, IoV, Smart Building, Smart River, and Smart Agriculture
- IoT industry alliance: 50+ partners

## Customer Benefits

- The smart street lamp solution reduced the annual electric power by 6.86 million kWh and improved the O&M efficiency by 45%.
- The costs of rural drinking water safety monitoring stations were reduced by 30% and clean and convenient water was provided for 7 million people.
- An IoT industrial park worth CNY10 billion was expected to be established in three to five years.

# Smart Brain + Government Service, Helping Yiyang Build a New Smart City



*"The solution developed by Huawei's expert team for Yiyang is systematic and operable, demonstrating Huawei's strengths and social responsibility as a world-class enterprise."*

*By Qu Hai, Secretary of Yiyang Municipal Committee, Chairman of the Standing Committee of Yiyang Municipal People's Congress of China*

## Challenges

- Repeated construction, low-level construction, data chimney, and other severe problems hindered resource creation and sharing.
- Poor government services proposed the requirement for service innovation and better service experience.
- There was a strong demand for mining the value of massive data, promoting industry transformation and upgrade, and improving city service functions.

## Solution

- Established resource sharing standards to implement cross-department, cross-network, and cross-region data sharing and exchange.
- Built a city-wide unified information resource platform to support data value mining and facilitate precise decision-making.
- Strengthened the construction of 'Internet+ Government services' and developed the city-wide unified responsibility and authority list to facilitate channel interaction.
- Performed coordinated design and step-by-step implementation to make steady progress in the Xueliang (Shiny), smart education, and smart city management projects.

## Customer Benefits

- The government services were successfully upgraded into smart ones and a new government service model was formed, unifying the affair handling table, department, window, network, and registration number.
- The city (government) service became quantified and visualized, providing a basis for performance management and decision-making analysis.
- Yihang won the 2017 China Smart City Demonstration City Award.

# Helping Jiangyin Build a Government Big Data Center to Improve City Management and Public Service Efficiency



## Challenges

- The lack of unified top-level data resource planning caused inconsistent standards and hindered system interconnection.
- Some bureaus regarded data as their private assets. They required authorization for cross-industry and cross-department information sharing or even refused to share information, making it difficult to share data across systems.

## Solution

- Adopted a top-level Big Data design and established standard resource sharing systems.
- Built information resource sharing subsystems to exchange data across bureaus and offices.
- Built basic libraries to enable information sharing and reduce bureaus' cost of obtaining data resources.
- Built a comprehensive Smart City management platform, a smart government service platform, and a smart security control platform.

## Customer Benefits

- A shared, open, and converged government Big Data center enabled city-wide basic data interconnection and interworking.
- Through system innovation and city resource integration, city management became more precise, transparent, and efficient.
- The 'One law enforcement team for one domain' strategy was implemented in seven fields, such as market supervision, transportation, urban and rural construction, land planning, agricultural, forestry, and water conservancy, safe production, and health inspection.
- Transactions could be handled through the single-window and single-ID handling process, improving the public service efficiency.

# Jiaxing: New Smart City, Integrating the Most Comprehensive Data and Building the Strongest Brain



*"Jiaxing Comprehensive City Operation Management Center and City Big Data Center were put into trial run this October. Our goal is to integrate the most comprehensive data and build the strongest brain to improve the Smart City in multiple dimensions. We hope to gradually enable ubiquitous public services, transparent and efficient online government, precise city management, as well as independent and controllable network systems."*

*By Yu Huiyou, Director of Jiaxing Smart Office*

## Background and Requirements

- In recent years, Jiaxing has made remarkable achievements in Smart City construction. In 2015, Jiaxing received approval from Cyberspace Administration of China to build the only 'New Smart City Benchmark' among China's third-tier cities.
- The overall goal was to integrate the most comprehensive data and build the strongest brain to improve the Smart City in multiple dimensions.

## Solution

- Smart Jiaxing top-level design: '1245' construction plan
- Built a unified city Big Data center, integrated data resources across the city, and established six basic databases and professional databases for key fields.
- Built a comprehensive city operation management center to display the panorama of city operations and provide multiple functions such as event management, event handling, theme applications, and special applications.

## Customer Benefits

- The city accessed 40.11 million data records, integrated 2.94 million data records, and generated 19 types of data services.
- Display, analyze, manage, judge, and predict operation trends in key areas such as city governance, public services, infrastructure, industry economy, and ecological environment. Provide related decision-making and service support.
- Smart applications, such as smart transportation, smart tourism, health Big Data, and all-in-one citizen card, are put into operation.

# Big Data in Xi'an: Driving Smart City Operations with Data



*Based on the data of the public service system, Xi'an integrates the data of gas supply, water supply, heat supply, bus, leasing, land reserve, transportation gas, and parking management to promote operation of the Big Data center in Xi'an city as a highlight project in the industry. Xi'an builds a center and three platforms, uses data to drive smart city operation, and improves city operation management efficiency and quality.*

## Business Objectives

- In 2017, *Xi'an Big Data Industry Development Implementation Solution (2017-2021)* was released to deploy the Big Data industry and promote the overall Smart City construction.
- Aimed to integrate various data of the public service system and build Xi'an City Operation Big Data Center into an industry benchmark.

## Solution

- One center and three platforms: The city operation management basic data center, city operation indicator platform, warning and emergency handling platform, and information sharing and push platform drive city smart operations with data.
- Implemented thematic analysis on traffic conditions, all-in-one card, bus operations, and parking fee data to improve transportation efficiency.
- Integrated public data of underground pipelines, transportation, and water, heat, and gas supply to build safe production monitoring, warning, and prevention models.

## Customer Benefits

- Big Data and cloud computing technologies are used to implement intelligent services regarding people's livelihood, environmental protection, public safety, city services, and industrial and commercial activities and innovate the city management mechanism.
- The Big Data technology promotes innovation and entrepreneurship and improves Xi'an's competitiveness.

# Yanbu, Saudi Arabia: a Smart City near the Red Sea, Promoting Industry Upgrade and National Transformation



*"A large amount of data generated by each application system presents a new RCY, helping us improve city governance in a target manner. I think that the Smart City is just a beginning. RCY will further collaborate with Huawei to provide citizens with better public services and leverage new technologies to make our cities more."*

*By Ayman, CIO of Royal Committee for Yanbu*

## Background and Requirements

- Relying on oil exports, Saudi Arabia's economy faced huge challenges as oil prices plunged in the world. In 2015, Saudi Arabia released Vision 2030 to initiate industry upgrade and national transformation.
- Yanbu Industrial City was the only Smart City designated by Saudi Arabia's national transformation plan.
- Smart Yanbu planned to provide smart facilities for residents and tourists to solve the urban governance issues brought by rapid social development, improve the investment environment, and promote the upgrade of diverse industries.

## Construction Content

- Infrastructure: broadband networks covering the whole city and a city data center
- Eight smart applications: smart street lamp, heavy vehicle management, smart parking, smart manhole cover, smart waste management, smart energy efficiency monitoring, crowd density analysis, and comprehensive performance assessment

## Customer Benefits

- The overall cost of the public lighting system was reduced by more than 30%, the garbage clearing efficiency was improved by 50%, the road maintenance cost was reduced by 20%, and the utilization of public parking spaces was increased by 30%.
- The city public services were greatly improved, and the satisfaction rate of residents reached 90%.
- Since the construction of Smart City in 2014, the growth rate of foreign investment has increased from 2.5% to 16%, and the city has attracted 22.5% more professionals.

# Smart DSOA, a Shining Pearl in Desert



## Background

- Dubai Silicon Oasis spans 7.2 square kilometers, with estimated population of 162,400.
- DSOA hosts 1920 companies in 2015, of which 71% are IT companies.
- Total investments for the Silicon Park Smart City project amounted to USD 1 billion in 2015, with an additional USD 0.35 billion by 2018.

## Objectives

DSOA act as the Center of Excellence for test pilot projects and develop upscale models:

- To develop an agile and “replicable” Dubai approach for Smart City development.
- To be a hub where new technologies, ideas, and cultures converge.
- To create a sustainable smart habitat ecosystem.

*Dubai Silicon Oasis will play a fundamental role in the country's overall economic development and assist in the development and training of the local talent for advanced technology manufacturing.*

- H.H. Sheikh Ahmed bin Saeed Al Maktoum  
Chairman, Dubai Silicon Oasis Authority

# Smart DSOA, a Shining Pearl in Desert



## Solutions

- Smart Street: the solution transforms the street pole into a multipurpose asset. The inbuilt sensors enable automatic control of streetlights and lower energy consumption. The pole incorporates a number of advanced features such as digital signage, outdoor WiFi, CCTV, and environmental monitoring.
- Sewage Water Treatment: DSO generates more than 3 billion gallons of treated water over the current sewage treatment plant
- Smart Waste Management: DSOA has installed smart waste bins that work through the IoT technology and alert the operations and services team when the bins are filled and need to be emptied, with an automatically optimized route design.

## Benefits

- Smart streetlights reduced maintenance costs by 42% and energy costs by 35%.
- Sewage water treatment reduced operational costs by 70%.
- Smart waste bins lowered operating costs by 65%.

# Smart Zambia: Promoting National Informatization with Innovative Technologies



*"From Smart Zambia to GSM network expansion and from communications coverage over remote areas to digital TV conversion, Chinese enterprises have made substantial contributions to Zambia's ICT development."*

*By Fredson Yamba, Ministry of Finance, Zambia*

## Challenges

- With scattered IT resources and slow data update, different agencies used conflicting data and it was hard to invoke old data.
- Data security risks existed. The IT system was powered off from time to time, causing data loss.
- The ICT infrastructure and talent reserve failed to support digital transformation.

## Solution

- National cloud data center: Provided e-Government Cloud, enterprise cloud hosting, and other services. Used 'three data centers in two cities' solution to ensure service and data continuity and security.
- Videoconferencing system: Installed telepresence terminals in 26 ministries, changing the traditional conference mode.
- National broadband network: 9050 km optical cables, connecting 10 provinces and 15 key cities in Zambia
- ICT talent development center: Provided Start Instructor training services.

## Customer Benefits

- Intensive e-Government deployment greatly improves government office efficiency and ensures data security of key agencies.
- The telepresence system greatly reduces the cost of government conferences and makes communication more efficient and simple.
- The nationwide broadband network supports the promotion of smart government applications by providing infrastructure.
- ICT talent development reduces the operation cost of ICT enterprises and improves the employment rate and national comprehensive strength.

# Smart Tourism Leads Smart Dunhuang Construction



## Background

- Dunhuang is a world-renowned cultural heritage site.
- Cultural and historic sites attract many tourists domestically and abroad.
- The local population of Dunhuang is only 50,000 with more than 40,000 tourists per day during peak seasons.

## Challenges

- Increased tourist traffic in peak seasons threatened cultural relic protection and tourist safety.
- Less visitors during off seasons greatly wasted tourism resources.
- Fluctuating populations created huge challenges to city government and public services such as transportation, education, healthcare, and catering.

*We are working to construct smart cities led by smart culture and tourism. To date, we have built our own Feitian Cloud Computing Center, Big Data platforms, comprehensive databases, command centers, a wireless city, and IoT application systems. The last few years have seen our frequent cooperation with Huawei. We are greatly impressed by Huawei's robust R&D capabilities and world-class products.*

- Sun Xiaoqiang  
Chairman of Dunhuang Smart Tourism Company

# Smart Tourism Promotes Smart Dunhuang Construction



## Solution

- Built IoT in scenic locations to analyze tourist behavior and traffic distribution, so as to guide tourists and vehicles in real-time.
- Built VR, AR, and 3D exhibition centers to improve customer experience and loyalty, and redistribute tourist traffic in peak hours.
- Built a tourism Big Data platform to analyze tourist feature models and implement precision marketing.
- Built a cloud data center that shared data for scenic spots and government departments, to implement unified collaboration.
- Developed Smart Home, Smart Education, and Smart Healthcare based on Smart Tourism infrastructure to improve people's life.

## Benefits

- By analyzing the characteristics of guest behavior and traffic distribution, the number of service personnel has been reduced by 30%, and the bearer capability of tourist attractions has been improved by 40%.
- The average annual tourist growth rate reaches 30%, and the tourist peak season is prolonged by 75 days.
- In 2016, Dunhuang received 8 million tourists and achieved the total tourism revenue of CNY7.816 billion, accounting for more than 50% of the city's GDP.

# South Africa Smart EMM Digitally Empowers its Citizens



## Background

The City of Ekurhuleni Metropolitan Municipality was formed in 2000 by combining nine former local councils and their administrations. The region covers 1,975 square meters, with over 650 municipal offices.

## Challenges

- Digital Divide has widened as a result of poverty, inequality, and unemployment.
- Lack of convenient and cost-effective Citizen-to-Government (and vice-versa) engagement platform.
- No online payment facility for municipal services results in long queues at Customer Care Centers.
- Manual customer records in clinics creates inaccuracies and risks.
- Inability to access and provide reliable information for decision-making.

# South Africa Smart EMM Digitally Empowers its Citizens



## Solutions

- Broadband Communications Platform: Fiber (1,400 km, 697 sites) and Wi-Fi (2,000 hot spots) connectivity rolled out across 250 sites.
- Shared Cloud Computing Platform: Enables seamless access to a single view of data.
- Applications Platform: Improves convenience for public services with eHealth, eSiyakhokha (for electronic invoicing and payment ), and other services.

## Benefits

- Total broadband users with free Wi-Fi reaches 132,945 to date. Free Wi-Fi has saved citizens USD 1.5 million within half a year.
- eHealth system was implemented to address 60% of healthcare issues.
- eSiyakhokha makes it easier to pay for services
- LEAP App — a location and event-based App provides citizens with information on schools, clinics, parks etc. — makes the city' s data easily accessible and usable for citizens.

# Smart Lighting Solution Lights Up Czech Smart City



## Challenges

- High power consumption of traditional street lamps causes serious waste of energy
- Management cost of numerous street lamps is high, and failure can not be processed in time
- Traditional street lamp management system uses closed architecture and cannot connect to and manage sensors and controllers on lamps

## Solutions

Industry-First IoT lighting solution for multi-level intelligent control

- 6LoWPAN mesh network, implements efficient interconnection of numerous street lamps
- Three-level control mode increases reliability: remote control by Agile Controller, gateway control by IoT gateway, and self-control by the lamp controller
- Open architecture support flexible expansion of new services

## Benefits

- On-demand lighting reduces power consumption by 80%
- Visualized management and predictive maintenance reduce maintenance costs by 90%
- Integrates various value-added apps and allows evolution to Smart City

# Shenzhen Water Group Takes the Lead in Completing the World's First Commercial NB-IoT Smart Water Meter Project



## Challenges

- Many disputes over water fees because water meters are predominately managed by the community property management company.
- Must upgrade water pipeline network monitoring to minimize pipeline leakage or damage.
- Must enhance water quality monitoring to ensure water safety across the entire process.
- Need to raise service levels and create value-added services (VASs).

## Solutions

- Upgrade to the NB-IoT network and build the IoT management platform. Set up and enable 20 base stations respectively in Futian and Yantian during the pilot period.
- Upgrade the existing core network of Guangdong branch of China Telecom.
- Deploy the IoT platform in China Telecom Jiangsu IoT Company in Nanjing. Connect the platform to the meter-reading system in the SZWG data center through private lines.
- Upgrade the meter-reading system and interconnect it with the IoT management platform.

## Benefits

- More efficient water management and dispatching, lower management costs, and better water services by making full use of highly accurate, large-scale dynamic water data provided by NB-IoT smart water meters.
- World's first large-scale NB-IoT smart water meters in commercial use, paving the way for "Smart Upgrade" of the water industry.

# Shanghai Disneyland Benefits From NB-IoT Smart Parking



## Challenges

- Parking difficulty: **4.3 million** cars, with average parking time of **18 minutes** in Shanghai.
- Low utilization of parking space: The vacancy rate of parking lots in Shanghai is **44.6%**. The usage rate of community parking spaces in the daytime is **30%**.
- Parking charging difficulty: The parking fee loss rate is **10%**. Many disputes are caused by inaccurate charging.
- Traffic congestion: **30%** of the traffic congestion is caused by drivers circling to find a parking space.
- Shanghai Municipal Commission of Economy and Informatization plans to carry out a pilot project on smart parking in Shanghai Disneyland and make preparations for expanding the NB-IoT smart parking service in large scale in 2016 and 2017.

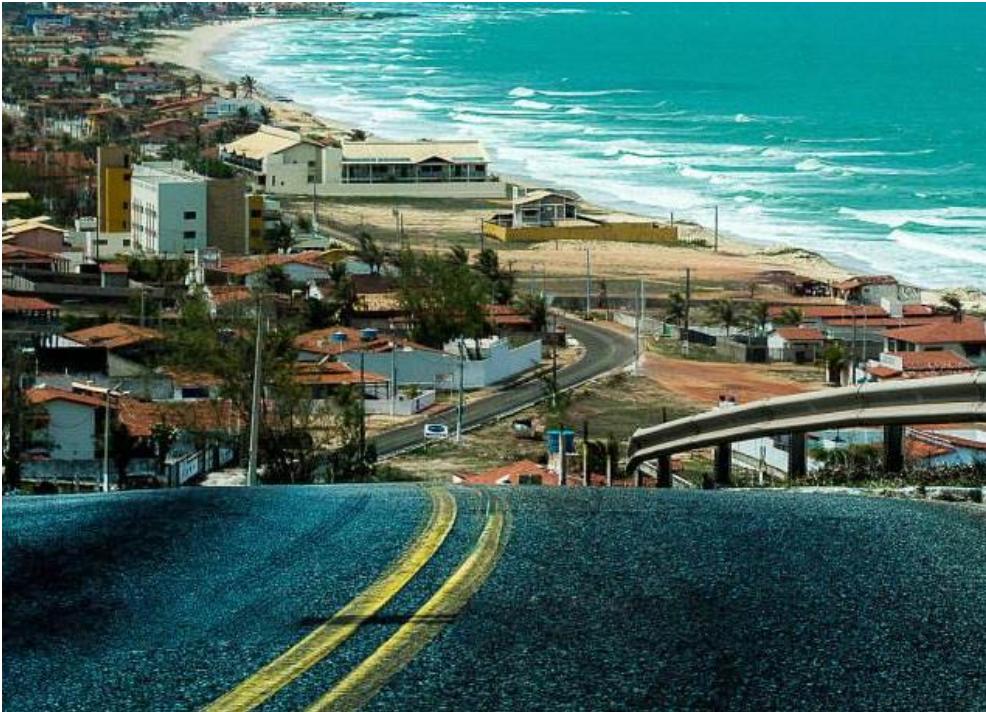
## Solutions

- Provide entire E2E services for the Disneyland smart parking project: 329 sensors, 15 NB-IoT base stations, the IoT core network, IoT management platform, application platform, and E2E system integration service.
- Manage parking spaces using parking sensors and webcams.
- Enable ubiquitous intelligent connectivity (provided by NB-IoT) for indoor and outdoor parking: 20 dB comprehensive coverage, full support of connections in underground parking lots.

## Benefits

- Tourists can query, reserve, and navigate to parking spaces as well as finish payment on their smartphones. Time taken to park cars is reduced from 10-20 minutes to 3-5 minutes.
- Over 30% better utilization of parking spaces than before, accurate charging without disputes over parking fees.

# e-Government Project of Cape Verde in Africa



*"Cape Verde is one of the 10 countries with the best e-governance reform in the world, which is an extraordinary achievement for an African country. The e-governance development experience of Cape Verde serves as a reference for us."*

*By Pascal Abidan, Ministry of Civil Service, Employment & Administrative Reform, Cote d'Ivoire*

## Challenges

- In areas without network coverage, the government had low management efficiency and education and medical resources could not be shared effectively.
- Government agencies had high business trip costs and low communication efficiency.
- The data center was fully loaded and could not meet the requirements of new applications and services.

## Solution

- Built a national backbone network to cover small-and medium-sized towns, schools, medical institutions, and government agencies across the country to share education and medical resources.
- Deployed videoconferencing systems in national government agencies, reducing travel costs and improving office efficiency.
- Prepared to build a new cloud data center to meet the information development requirements in the next five years and provide leasing services for enterprises, society, and other Western African countries. Transformed the original data center into the disaster recovery center.

## Customer Benefits

- 77+ types of e-government application software bring considerable economic and social benefits to Cape Verde, such as social security, e-election, financial budget management, distance education and healthcare, and power ERP systems.
- In addition to serving local government agencies, schools, hospitals, and state-owned enterprises, this solution also provides e-government applications and data center hosting services for five neighboring countries, enhancing the influence of Cape Verde in West Africa.

# Saudi Arabia MOI Takes Politics and Law System Supervision to Next Levels



## Challenges

Saudi Arabia MOI Forensic: a political-legal department of Saudi Arabia, responsible for supervising the politics and law system

- No well-established data center, improper design of networks and IT devices, inefficient legacy IT infrastructures that cannot meet fast-growing business needs
- Low reliability and high security risks of the entire IT system, failing to meet Forensic's demand for highly reliable services

## Solutions

- Build standard IDS2000 modular data center by revolving around service units and taking space and power consumption into consideration.
- Provide data-level backup plan and application-level HA design, ensuring the operation of the core system. The IDS1000 is used as the backup data center configured with high-end storage device Oceanstor 18000 and VTL devices.
- Government cloud platform bears over 20 core services such as the ERP, email, and evidence collection systems. Desktop cloud bears over 300 desktops.

## Benefits

- Modular equipment room ensures more reasonable infrastructure deployment, enhances the usage rate of spaces, and reduces power consumption.
- Cloud computing improves the resource usage rate to over 60% and greatly reduces CAPEX. Unified O&M improves management efficiency and reduces OPEX by 45%.
- Data-level backup plan and application-level HA design ensure stable operation of the service system, with the reliability meeting Tier-5 requirements.

# Suriname Lights Up Its "Smart Country" Vision



*"Suriname government believes that ICT technologies have great potential to push the healthy and rapid development of various industries and benefit the whole society."*

— Suriname ICT vision 2020

## Challenges

- Slow government informatization cannot meet needs of governance, economic development, and public resources allocation.
- Low work efficiency and transparency of government departments and to-be-improved public service quality.
- Urgently need to develop the ICT industry to enhance the informatization level of the government and society, and strengthen national competitiveness.

## Solutions

- New business model: Carriers build national data centers and develop smart applications. Government departments purchase services.
- Provide Huawei e-Government network and national data center infrastructure solutions. Deploy multiple smart applications including the safe city, smart education, e-tax, and integrated government affairs service center in data centers.

## Benefits

- Enhanced ICT infrastructure level, effectively supporting the economic diversification.
- The safe city system protects people's lives and properties, strengthens national security, and reduces the crime rate.
- The smart government affairs application improves government work efficiency and transparency, increasing public satisfaction.
- The smart education eliminates the unbalanced allocation of education resources, increases the usage of teaching resources, promotes the education informatization, and improves the quality of human resources.

# Innovative e-Gov Cloud Leads the Construction of National Informatization Project



"The State Information Center and Huawei develop comprehensive strategic cooperation and co-build the e-Government engineering innovation center. They innovate e-government theories, put these theories into practice, and explore e-Government development trends to promote national informatization and all-around development of e-Government."

—State Information Center

## Challenges

- State Information Center, approved by the State Council, is responsible for the national informatization construction and development research and providing technical supports.
- Nation e-Government Cloud Integration and Application Laboratory, an important part of the national technological innovation system, undertakes the production of government service applications for national ministries, integration and verification of government cloud solutions, engineering research and development, and innovative design.

## Solutions

- Unified cloud platform: provides IaaS services, including cloud host, cloud storage, cloud disaster recovery and cloud security, and PaaS services, including data exchange and middleware.
- VDC solution: provides virtual resource pools for tenants to manage.
- ManageOne: implements unified management of physical and virtual resources, helps administrators locate faults through the unified view, and monitors the resource usage.

## Benefits

- First national government cloud platform in China
- Virtual data center: unified IT management, increasing the resource usage rate from less than 20% to 70%
- Leading China e-Government cloud computing standard

# Huawei Hybrid e-Gov Cloud Supports Online Registration for National Civil Service Examination



"Based on the e-Government extranet cloud platform, the online registration disaster recovery (DR) system of the civil service examination builds a 1:1 DR environment with the Ministry of Human Resources and Social Security (MOHRSS) production system. When the network traffic is excessive or a fault occurs in the production system, the registration system is switched to the DR system to ensure registration continuity. During the registration period in this year, the DR system runs stably, bearing the registration service traffic for about 135 hours and ensuring the success of online registration."

—State Information Center

## Challenges

- MOHRSS online registration system faces traffic explosion after annual online registration starts.
- To ensure successful online registration, MOHRSS seeks cooperation with the State Information Center to back up services and share traffic load through its government cloud public platform and minimize the negative impact of traffic explosion.

## Solutions

- Build the government cloud platform based on Huawei e-Government Cloud Solution in the State Information Center, supporting online registration in hybrid cloud mode.
- Split registration traffic by using the global server load balance (GSLB) technology. Direct user access to different service nodes based on the load sharing strategy, realizing automatic splitting of user access traffic.
- Automatically add or release VMs according to the access pressure and provide services automatically based on demands.

## Benefits

- Stable online registration during the 10-day registration period, supporting 19.98 million registrations
- Millisecond-level response of registration web page, ensuring fluent access, zero service interruption, and zero data loss
- O&M personnel reduced by 60% compared with last year

# Huawei e-Gov Cloud Solution Supports an Efficient e-Government Cloud Platform for Guangzhou



*"We are in urgent need of resolving existing and future conflicts between resource supply and demand in governmental institutions by constructing a unified e-Government cloud service center in an integrated and cost-effective manner. For this problem, Huawei provides us with implementable and high-quality solutions and services."*

— Science and Information Bureau of Guangzhou

## Challenges

- Construction of Smart Guangzhou e-Government cloud platform in line with the national strategy of service-oriented government transformation
- Low usage rate of traditional IT and slow service rollout (up to three to six months), failing to meet new needs of governmental institutions
- Distributed government resources, leading to high construction cost, complex O&M, and poor security and stability

## Solutions

- Eight types of IT resources and services that can be leased on demand and brought online within minutes by building virtual data centers (vDCs)
- Integrated and cost-effective platform construction for unified physical/virtual resource management and service provisioning and operation.
- E2E security isolation and reliable design for traffic flow of governmental institutions

## Benefits

- Rollout cycle of services in governmental institutions shortened from 90 days to within one week, improving the service-oriented government image
- Overall costs of informatization resources reduced by 40%, O&M costs by 30%
- Stable running of over 200 services such as the online business hall with the solution meeting national security requirements

# Beijing Builds a Single-Window Government Service Center



*"Beijing government decides to build a single-window government service center to meet the needs of 20 million Beijing citizens in the next five years. After several rounds of discussions and tests, we adopted Huawei Solutions to build the 10GE campus network and high-performance municipal e-government cloud data center."*

—Beijing Economy and Information Technology Commission

## Challenges

- Insufficient information sharing and service collaboration between information-siloed departments
- Lack of a unified administrative office and approval platform, leading to low government work efficiency, repeated material submission, and poor citizen experience
- Unable to share computing and storage resources among services, leading to less than 16% usage rate of IT resources

## Solutions

- Build a distributed government cloud data center, providing vDC services for 44 governmental institutions and 16 districts.
- Establish a data sharing and service exchange platform, removing barriers between departments and supporting whole-process circulation of service information.
- Provide a unified administrative approval platform featuring one window with multiple functions at the foreground and work collaboration at the background.

## Benefits

- Integration of 740 approval items (percentage: 83%) of 44 administrative approval departments
- Applicant-centric service procedure, improving approval efficiency and bringing convenience for citizens
- Simplification of investment project approval steps from 80+ to 50+, and reduction of approval duration from 300+ workdays to 109+ workdays, improving the government service efficiency
- IT resource usage rate increased from 16% to 55%, and O&M efficiency improved by 70%

# Yingtan Government Provides Convenience to Public with Cloud-based Services



*"Huawei provides mature solutions in the informatization field by using cutting-edge technologies, ensuring the compatibility, tolerance, and security of these solutions. The previous cooperation experience has built trust between Yingtan and Huawei. So, Yingtan will continue to cooperate with Huawei to build Yingtan e-Government cloud."*

— Hu Haijun, Director of the Yingtan Informatization Office

## Challenges

- Need to establish a unified cloud data center and public information platform, realizing the city-level data sharing and service collaboration.
- Use the data in fields that citizens are deeply concerned such as government service, healthcare, social security, employment, education, and pension to serve people.
- Need to optimize smart applications, simplifying processes.

## Solutions

- Provide over 10 service systems such as Yingtan smart e-Government cloud, comprehensive e-government platform, public resource transaction platform, government information platform, and Yingtan government website group.
- Establish a city public information service platform, optimizing the information resource directory system, data sharing and exchanging system, and information security management platform.
- Incorporate 400 government services into online services including government service network and online service center.

## Benefits

- Community convenience service stations are widely built, providing grassroots government services and formulating a 15-minute convenience service area.
- Events that can be handled as customers enter the service station account for 80% of total public affairs.
- Online service center provides one-stop online government services.
- 99.36% of citizens are satisfied with the convenience and security of transportation, healthcare, events handling, and pension services.

# Jiangsu Environmental Protection Cloud Monitors the Ecosystem to Support the Blue Sky Project



"We choose Huawei mainly for two reasons: 1) Huawei has complete products and solutions; 2) Huawei has rich informatization experience and provides stable technical platform and service for China's largest environmental protection cloud."

—Environment Monitoring and Information Office of Jiangsu Environmental Protection Department

## Challenges

- More application system servers but low resource usage rate, increasing difficulty for management and disaster recovery.
- Challenges in storing mass spatial data and service data of provincial administrative divisions, natural resources, heavy pollution sources, and automatic monitoring sites.
- Needs a solution that centers on Jiangsu Environmental Protection Department and connects 13 municipal and 100 county-level environmental protection bureaus and environment emergency center, meeting the network requirement for data transmission, release, and reporting.

## Solutions

- Environmental protection cloud: realizes effective integration and flexible scheduling of network, storage, and computing resources.
- High-performance E9000 server and OceanStor S5600T unified storage: enhance computing efficiency and meet storage requirements of mass data.
- CloudEngine 12800 non-blocking switch: provides industry-leading performance and virtual network to meet the needs of environmental departments for exchanging internal data and meet the requirement for querying mass external data.

## Benefits

- Integration of mass real-time data of automatic monitoring on heavy pollution sources and water quality, over 3 million records every day
- Integration of 36 information systems, realizing environment information interconnection and pollution source control
- Automatic collection and update of data every two hours, making decisions more scientific using accurate environment information
- 50% improvement of IT resource usage rate, and 30% decrease of O&M costs

# Shijiazhuang Implements Energy Conservation and Emission Reduction with Real-Time Monitoring Platform



## Challenges

- Manual collection of energy consumption data causes low accuracy and efficiency. Enterprises cannot clearly know their own energy consumption or pollution discharge situations and their position in the industry. Regulatory authorities need to improve the comprehensive control and warning capabilities for energy consumption and pollution discharge activities of key enterprises.
- Urgent need to build an information system of energy conservation and emission reduction that integrates the IoT collection, data transmission, and storage and analysis applications of key enterprises.

## Solutions

- Agile network supports the real-time data collection at 1 million monitoring points and realizes integrated wired and wireless transmission management, ensuring that the less than 3 seconds' response on the operation interface.
- Cloud platform fully exchanges and shares the information resources of energy and environmental protection, while big data analysis facilitates the management of energy conservation and emission reduction.
- GIS-based 3D visual presentation platform, supporting 5-level zooming and directly displaying the real-time data, analysis results, and alarm information about energy conservation and pollution discharge.

## Benefits

- Unified energy and environmental monitoring management platform, carrying the energy measurement of 213 enterprises and the environmental monitoring of 115 enterprises
- Dynamic monitoring of industrial energy consumption and pollution discharge, helping enterprises achieve energy saving potential analysis and pollution discharge management
- Improvement of government's process supervision and total amount control capabilities, providing decision-making support for the city's energy and industrial structure adjustment

# THANK YOU

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